The Honorable John J. Cullerton
President of the Senate
Illinois State Senator – 6th District
327 Capitol Building
Springfield, IL 62706

The Honorable Michael J. Madigan
Speaker of the House
Illinois State Representative – 22nd District
300 Capitol Building
Springfield, IL 62706

Dear President Cullerton and Speaker Madigan:

The Controlled Substances Act at 720 ILCS 570, Section 320 (f), (5) requires the Department's Prescription Monitoring Program's Peer-Review Subcommittee to submit an electronic report annually starting on July 1st, 2017. With the passage of PA099-0480, a concerted effort was undertaken to provide a balanced geographic representation of the voting members of the Prescription Monitoring Program Advisory Committee as demonstrated in the member's curriculum vitae in Appendix A. Once the members were identified and upon completion of their mandatory training regarding the Open Meetings Act and the Ethics Training for Commissions and Board Members the initial process of addressing the aforementioned act was undertaken.

With the initial training out of the way, the work began on establishing the operational policies of the Prescription Monitoring Program Advisory Committee (PMPAC), Appendix B. As part of the PMPAC functions, the required Administrative Rule for Seamless Electronic Interface was put forward to the Joint Committee on Administrative Rules, Appendix C. The PMPAC has undertaken numerous updates to the scheduling of various substances by both Peremptory Rules and Emergency Rules. The Emergency Rule was employed in November 2016 in the scheduling of U-47700 as a Schedule I product based upon reported national deaths (Appendix D). As part of the PMPAC Policies, the establishment of the standing Peer-Review Subcommittee was authorized as set forth within 720 ILCS 570, Section 320. The voting members of this Subcommittee are listed in Appendix E.

As the Peer-Review Subcommittee undertook their statutory charge of evaluating clinical interventions, the "**CDC Guideline for Prescribing Opioids for Chronic Pain-United States, 2016**"was used for the initial review criteria. These guidelines were formulated primarily for prescribers considered to be primary care clinicians (Family Physicians, Internists with no secondary specialty, Nurse Practitioners, and Physician's Assistants) who are treating patients with chronic pain for 3 months or greater. As the Subcommittee initiated its review, one realized that the first three of the twelve recommendations by the CDC were outside of the data obtained by the PMP. (Appendix F)

During the deliberations of the Subcommittee, discussions centered around the subgroup of the patients where one could reasonably look at "billable" services to obtain a potential history of nonpharmacological therapy and nonopioid pharmacologic therapy for chronic pain. With a data sharing agreement between the Department of Healthcare and Family Services (DHFS) and the Department of Human Services, Prescription Monitoring Program, one could look at billable services from Public Aid Appendix G. This interface with DHFS comes as close as one can get to having access to electronic health record information when undertaking Peer-Review functions over a longitudinal interval. With

additional data, obtained from DPH via another data sharing agreement (Appendix H), one can look at discharge diagnosis and vital statistics data to ascertain any adverse outcome associated with controlled substance prescribing. This would be the case should one be admitted to an emergency department with signs or symptoms of a potential drug overdose, a retrospective review of the PMP could identify questionable prescribing if the prescriptions were for that individual

If one reviews Appendix I, one can see the potential for this utilization of shared data to improve the overall clinical picture for the Peer-Review functions. Once the platform for the integration of the clinical data is functional, clinically relevant reports can be designed, developed and automated to enhance the overall review process for all controlled substances designed to enhance outcomes and prevent pharmaceutical misadventuring that could lead to negative case conclusions.

Currently, the Peer-Review Committee has been undertaking the development of reports from just the dispensing information. While this gives some information, a substantial portion of the clinical picture is missing for one to make a clear determination of adherence to given guidelines or algorithms. Currently the Peer-Review is building its base data from which individualized unsolicited reports will be generated. The criteria for these reports are listed below, with a deidentified sample of these reports contained within Appendix J:

File Structure for Peer Review Evaluations within Public Health Regions

1. **All Prescribers Arranged within Public Health Regions,**
2. **All Prescribers and Regions arranged by Average MME/day,**
   - **A. All Institutional Prescribers, arranged by Average MME/day and number of patients,**
   - **B. All Podiatric Physician Prescribers, arranged by Average MME/day and number of patients,**
   - **C. All Dentist Prescribers, arranged by Average MME/day and number of patients,**
   - **D. All Physician's Assistant Prescribers, arranged by Average MME/day and number of patients,**
   - **E. All Nurse Practitioner Prescribers, arranged by Average MME/day and number of patients,**
   - **F. All Optometric Prescribers, arranged by Average MME/day and number of patients,**
   - **G. All Physician (MD & DO)Prescribers, arranged by Average MME/day, number of patients, and then by Taxonomy;**
     - **I. Physician Prescribers by Taxonomy: Addiction Medicine**
     - **II. Physician Prescribers by Taxonomy: Cardiology**
     - **III. Physician Prescribers by Taxonomy: Diagnostic Radiology**
     - **IV. Physician Prescribers by Taxonomy: Emergency Medicine**
     - **V. Physician Prescribers by Taxonomy: Family Medicine**
     - **VI. Physician Prescribers by Taxonomy: General Surgery**
     - **VII. Physician Prescribers by Taxonomy: Internal Medicine**
     - **VIII. Physician Prescribers by Taxonomy: Nephrology**
     - **IX. Physician Prescribers by Taxonomy: Obstetrics/Gynecology**
     - **X. Physician Prescribers by Taxonomy: Occupational Medicine**
     - **XI. Physician Prescribers by Taxonomy: Oncology/Hematology**
     - **XII. Physician Prescribers by Taxonomy: Orthopedic Medicine**
     - **XIII. Physician Prescribers by Taxonomy: Palliative Care/ Hospice**
     - **XIV. Physician Prescribers by Taxonomy: Pediatric Medicine**
     - **XV. Physician Prescribers by Taxonomy: Psychiatric Medicine**

XVI.	**Physician Prescribers by Taxonomy:**	**Pulmonology**
XVII.	**Physician Prescribers by Taxonomy:**	**Rehabilitative Medicine**
XVIII.	**Physician Prescribers by Taxonomy:**	**Rheumatology**
XIX.	**Physician Prescribers by Taxonomy:**	**Urology**

Currently, the Peer-Review Subcommittee has a data file of 7,266 prescribers arranged as aforementioned. Within the last four months, 57 prescribers have appeared on 4 of 4 monthly reports, 455 prescribers have appeared on 3 of 4 monthly reports and 264 have appeared on 2 of 4 monthly reports. As these practitioners are being reviewed, their prescribing will be evaluated against the top 250 patients seeing multiple prescribers and/or who have been at high MME/day doses along with other central nervous system depressants.

The Department's experience and its integration of input from both the Prescription Monitoring Program's Advisory Committee and its Peer-Review Subcommittee, demonstrate that it can develop a clinically based oversight process designed to improve clinical interventions, while decreasing inappropriate prescribing of opioids. As we collaboratively move forward with our sister agencies, integrating additional information, more focused automated reports can be developed to assist clinicians in evaluations of patients and designing of evidence based interventions.

The Department is committed to ensuring that our interventions do not disrupt access to controlled substance prescribing for legitimate medical issues. Additionally, the Department strives to improve our knowledge of clinical interventions to ensure clinicians have the benefit of our outcomes analysis to continue to evolve their clinical skills.

Respectfully Submitted,

James T. Dimas
Secretary
Department of Human Services

Illinois Prescription Monitoring Program (ILPMP)

Appendix Index

Appendix A

CURRICULUM VITAE
DAVID M. LIEBOVITZ
May 31, 2017

DATE & PLACE OF BIRTH:	January 26, 1964 (Chicago, Illinois)
RESIDENCE:	2673 N. Greenview, Unit D, Chicago, Illinois 60614, (773) 525-6244
COLLEGE:	University of Illinois, Urbana-Champaign, BS, Electrical Engineering, 1986 with University Honors
MEDICAL SCHOOL:	University of Illinois, Chicago, MD, 1990 with Honors
INTERNSHIP:	University of Chicago, Internal Medicine, 1990-91
RESIDENCY:	University of Chicago, Internal Medicine, 1991-93
CHIEF RESIDENCY:	University of Chicago, Weiss Hospital, Chicago, 1993-94
MEDICAL LICENSURE:	Illinois, 036-086253
CERTIFICATION:	American Board of Internal Medicine, 1993
HONORS:	National Merit Scholarship Recipient, 1982
	Child of Veteran Merit Scholarship Recipient, 1982
	Engineering and Electrical Engineering Honor Societies, University of Illinois, 1985
	Dean's List and James Scholar, University of Illinois, 1986
	BS with Bronze Tablet University Honors, University of Illinois, 1986
	Alpha Omega Alpha, University of Illinois, 1988
	MD with Honors, University of Illinois, 1990
	Infectious Diseases Scholarship Award, University of Chicago, 1993

FACULTY APPOINTMENTS: Instructor of Clinical Medicine, Department of Internal Medicine, Section of General Medicine, University of Chicago, August 1994 - June 1995

Assistant Professor of Clinical Medicine, Department of Internal Medicine, Section of General Medicine, University of Chicago, July 1995 – March 2002

Assistant Professor of Medicine, Department of Medicine, Division of General Internal Medicine, Northwestern University, March 2002 – Present

HOSPITAL STAFF APPOINTMENTS: University of Chicago Hospitals, August 1994 – March 2002

Northwestern Memorial Hospital, June 2002 - Present

ADMINISTRATIVE APPOINTMENTS: Associate Program Director for the Internal Medicine Residency Program, University of Chicago, October 1995 – March 2002

Co-Director of General Medicine/Geriatrics Consultation Service, July 1995 - 1997

Associate Director of the Primary Care Group, University of Chicago, 2000 - 2002

Divisional Representative to Board of Computing Activities and Services for the University of Chicago, 2000 – March 2002

Medical Director for Clinical Decision Support, Northwestern Memorial Hospital, March 2002 – February 2003

Medical Director, Clinical Information Services, Northwestern Memorial Hospital, February 2003- Present

Associate Program Director for the Internal Medicine Residency Program, Northwestern University, July 2003 – Present

Chief Medical Informatics Officer, Northwestern Medical Faculty Foundation, September 2005 – Present

Program Director, Northwestern University School of Continuing Studies Masters in Medical Informatics Program, 2005 - Present

TEACHING EXPERIENCE: Physical Diagnosis, 1993, 1994, 1995, 1996

Ward Teaching Attending, 1993 - Present

Morning Report Teaching Attending, 1994 - March 2002

Urgent Care Preceptor, 1994 - March 2002

Medicine Clerkship Preceptor, 1994, 1995, 1996

Resident Clinical Evaluation Exercise Coordinator, 1995 – 1999

Resident Continuity Clinic Preceptor, 1995 - Present

Medical Informatics Course for Residents, 1995 - Present

Intern Clinic Lectures Series, 1996 - 2000

Medical Informatics Course for Students, 1997 - March 2002

Social Context of Medicine Course Lecturer, 1997 - 1999

Medical Student Orientation Lecturer, 1999 - March 2005

Faculty Development Informatics Lectures, 2000 - March 2002

COMMITTEES:

University of Chicago Housestaff Evaluation Committee, 1994 – March 2002

Committee to Review the University of Chicago Library, 1995 – 1996

American College of Physicians Communications Committee, 1996 - 2000

University of Chicago Housestaff Selection Committee, 1996 – March 2002

University of Chicago Pritzker School of Medicine Clinical Curriculum Review Committee, 1996 - March 2002

University of Chicago Chairman of the Quality Improvement Committee for the Department of Medicine, 1997 - 2001

The University of Chicago Hospitals 5 Year Planning Committee, 1998 - 1999

University of Chicago Chairman of the Medical Records Committee for the Medical Center, 2000 – July 2001

University of Chicago Chairman Pritzker E-Curriculum Committee, 2000 - March 2002

University of Chicago Co-Chairman of the Adult Quality Improvement Committee, 2001 - March 2002

University of Chicago Hospital Clinical Information Committee 2001 - March 2002

Northwestern Memorial Hospital Pharmacy and Therapeutics Committee May 2002 – 2006

Northwestern Memorial Hospital Medical Staff Quality Management Committee 2004 – Present

Northwestern University Galter Health Sciences Library Committee 2004 – Present

Northwestern University Committee on Information Technology November 2003 - Present

Chair, Northwestern Memorial Hospital Medical Records Committee April 2003 – 2005

Chair, Northwestern Memorial Hospital Clinical Informatics Committee, 2006 - Present

Northwestern University Biomedical informatics Center Directors Committee 2007- Present

PROFESSIONAL SOCIETIES:

Society of General Internal Medicine

Society of Hospital Medicine (IT Task Force Member)

American College of Physicians

Institutional Representative to the American Medical Informatics Association

The Healthcare Information and Management Systems Society

RESEARCH GRANTS/CONTRACTS: **Ongoing**

R25 CA106359 (Emanuel) 9/1/06-08/30/09
NIH
Interactive Distance Learning Program in Palliative Care

R21 CA120906 (Chang) 2/1/07-11/30/08
NIH
Assessing Multidimensional Pain in Gero-Oncology: A Clinical Infometrics Approach

Completed in last three years

HS 05-012 (Noskin) 7/01/05-6/30/07
AHRQ
Medications at Transitions and Clinical Handoffs

UR8/CCU 515081 Noskin (PI) 2/1/01-1/31/06
CDC
Research and Demonstration Programs in Surveillance, Prevention and Control of Healthcare Associated Infections and Antimicrobial Resistance

R21 CA113191 (Chang) 9/27/04-7/31/06
NIH/NCI
Novel Pain Assessment and Intervention Network (NoPAIN)

Prior

Co-principal Investigator for Integrated Advanced Information Management Systems Grant from the National Library of Medicine; University of Chicago 1997 – 2001

Principal Investigator, Advanced Instructional Technology Provost's Grant Award for Handheld Development Project; University of Chicago; 2001 – 2002

PUBLICATIONS

O'Leary KJ, Liebovitz DM, Feinglass J, Liss DT, Baker DW. Outpatient physicians' satisfaction with discharge summaries and perceived need for an electronic discharge summary. J Hosp Med. 2006 Sep;1(5):317-20.

O'Leary KJ, Liebovitz DM, Baker DW. How hospitalists spend their time: insights on efficiency and safety. J Hosp Med. 2006 Mar;1(2):88-93.

SCHOLARLY ACTIVITIES: Discussion Panel for Primary Care Cardiology Conference, May 1995

Midwest Clinical Conference Speaker: Medical Informatics, January 1996

Weiss Hospital Grand Rounds: Medical Informatics, May 1996

Retreat on Education Reform: Medical Informatics, June 1996

Medical Software Reviews Contributor, 1996 - 2000

Slice of Life International Informatics Conference Welcome Address, Chicago, IL, June 1997

Participant of Harvard Macy Institute, Program for Leaders in Medical Student Education, Harvard Medical School, June 1997

Invited Speaker, Columbia LaGrange Hospital Grand Rounds: The Internet for Physicians, September 1997

Emergency Medicine Grand Rounds, University of Chicago 1997, 1998

The University of Chicago 1998 Reunion, Computer Workshop, 1998

General Medicine Faculty Development Workshop on Informatics, October, 1998

Weiss Hospital CME Presentation on Informatics, November 1998

Cross-Departmental Faculty Development Courses, 2000

Invited Speaker, Saint Alphonsus Sponsored Healthcare College Conference, San Francisco, April 2000

Pri-Med Midwest Lecture on Medical Informatics in Clinical Care, July 2000

Pri-Med Midwest Lecture on Medical Informatics in Clinical Care, June 2001

Grand Rounds, University of Chicago, Informatics Update, September 2001

Illinois Regional Primary Healthcare Association Lecture on Medical Informatics, November 2001

Poster Presentation: Handheld Computers for Distributed Learning, American Association of Medical Colleges, National Meeting Washington, DC, November 2001
Lecture: Teaching Skills for the Medical Educator, Regional Conference, March 2002

Lecture: Handheld Devices in Practice, Pri-Med Midwest Regional Conference, June 2002

Poster Presentation: Improving Patient Safety Through Technology, Chicago Patient Safety Forum, Chicago, IL, October 2003

Invited Speaker on PDA's in healthcare, Erie Family Health Center, Chicago, IL, November 2003

National Alliance for HIT: Case Study on Order Entry. Falls Church, VA. January 2004.

Invited Speaker on Health Information Technology, Association of Community Cancer Centers, Washington, DC, March 2004

Invited Speaker on Using Technology in Teaching, University of Chicago, March 2004

Scottsdale Institute Speaker: Providing Clinical Leadership to Informatics. Scottsdale. April 2006

AHRQ Poster: Future IT Vision. Washington. June 2006

Chicago Patient Safety Forum Poster: Reducation in Preventable Codes by Implemenation of a Rapid Response Team.

Society for Healthcare Epidemiology of America Poster: Compliance with CDC Recommendations among Interventional Radiologists: Results of a national online survey. April 2007

SGIM Poster: Reduction in Preventable Codes by Implementation of a Rapid Response Team. Toronto. April 2007

AHRQ Poster: Medications at Transitions and Clinical Handoffs. Nashville. May 2007

HIMSS Summit: Adopting Health Information Technology. San Diego. June 2007

Scottsdale Institute Panelist: CMIO Perspectives on HIT Directions, Traverse City, MI August 2007

Poster Presentation, 45th Annual Meeting, Infectious Diseases Society of America, San Diego CA Reddy P, Liebovitz D, Chrisman H, Nemcek A, Noskin GA. Infection Control (IC) Practices Among Interventional Radiologists (IRs): Results of a National Online Survey. San Diego. October 2007

Greater Chicago Chapter Health Information Management Systems Society. Title Panel presentation: Providing Electronic Health Records for Affiliated Physicians. Chicago. State Street Conference Center October 2007

Invited Speaker on Using Technology in Teaching, University of Chicago, March 2008

Chicago Patient Safety Foundation Poster Presentation:Using the Medical Record to Improve Communication among Clinicians. Chicago. March 2008

Edward P. Rentschler, D.D.S.
Oral and Maxillofacial Surgeon

815-226-4700

425 Roxbury Road, Rockford, IL 61107

Rentschler@rockfordoms.com
www.rockfordoms.com

Professional Profile

Board Certified in Oral and Maxillofacial Surgery and Dental Anesthesia

- Management of Impacted Teeth
- General Anesthesia/IV Sedation
- Placement of Dental Implants
- Oral Pathology
- Dento-alveolar Surgery
- Orthognathic Surgery
- Facial Trauma
- Jaw Reconstruction
- Odontogenic Infections
- Bone/Soft Tissue Grafting
- TMJ Evaluation
- Surgical Endodontics

Professional Experience

Rockford Oral Surgery, Ltd.	1986-1996
Edward P. Rentschler, D.D.S., P.C. Rockford OMS Oral and Maxillofacial Surgery	1996-present

Education

Illinois State University Biological Sciences Major Normal, Illinois	1976-1979
University of Illinois College of Dentistry Doctor of Dental Surgery degree with Honors Chicago, Illinois	1979-1983
University of Louisville and Affiliated Hospitals Residency-Oral and Maxillofacial Surgery Chief Resident Louisville, Kentucky	1983-1986

Licensure and Certifications

State of Illinois- Dental License
State of Illinois- Oral and Maxillofacial Surgery Specialty License
State of Illinois- Sedation, General Anesthesia Permit
State of Illinois- Controlled Substance License
DEA Certification
ACLS Certification
Board Certification- American Board of Oral and Maxillofacial Surgery
Board Certification- National Dental Board of Anesthesiology

Professional Memberships:

Fellow, American Association of Oral and Maxillofacial Surgery
Diplomate, American Board of Oral and Maxillofacial Surgery
Fellow, American Dental Society of Anesthesiology
Diplomate, National Dental Board of Anesthesiology
International Society of Oral and Maxillofacial Surgery
Illinois Society of Oral and Maxillofacial Surgery
Academy of Osseointegration
American Dental Association
Illinois Dental Society
Winnebago County Dental Society
Chicago Dental Society
Chicago Society of Oral and Maxillofacial Surgery

Hospital/ Outpatient Surgery Center Affiliations:

OSF/ St. Anthony Medical Center Rockford, IL	Active Staff
Swedish-American Hospital Rockford, IL	Courtesy Staff
Rockford Memorial Hospital Rockford, IL	Courtesy Staff
Rockford Ambulatory Surgery Center Rockford, IL	Active Staff

Professional Positions Held:

Winnebago County Dental Society Executive Board

Winnebago County Dental Society:

Secretary/ Treasurer	2005-2006
Vice President	2006-2007
President	2007-2008

Past Chairman of the Surgery Subsection-Department of Oral and Maxillofacial Surgery/Dentistry - Swedish-American Hospital

Illinois Society of Oral and Maxillofacial Surgery:
- Anesthesia Committee – Office Evaluations 1995-present
- Executive Council - 2006-2012
- Secretary-Treasurer – 2008-2009
- Vice-President- 2009-2010
- President 2010-2011
- Delegate and Alternate Delegate to AAOMS 2009 - 2013

Rockford Area Health Council Board Member – 2007-2009

Illinois State Dental Society
- Northwest District Trustee 2012-2015
- Communications Committee 2012-2013
- Access To Care Committee 2013-2014
- Capital Conference Committee 2013-2014
- Continuing Education Committee 2014-2015

Continuing Education:

I consistently meet or exceed the requirements for continuing education set forth by the hospital by-laws, and the Illinois Department of Professional Registration. List of courses available by request only.

Public Service:

Volunteer Donated Dental Services over 20 years

Participant in Oral and Maxillofacial Surgery Section during Illinois Mission of Mercy Bloomington, IL June 2010.

Participant in Oral and Maxillofacial Surgery Section during Illinois Mission of Mercy Grayslake, IL June 2012

Participant in Oral and Maxillofacial Surgery Section during Illinois Mission of Mercy Peoria, IL June 2014

Oral and Maxillofacial Surgeon for Rockford IceHogs/ Chicago Blackhawks Affiliate

DARIN E. JORDAN, MD, MBA, CPE

0 SOUTH 430 CREGO PLACE | GENEVA, IL 60134
(h) 630.262.1830 | (c) 630.779.2989 | (e) Darin.Jordan@ahss.org

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EXECUTIVE SUMMARY

Dedicated healthcare leader with expertise in physician governance, operations, strategic planning, quality, patient satisfaction, recruitment and acquisitions; encompassing academic, teaching, and community medical centers. Experienced ability as a change agent, resulting in greater productivity, stronger fiscal standing, business strategy realignment, improved quality care, and patient relations. Collaborative leader with ability to achieve successful outcomes, focusing on team-concepts and community.

EDUCATION

Masters of Business Administration (MBA) – University of Massachusetts, Isenberg School of Management – ’09 -‘11

Medical Doctorate (M.D.), Rush Medical College, Chicago, IL ’93 -‘97

Bachelor of Science (B.S.) with High Distinction, Phi Beta Kappa, Indiana University, Bloomington, IN ’88 -‘92

CERTIFICATIONS

Certified ICD-10 coder, 2013

Certified Physician Executive (CPE) – Certifying Commission of Medical Management, 2009

Certificate of Medical Management, American College of Physician Executives, 2009

ABMS certified, Family Medicine, Recertified 2006

Fellow, American Academy of Family Medicine, ’00 - current

PROFESSIONAL DEVELOPMENT

Explorys proficiency training, 2014

Associate, Physician Leadership Academy, ’08 -‘09

EPIC EMR training, flow-structure, and development, 2010

Meaningful use and electronic health record training, 2010

Leadership and staff rounding, Central DuPage Hospital, 2010

Relationship Based Care**,** Central DuPage Hospital, 2009

I-CARE and AIDET training, Central DuPage Hospital, 2008, 2009

NextGen EMR training and proficiency, 2007

IHC/YHP Provider Network Advisory Subcommittee, ’09 - current

Hinsdale Family Medicine Residency Program, Adventist Hinsdale Hospital, ‘97 -‘00

- Chief Resident, ’99 -’00
- President, Resident Association , ’98 -‘00
- Coordinator, Resident Recruitment , ’98 -‘00

PROFESSIONAL EXPERIENCE

ADVENTIST HEALTH PARTNERS, DOWNERS GROVE, IL **2012 - current**
Chief Medical Officer

Adventist Health Partners (AHP) is the employed physician group of Adventist Midwest Health, comprising over 300 multi-specialty physicians in more than 60 locations, serving Adventist Hinsdale Hospital, Adventist LaGrange Memorial Hospital, Adventist Bolingbrook Hospital, and Adventist Glen Oaks Hospital.

Current responsibilities and accomplishments:

- Direct AHP growth, acquisitions and recruitment initiatives, increasing physician group by over 200% in past two years
  - 237% increase in primary care physicians
  - 203% increase in specialty physicians
  - >11% year-over-year PCP net revenue increase (2012, 2013)
  - Named in Crain’s Chicago Business as “Modern Healthcare’s Hottest 40” – fastest growing healthcare organizations in the US (2012)

- Responsible for physician group patient satisfaction (Press Ganey)
  - accomplished top decile (>90%) physician scores every quarter since 2012
  - developed internal physician reporting and feedback system, leading to improved outcomes

- Chairman, Physician Group Administrative Board
  - reorganized Board and by-laws, 2012
  - established Division Chart reporting system and accountability
  - developed physician-led multi-specialty operations committee, Chairman

- Lead Patient Centered Medical Home recognition process with NCQA
  - Completed NCQA PCMH Master Class series, 2013
  - Achieved highest Level 3 NCQA recognition for 100% of established AHP primary care practices within one year
  - Accomplished NCQA multi-site recognition for AHP, 2013
  - Attained 25% of the all NCQA PCMH Level 3 recognized practices in Illinois as of 2014

- Implemented and coordinated business development plan for physician group, 2014
  - 20% decrease in referrals outside of health system over first quarter
  - 30% increase in referrals to system rehabilitation services, first quarter
  - 14% decline in referrals to competing medical groups, first quarter

- Chairman, Explorys Physician Leadership Committee, Adventist Health Network, PHO

- Established AHP Clinical Quality and Performance
  - Chairman, AHP Clinical Quality Committee
  - 100% Meaningful Use Attestation for all physicians (Achieved Stage 1 Years 1, 2, 3)

  - Created annual quality plan and scorecard, utilizing ACO Medicare Matched Saving Plan (MSSP) and Cigna ACO quality metrics

- Accountable for Blue Cross/Blue Shield Intensive Medical Home
- Selected Member, Adventist Midwest Health-Alexian Brothers ACO Network Participation and Partner Selection Committee

- Chair-elect, Adventist Health Network (PHO) Clinical Quality Committee

- Established outpatient peer review charter and committee for AHP employed physician group

- Created Adventist Health Partners coding class for all new and established physicians

- Implemented physician annual review reports as well as 60-90 day rounding and feedback reports for all new AHP physicians

- Integrated Physician Wellness Program into AHP physician group, focusing on choice, rest, environment, activity, trust, interpersonal relationships, outlook and nutrition

- Oversee AHP Risk Management and Corporate Compliance

  - Initiated annual outpatient office risk management assessment and awareness as well as culture of safety for all physician practices
  - Directed AHP physician education in areas of patient safety, quality, and risk management
  - Reduced outstanding provider documentation by 99.8% over past year
  - Mitigated risk issues in areas of opioid prescription management, HIPPA compliant communication, sample medication dispensing, deposition fee management, conflict of interest, standards of behavior, professional courtesy, treatment of family members, and outside activity

ADVENTIST HINSDALE HOSPITAL, HINSDALE, IL **2000 - Current**
Clinical and Teaching Faculty, Hinsdale Family Medicine Program

Part of Adventist Midwest Health, a network of not-for-profit hospitals and outpatient-based health care facilities in Chicago's western and southwestern suburbs, including a critical access hospital and skilled care nursing facility in central Wisconsin.

- Supervise and instruct residents in primary care ambulatory center, Adventist Hinsdale Hospital.

  - Residency program of over twenty-five Family Medicine residents, which I directly supervise weekly in practice management, academic, evidence-based, and clinical medicine.

  - Perform didactic and operational training sessions for residents on clinical coding, billing, practice management, facility operations.

  - Patient care involving geriatric, adult, adolescence, pediatric, and obstetrical medicine

- Lecturer, Resident Education Series

- New resident recruiter and advisor

- Director, Resident Moonlighter Program

CENTRAL DUPAGE HOSPITAL, WINFIELD, IL **2000 - 2012**
Convenient Care Systems, Medical and Operations Director (2007 - 2012)
Convenient Care Systems, Senior Medical Director (2005 - 2007), Site Medical Director (2004 - 2005)

Central DuPage Hospital (CDH) is a nationally recognized 313-bed facility located in Winfield, Ill., a suburb west of Chicago. CDH is a leading center for medical technology and one of the busiest surgical hospitals in Illinois. For the last four consecutive years, Thomson Reuters has listed CDH as a 100 Top Hospital in the U.S. CDH has affiliated with other healthcare leaders, including regionally known Children's Memorial Hospital for specialty pediatric care and, most recently, nationally known Cleveland Clinic for cardiac surgery. The hospital is part of an interdependent network of healthcare organizations and services, including convenient care centers, occupational health services, home health and hospice care.

Director of six ambulatory care centers affiliated with Central DuPage Hospital (CDH), with over 189,000 patient visits per year and over $19 million in generated revenues.

- Responsible for all clinical and business operations of the Convenient Care System; this comprises one of the largest ambulatory departments of the CDH Health-System.

- Served on Executive Board to integrate CDH employed physician primary care, multi-specialty groups, Convenient Care Centers, and occupational health in unified physician network group.

Reorganized physician-nurse only staffing model, integrating mid-level providers with a projected operational expense savings of $1.6 million annually.

Developed effective and uniform physician compensation model for employed physicians and mid-level providers within ambulatory acute care network.

Planned and executed a patient satisfaction strategy plan, with consistent performance in top decile nationally, by focusing on the patient experience including , I-CARE, AIDET, leadership rounding, managing-up, educating staff, and improving communication. This has resulted in numerous national recognition awards for patient satisfaction by a leading survey company.

Directed strategic growth plan leading to a 7% patient volume increase in FY10.

Implemented a standardization and continuity process for our six medical facilities, subsequently leading to higher efficiency, productivity, and name-recognition throughout the community.

Managed over forty-five Convenient Care Center (CCC) physicians and mid-level providers, as well as all nursing and ancillary staff.

Directly responsible for physician and physician-extender job descriptions, hiring, supervision, contracting and compensation plan development.

Created and implemented physician feedback performance report, which details physician quality against national and targeted benchmarks. Areas such as productivity, length-of-stay, and, primary-specialist referrals, and health-system resource utilization have all increased since project implementation.

Accepted recognition from Professional Research Consultants (PRC) for highest staff satisfaction. Staff satisfaction in the 99th percentile.

Attrition rate of physician and ancillary staff < 2%/year since taking managerial leadership.

Managed resident employment program within our CCC centers – leading to improved staffing efficiencies, reduced operational expenses, and recruitment opportunities for the health-system (To date, over 19 primary-care physicians recruited from our CCC program into the CDH system).

Daily involvement with strategic and growth initiatives, supply and resource utilization, informatics, marketing, quality and safety, and patient relations.

Developed and successfully opened a new CCC center, May 2009, in part of a new comprehensive medical office building project with Central DuPage Hospital. Patient volumes up 50% from projected with continual monthly growth and revenue.

Project leader, in partnership with a major retail company, to open a retail health care clinic – projected opening 2011.

Implemented a new prescription service within our facilities, which generated a positive return-on-investment before projection and continues to provide a positive profit contribution margin.

Created and implemented a system to increase physician procedure and supply charge capture and revenue by over 20% across our CCC sites, as well as to improve clinical documentation required by regulatory agencies.

Assisted development, structure and implementation plan for EPIC electronic medical record integration into our health-system.

Involved with the hospital system's quality and safety projects and dashboard - focusing on core measures, patient safety indicator rate, readmission rates, Medicare ALOS, hospital-acquired infection rates, and risk-adjusted mortality index and rate.

Contributed to accreditation with The Joint Commission, and compliance with CMS validation, life-safety, local and state surveys by providing ongoing survey readiness structure and strategy.

Clinician, part-time (primary care, urgent care and occupational health)

Multiple media speaking engagements promoting CDH and current health issues

Served on multiple hospital committees:

CDH Medical Executive Committee, Section Chief, Dept. of Emergency Medicine
Chair, CCC JC Quality and Safety
Chair, CCC Physician Peer Review
CDH Physician Peer Review
CDH Emergency Management
CDH Quality and Safety
EPIC EMR Clinical Advisory Committee
CDH Medical Education Committee
CDH Product Evaluation Committee
CDH Infection Control

PRESENTATIONS and ARTICLES

Urgent Care Staffing and Productivity: Maximizing Efficiency, Urgent Care Association of America, National Conference, Business Curriculum, Orlando, Fl, 05.2010

Strategic Planning and Operations, ConvUrgent Care Strategy Symposium, Merchant Medicine, Minneapolis, MN, 01.2010

"Tips to Manage the Common Cold", Chicago Sun Times, October 20, 2010

InstyMeds website commentary, www.InstyMeds.com, 2009

Hospital-Based Staffing and Recruiting, Urgent Care Association of America, National Conference, Business Curriculum, New Orleans, LA, 04.2008

Multiple radio and literary segments on local radio and publications for health related topics, 2007 - current

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PROFESSIONAL AFFLIATIONS

Diplomat, American Academy of Family Physicians
American Medical Association
American College of Physician Executives
Illinois State Medical Society
Urgent Care Association of America
Physician Leadership Academy

HONORS AND AWARDS

Teaching Faculty of the Year Award, Hinsdale Hospital: 2005, 2007, 2010
Central DuPage Hospital HERO (Help Educate Reach Out) Award, Nominee 2004
Central DuPage Hospital Share Award – multiple – given for outstanding patient satisfaction
Resident Education Award, Hinsdale Hospital Family Medicine, 2000
Indiana University Highest Academic Distinction Award, 1992
Indiana University Dean's List ('89 -'92)
Phi Beta Kappa, Indiana University, inducted 1991

PAST ACTIVITIES

Board of Directors, DuPage County Medical Society,'01 -'04

PERSONAL

Born in Elmhurst, IL, raised in Glen Ellyn IL, currently living in Geneva, IL
Married with four children
Interests include marine reef aquariums, model ship building, ice hockey, and camping

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REFERENCES

Available upon request

GARRY MORELAND
124 N. Congress St.
Rushville, IL 62681
(217) 322-3333; Fax (217) 322-6229
Email: garry@mndpharmacy.com

PERSONAL

Date of Birth: 6/24/55
Marital Status: Wife-Mary
5 Children

EDUCATION

Graduated St. Louis College of Pharmacy in 1979
--Baccalaureate Degree in Pharmacy
Graduated Rushville High School in 1973

EMPLOYMENT

Moreland and Devitt Drug Store
124 N. Congress St.
Rushville, IL 62681
Co-owner and Chief Pharmacist 1979-present

Culbertson Memorial Hospital
238 S. Congress St.
Rushville, IL 62681
Director of Pharmacy Services 1982-present

PROFESSIONAL ACTIVITIES

Association Memberships:
--American Pharmacists Association
--National Community Pharmacists Association
--American Society of Consultant Pharmacists
--Illinois Council of Hospital Pharmacists
--Illinois Pharmacists Association (IPhA)
Served IPhA as President and Chairman of the Board 1998 & 1999
--Illinois Board of Pharmacy (served 2001 to 2005)

Curriculum Vitae

Scott Edward Glaser, M.D., D.A.B.I.P.P.

EDUCATION

University of Notre Dame 9/78-5/82
South Bend, Indiana

Indiana University School of Medicine 9/82-5/86
Indianapolis, Indiana

Internship in Medicine 7/86-6/87
Evanston Hospital, Evanston, Illinois

Residency in Anesthesiology 7/87-6/89
Northwestern Memorial Hospital, Chicago, Illinois

Fellowship 7/89-6/90
Rotating Fellowship with emphasis on Neuroanesthesiology,
Cardiothoracic Anesthesiology, and Obstetric Anesthesiology
Northwestern Memorial Hospital, Chicago, Illinois

PROFESSIONAL POSITIONS

Pain Specialists of Greater Chicago 1/01-Present
Burr Ridge, Illinois
President of physician group. Multiple locations throughout Chicagoland area. Acute, subacute, and chronic pain treated through algorithmic approach utilizing diagnostic and therapeutic interventional pain management procedures. Procedures include facet interventions, transforaminal and interlaminar epidural steroid injections, radiofrequency neurotomy procedures, vertebroplasty, intradiscal procedures including discography, annular treatments and decompressive techniques. Neuromodulatory procedures-dorsal column stimulation and peripheral nerve stimulation (including being selected as regional associate for the "Ken Reed procedure" for chronic daily headaches). Intraspinal medication pumps includings opioids and baclofen. Multi-disciplinary treatment that incorporates physical therapy, psychology, clinical nursing, and medication management for complex cases.

Hinsdale Anesthesia Associates 1/92-12/00
Hinsdale, Illinois
Collaboratively responsible for the development of the multi-disciplinary pain management clinic. Instrumental in the adaptation of interventional pain management techniques utilizing fluoroscopic guidance. Member of Anesthesiology Quality Assurance Committee. Director of Obstetric Anesthesiology Department. Education Director for Pain Management Center.

Twin Cities Anesthesiology 7/90-12/91
Saint Joseph, Michigan
Collaboratively responsible for development of acute and chronic pain management service. Involved in general and cardiovascular anesthesiology services. Education Director for Anesthesiology Department. Served on Quality Assurance Committee for Surgical Services.

APPOINTMENTS

Director at Large, Illinois Society of Interventional Pain Physicians	
Chairman, Pain Management Clinical Services, Hinsdale Hospital	10/10
Vice President, Illinois Society of Interventional Pain Physicians	6/09
Board of Directors, American Society of Interventional Pain Physicians	6/07-6/09 6/09-6/11 6/11-6/13
Member, Illinois Prescription Monitoring Advisory Committee	3/09- present
Member, Guidelines Committee, American Society of Interventional Pain Physicians	4/07
President, Illinois Society of Interventional Pain Physicians	1/02-1/04 1/04-1/06
Instructor, "Intermediate and Advanced Spinal Cord Stimulation Course Comprehensive Review Course and Cadaver Workshop", American Society of Interventional Pain Physicians	4/12
Instructor, "Interventional Cadaver Workshop", American Society of Interventional Pain Physicians	11/10 12/09 12/08 10/07 12/06 12/03
Instructor, "Advanced Lumbar/Thoracic Workshop", International Spinal Injection Society	5/03
Instructor, "Lumbar Injection Workshop", International Spinal	2/02

Injection Society

Faculty Member, Chronic Pain Network 5/05

DuPage County Medical Society Peer Review Committee 9/04

PROFESSIONAL ACTIVITIES

What It Means to be a Great Physician ASC Leader Today- Physician and Administrator Perspectives 10/15
22nd Annual Meeting The Business and Operations of ASCs *Chicago, IL*

The Future of Anesthesia and Pain Management in ASCs 10/15
22nd Annual Meeting The Business and Operations of ASCs *Chicago, IL*

Paralysis and Epidural Steroid Injections: Eliminate the Risk at Your ASC/HOPD 6/15
12th Annual Orthopedic, Spine, and Pain-Management- Driven Conference and the Future of Spine *Chicago, IL*

Interventional Pain Management: Opportunities for ACOs, ASCs, and Hospitals 6/15
12th Annual Orthopedic, Spine, and Pain-Management- Driven Conference and the Future of Spine *Chicago, IL*

Neurovascular Complications of Tranforaminal Epidural Injections: Facts, Fiction, and Alternate Techniques 4/15
17th Annual Meeting, American Society of Interventional Pain Physicians *Orlando, FL*

Transforaminal Epidural Steroid Injections and Paraplegia 11/14
Anesthetic and Analgesic Drug Products Advisory Committee Meeting
Food and Drug Administration *Silver Spring, MD*

Interventional Pain Management: Opportunities for ACOs, ASCs, and Hospitals 6/14
12th Annual Orthopedic, Spine, and Pain-Management- Driven Conference and the Future of Spine *Chicago, IL*

Alternate Approaches to Transforaminal Injections 4/14
16th Annual Meeting, American Society of Interventional Pain Physicians *New Orleans, LA*

The Tragedy of the Safe Triangle 4th Annual Meeting, California Society of Interventional Pain Physicians	9/13 *Palos Verdes, CA*
Healthcare Outlook- Key Trends, Opportunities, and Threats to ASCs 20th Annual Ambulatory Surgery Centers Conference	10/13 *Chicago, IL*
Interventional Pain Management- New Concepts to Reduce *ER Visits, Hospitalizations, and Re-admissions* 11th Annual Orthopedic, Spine, and Pain-Management- Driven ASC Conference Improving Profitability and Business and Legal Issues	6/13 *Chicago, IL*
Interventional Pain Management and ACOs- Reducing *ER Visits, Hospitalizations, and Re-admissions* 10th Annual Orthopedic, Spine and Pain Management-Driven ASC Conference: Improving Profitability and Business and Legal Issues	6/12 *Chicago, IL*
Interventional Pain Management- New Concepts to Reduce *ER Visits, Hospitalizations, and Re-admissions* 9th Annual Orthopedic, Spine and Pain Management-Driven ASC Conference: Improving Profitability and Business and Legal Issues	6/11 *Chicago, IL*
Interventional Procedures in the Thoracolumbar Spine *And the Risk of Paralysis* Annual Meeting, Florida Society of Interventional Pain Physicians	5/11 *Orlando, FL*
Interventional Procedures in the Thoracolumbar Spine *And the Risk of Paralysis* Vanderbilt Interventional Pain Center	11/10 *Nashville, TN*
Effectiveness of Opioids in Chronic Pain ASIPP Comprehensive Pain Medicine and Interventional Pain Management Board Review Course	7/10 *Chicago, IL*
Epidemiology of Drug Abuse ASIPP Comprehensive Pain Medicine and Interventional Pain Management Board Review Course	7/10 *Chicago, IL*
Pain Management in the ASC- A Physician's Perspective 6th Annual Ambulatory Surgery Centers Conference: Improving Profitability and Business and Legal Issues	10/09 *Chicago, IL*
2009 Pain Management for Health Plans World Research Group	8/09 *Boston, MA*
Treatment of the Worker with Spinal Pain	5/09

Workers Compensation and Disability Symposium	*Skokie, IL*
Pain Management in the ASC- A Physician's Perspective The 5th Annual Orthopedic, Spine, Neurosurgery and Pain Management Driven ASC Conference and Exhibits	6/08 *Chicago, IL*
Treatment of Chronic Pain with Opioids St. James Hospital, Physician/Hospital Organization CME program	6/08 *Chicago Heights, IL*
Treatment of Chronic Pain with Opioids Adventist Hinsdale Hospital, CME program	6/08 *Hinsdale, IL*
Treatment of Chronic Pain with Opioids Adventist Bolingbrook Hospital, Grand Rounds	5/08 *Bolingbrook, IL*
Treatment of Chronic Pain with Opioids Adventist La Grange Memorial Hospital, CME, Department ofEmergency Room Physicians	3/08 *La Grange, IL*
Cervico-Thoracic Sympathetic Ganglion Block ASIPP Comprehensive Interventional Cadaver Course and Interventional Techniques Review Course	10/07 *Memphis, TN*
Pain Management in the ASC- A Physician's Perspective The 5th Annual Orthopedic, Spine, Neurosurgery and Pain Management Driven ASC Conference and Exhibits	6/07 *Chicago, IL*
Cervical and Lumbar Pain: Diagnosis and Interventional Treatment Department of Internal Medicine, Adventist Hospital System	10/05 *Lagrange, IL*
Minimally Invasive Techniques and Management of Low Back Pain Spine Forum	6/05 *Homer Glen, IL*
Dialogues in Pain Management: Town Hall Event Chronic Pain Network	5/05 *Chicago, IL*
Cervical and Lumbar Pain: Diagnosis and Interventional Treatment Department of Family Practice, Adventist Hospital System	4/05 *Lagrange, IL*
Minimally Invasive Techniques and Management of Lower Back Pain Spine Forum	12/04 *Oak Brook, IL*
Chronic Lower Back Pain Practice Workers Compensation Lawyers Association of Illinois	9/02 *Chicago, IL*

Neck and Shoulder Pain in the Injured Worker Workers Compensation Case Management Seminar	5/02 *Oak Brook, IL*
Pain Management Clinic Civic Advisory Board, Hinsdale Hospital	3/02 *Hinsdale, IL*
Interventional Pain Management Illinois Trial Lawyer Association Seminar	2/02 *Oak Brook, IL*
Modern Pain Management: Opioid Therapy and Early Intervention DuPage Medical Group	10/01 *Downers Grove, IL*
Fibromyalgia and Chronic Lower Back Pain Hinsdale Hospital Patient Education	9/01 *Hinsdale, IL*
Chronic Lower Back Pain Workers Compensation Lawyers Association of	3/01 *Chicago, IL*
Strategies for Managing Cancer Pain Wellness House	6/99 *Hinsdale, IL*

CERTIFICATIONS

Board Certification, American Board of Anesthesiology	11/92
Subspecialty Certification in Pain Management, American Board of Anesthesiology	10/96
Subspecialty Certification in Pain Management, American Board of Anesthesiology, Re-Certification	10/05
Competency Certification in Controlled Substance Management, American Board of Interventional Pain Physicians	9/05
Competency Certification in Coding, Compliance, and Practice Management, American Board of Interventional Pain Physicians	9/05
Fellow of Interventional Pain Practice, World Institute of Pain	3/06

Diplomate, American Board of Interventional Pain Physicians 12/06

RESEARCH

ALZA C2002-022 A double blind phase 3 safety evaluation of D-Trans fentanyl with naltrexone HCL in opioid tolerant patients. Sub-Investigator: Scott E. Glaser, M.D.

ALZA C2002-041 An open label phase 3 safety evaluation of D-Trans fentany with naltrexone HCL in opioid tolerant patients. Sub-Investigator: Scott. E. Glaser, M.D.

ANS C-03-04 A prospective, multicenter, single arm study to evaluate the safety and effectiveness of the GenesisXP Implantable Pulse Generator (IPG) in combination with ANS leads for the management of chronic pain on the trunk and/or limbs. Sub-Investigator: Scott E. Glaser, M.D.

ELAN ELN 92045-301 A randomized, double blind, placebo-controlled study of intra-thecal ziconotide in adults with severe chronic pain. Sub-Investigator: Scott E. Glaser, M.D.

ELAN ELN 92045-352 An open label, long term, multicenter study of ziconotide administered intrathecally. Sub-Investigator: Scott E. Glaser, M.D.

ENDO EN 3220-008 A Prospective, open label, multicenter study of the effectiveness and safety of Lidoderm as add on treatment in patients with post herpetic neuralgia, diabetic neuropathy, or low back pain. Sub-Investigator: Scott E. Glaser, M.D.

ENDO EN 3202-031 An open label titration followed by randomized, double-blind, placebo-controlled study to assess the efficacy, tolerability, and safety of Oxymorphone Extended Release tablets in opioid-naïve patients with chronic low back pain. Sub-Investigator: Scott E. Glaser, M.D.

ENDO EN 3202-032 An open label titration followed by randomized, double-blind, placebo-controlled study to assess the efficacy, tolerability, and safety of Oxymorphone Extended Release tablets in opioid-experienced patients with chronic low back pain. Sub-Investigator: Scott E. Glaser, M.D.

KRONUS-MSP Trial (Kadian: Response of Non-malignant, Under-treated Subjects with Moderate/Severe Pain). June-July 2002. Principal Investigator: Scott E. Glaser, M.D.

PEER REVIEWED BOOK CHAPTERS

Glaser, M.D. Scott E, "Vascular Complications of Spinal Interventions", *Atlas of Pain Medicine Procedures,* 1st Edition, Ed. Peter Staats, MD and Sudhir Diwan, MD, Chicago, McGraw-Hill, 2014, Chapter 41, Print

Glaser, M.D. Scott E. "Patient Becomes Paralyzed Following a Lumbar Transforaminal Epidural Steroid Injection" *Case Studies in Pain Management,* 1st Edition, Ed. Alan Kaye, MD, and Rinoo Shah, MD, Cambridge UK, Cambridge University Press, 2015, 423-428, Print

PEER-REVIEWED ARTICLES

Glaser, M.D. Scott E, Atluri, M.D. Sairam, Shah, M.D. Rinoo V, Sudarshan, M.D. Gururau, "Needle Position Analysis in Cases of Paralysis from Transforaminal Epidurals: Consider Alternative Approaches to Traditional Technique", *Pain Physician*, Volume 16, No. 4, 321-34, (2013)

Glaser, M.D. Scott E, Laxmaiah Manchikanti, MD, Salahadin Abdi, MD, PhD, Sairam Atluri, MD, Carl C Balog, MD, Ramsin M. Benyamin, MD, Mark V. Boswell, MD, PhD, Keith R Brown, PharmD, Brian M. Bruel, MD, David A. Bryce, MD, Patricia A Burks, LPT, Allen W. Burton, MD, Aaron K. Calodney, MD, David L. Caraway, MD, Kimberly A. Cash, RT, Paul J. Christo, MD, Kim S. Damron, RN, Sukdeb Datta, MD, Timothy R. Deer, MD, Sudhir Diwan, MD, Ike Eriator, MD, Frank J.E. Falco, MD, Bert Fellows, MA, Stephanie Geffert, MLIS, Christopher G. Gharibo, MD, Jay S. Grider, DO, PhD, Haroon Hameed, MD, Mariam Hameed, MD, Hans Hansen, MD, Michael E. Harned, MD, Salim M. Hayek, MD, PhD, Standiford Helm II, MD, Joshua A. Hirsch, MD, Jeffrey W Janata, PhD, Alan D Kaye, MD, PhD, Adam M Kaye, PharmD, David S. Kloth, MD, Dhanalakshmi Koyyalagunta, MD, Marion Lee, MD, Yogesh Malla, MD, Kavita N. Manchikanti, MD, Carla D. McManus, RN, BSN, Vidyasagar Pampati, MSc, Allan T. Parr, MD, Ramarao Pasupuleti, MD, Vikram B. Patel, MD, Nalini Sehgal, MD, Sanford M. Silverman, MD, Vijay Singh, MD, Howard S. Smith, MD, Lee T Snook, MD, Daneshvari R. Solanki, MD, Deborah H Tracy, MD, Ricardo Vallejo, MD, PhD, and Bradley W. Wargo, DO. "American Society of Interventional Pain Physicians (ASIPP) Guidelines for Responsible Opioid Prescribing in Chronic Non-Cancer Pain: Part I – Evidence Assessment (ASIPP) Guidelines" *Pain Physician,* Volume 15, Special Issue, 1-66 (2012)

Glaser, M.D. Scott E, Laxmaiah Manchikanti, MD, Salahadin Abdi, MD, PhD, Sairam Atluri, MD, Carl C Balog, MD, Ramsin M. Benyamin, MD, Mark V. Boswell, MD, PhD, Keith R Brown, PharmD, Brian M. Bruel, MD, David A. Bryce, MD, Patricia A Burks, LPT, Allen W. Burton, MD, Aaron K. Calodney, MD, David L. Caraway, MD, Kimberly A. Cash, RT, Paul J. Christo, MD, Kim S. Damron, RN, Sukdeb Datta, MD, Timothy R. Deer, MD, Sudhir Diwan, MD, Ike Eriator, MD, Frank J.E. Falco, MD, Bert Fellows, MA, Stephanie Geffert, MLIS, Christopher G. Gharibo, MD, Jay S. Grider, DO, PhD, Haroon Hameed, MD, Mariam Hameed, MD, Hans Hansen, MD, Michael E. Harned, MD, Salim M. Hayek, MD, PhD, Standiford Helm II, MD, Joshua A. Hirsch, MD, Jeffrey W Janata, PhD, Alan D Kaye, MD, PhD, Adam M Kaye, PharmD, David S. Kloth, MD, Dhanalakshmi Koyyalagunta, MD, Marion Lee,

MD, Yogesh Malla, MD, Kavita N. Manchikanti, MD, Carla D. McManus, RN, BSN, Vidyasagar Pampati, MSc, Allan T. Parr, MD, Ramarao Pasupuleti, MD, Vikram B. Patel, MD, Nalini Sehgal, MD, Sanford M. Silverman, MD, Vijay Singh, MD, Howard S. Smith, MD, Lee T Snook, MD, Daneshvari R. Solanki, MD, Deborah H Tracy, MD, Ricardo Vallejo, MD, PhD, and Bradley W. Wargo, DO. "American Society of Interventional Pain Physicians (ASIPP) Guidelines for Responsible Opioid Prescribing in Chronic Non-Cancer Pain: Part I – Guidance (ASIPP) Guidelines" *Pain Physician,* Volume 15, Special Issue, 67-116 (2012)

Glaser, M.D., Scott E., Shah, M.D., Rinoo V., "Root Cause Analysis of Paraplegia Following Transforaminal Epidural Steroid Injections: The "Unsafe" Triangle, *Pain Physician* Volume 13, No. 3, 237-244, (2010)

Glaser, M.D., Scott E., Helm, M.D., Standiford, Falco, M.D., Frank, Henry, J.D., Brian, "A Medical-legal Review Regarding the Standard of Care for Epidural Injections, With Particular Reference to a Closed Case**"** *Pain Physician* Volume 13, No. 2, 145-50 (2010)

Glaser, M.D., Scott E., Manchikanti, M.D., Lax, Wolfer, M.D., Lee, Derby, M.D., Richard, Cohen, M.D., Steven P., "Systematic Review of Lumbar Discography as a Diagnostic Test for Chronic Low Back Pain" *Pain Physician* Vol. 12, No. 3, 541-559 (2009)

Glaser, M.D., Scott E., Singh, M.D., Vijay, Manchikanti, M.D., Lax, Shah, M.D., Rinoo V., and Dunbar, M.D., Elmer E. "Systematic Review of Thoracic Discography as a Diagnostic Test for Chronic Spinal Pain" *Pain Physician* Vol. 11, No. 5, 631-642 (2008).

Glaser, M.D., Scott E., Trescot, M.D., Andrea M., Helm, M.D., Standiford, Hansen, M.D.,Hans, Benyamin, M.D., Ramsin, Adlaka, M.D., Rajive, Patel, M.D., Samir, and Manchikanti, M.D., Lax "Opioids in the Management of Chronic Non-Cancer Pain: An Update of American Society of the Interventional Pain Physicians" (ASIPP) Guidelines" *Pain Physician* Vol. 11, Special Issue, 5-62 (2008).

Glaser, M.D., Scott E., Benyamin, M.D., Ramsin, Trescot, M.D., Andrea M., Datta, M.D., Sukdeb, Buenaventura, M.D., Ricardo, Adlaka, M.D., Rajive, Sehgal, M.D., Nalini, Vallejo, M.D., Ricardo "Opioid Complications and Side Effects" *Pain Physician* Vol. 11, Special Issue, 105-120, (2008).

Glaser, M.D., Scott E., Trescot, M.D., Andrea M., Hansen, M.D.,Hans, Benyamin, M.D., Ramsin, Adlaka, M.D., Rajive, Patel, M.D., Samir, and Manchikanti, M.D., Lax "Effectiveness of Opioids in the Treatment of Chronic Non-Cancer Pain" *Pain Physician* Vol. 11, Special Issue, 181-200, (2008)

Glaser, M.D., Scott E. and Falco, M.D., Frank "Paraplegia Following Thoracolumbar

Transforaminal Epidural Steroid Injection" *Pain Physician* Vol. 8, No. 3, 309-314 (2005).

MEMBERSHIPS

American Society of Interventional Pain Physicians
Illinois Society of Interventional Pain Physicians
American Society of Regional Anesthesiology
American Medical Association
American Pain Society
American Association of Pain Management
Illinois State Medical Society
Dupage County Medical Society
International Neuromodulation Society
World Institute of Pain

Updated: 10/2015

Signature: 

CURRICULUM VITAE
2015

Name: **Helga Brake, Pharm.D., CPHQ, CPPS**

Address: **1N311 Papworth Street**
Wheaton, IL 60188

Phone: **(630) 276-5682 (office)**
(630) 440-9031 (home)

Email: **hbrake@ihastaff.org (business)**
hbrake3@yahoo.com (personal)

Licensure: **Registered Pharmacist (RPH), Illinois # 051-289161**
October 2002 - present

Certifications: **Certified Professional in Patient Safety (CPPS)**
November 2014 – present

Certified Professional in Healthcare Quality (CPHQ)
September 2007 - present

Appointment: **Health Research and Educational Trust Senior Fellow**
September 2013 - present

I. EDUCATION

American Hospital Association - National Patient Safety Foundation Patient Safety Leadership Fellowship. July 2012

Doctor of Pharmacy
Midwestern University, Chicago College of Pharmacy, June 2003

Bachelor of Science: Pharmacy
Midwestern University, Chicago College of Pharmacy, June 2002

Bachelor of Science: Business Management - Personnel and Industrial Relations
Northern Illinois University, December 1983

DMAIC (Define, Measure, Analyze, Improve, and Control) Process Improvement, Change Management, and Project Leader Training
Northwestern Memorial Hospital, November 2008-March 2009

Medical Writing and Editing Certificate
Graham School, University of Chicago. Anticipated 2016

Workshops

Leading an Empowered Organization. Creative Health Care Management. December 2-4, 2014.

TeamSTEPPS Leadership Training. Agency for Healthcare Research and Quality.
October 3-5, 2012

Medication Safety Intensive. Institute for Safe Medication Practices (ISMP). June 4-5, 2009

Medication Reconciliation: A Team Approach. Society of Hospital Medicine. March 6, 2009

Partnership for Patient Safety Workshop on Consumer Engagement in Selected Patient Safety Topics. June 19-21, 2008

Essential Leadership Skills for Newly Promoted and Front Line Supervisors. The Carroll-Keller Group. February 2008

II. HEALTHCARE-RELATED PROFESSIONAL EXPERIENCE

3/14 – Present
Senior Director, Performance Improvement
Director, Midwest Alliance for Patient Safety
Illinois Hospital Association, Naperville, IL

Oversee, administer and coordinate safety and quality improvement programs (including the Hospital Engagement Network and Midwest Alliance for Patient Safety, a federally-certified Patient Safety Organization) and initiatives to assist members with implementation of clinical integration strategies to improve the patient care experience, healthy outcomes, and healthcare value. Oversee daily operations and development of assigned programming, working directly with members and external stakeholders to accelerate the adoption of evidence-based practices and to achieve hospital-specific and aggregate improvement objectives in Illinois.

5/08 – 3/14
Program Manager, Patient Safety (8/13 – 3/14)
Patient Safety Leader (5/08 – 8/13)
Northwestern Memorial Hospital, Chicago, IL
Responsible for planning and coordinating the overall operations of the Patient Safety program for Northwestern Memorial Hospital, an 894-bed academic medical center. Coordinated and led patient safety endeavors and responsible for proactive patient safety surveillance, leading patient safety initiatives, overseeing adverse event follow-up improvements, and complying with patient safety related standards monitored by The Joint Commission and other relevant agencies. Partnered with administrative, physician, nursing, and ancillary leadership to advance the patient safety agenda through the development and implementation of patient safety plans and strategies that facilitate the achievement of strategic organizational goals.

Led multidisciplinary teams to define, measure, analyze, and improve clinical performance related to national and local patient safety and quality improvement initiatives and practice concerns. Collaborated with operational, medical, and nursing leadership, clinicians and staff to identify, develop and implement successful and sustainable process solutions to produce improved outcomes and meet goals. Fully participated with event investigation, Root Cause Analysis, Failure Mode and Effects Analysis and created and facilitated subsequent improvement action plans to satisfactory completion. Applied knowledge of patient safety and quality legislation, regulations, and professional standards, current research, and best practices to identify and advance problem analysis and resolution and creative process redesign. Developed and facilitated communication of patient safety and quality information to leadership and staff to improve the management of patient care and services. Defined, collected, analyzed, monitored, and presented safety and quality data to identify trends and opportunities for improvement.

11/04 - 5/08
Project Manager, Clinical Process Improvement
University HealthSystem Consortium (UHC), Oak Brook, IL

Identified, recruited, and led member academic medical center improvement projects that supported clinical quality improvement goals. Assembled and guided multidisciplinary steering committees to assist with the identification of project focus and scope. Developed performance measures and metrics based on evidence-based literature, national safety and quality initiatives and clinical guidelines. Constructed focused and concise clinical and operational data collection forms. Developed educational materials and trained participants on the use of data collection tools. Analyzed and displayed data to easily identify participant performance improvement opportunities. Produced and assisted in the design of project deliverables. Created and presented action-oriented project findings. Facilitated day-long Knowledge Transfer Meetings. Acted as a change agent to direct members through the UHC Commit to ACTion performance improvement collaborative process. Developed best practice detail forms which converted evidence-based best practices into actionable plans to improve system processes and patient outcomes. Acted as the UHC Clinical Process Improvement department's drug information expert.

11/02 -11/04
Project Manager, Medication Use Evaluation
Novation/University HealthSystem Consortium, Oak Brook, IL

Designed and managed medication use evaluation projects that supported hospital efforts to appropriately utilize and effectively manage the cost of medications. Developed drug-specific performance measures and metrics. Created data collection forms to capture relevant information. Analyzed collected data and created key indicator reports based on findings. Evaluated drugs included: bivalrudin, caspofungin, voriconazole, drotrecogin alfa (activated), epoetin alfa, darbepoetin alfa, meperidine, nesiritide, recombinant activated factor VII, IV pantoprazole, and 5-HT3 receptor antagonists.

4/03 -10/03 **Staff Pharmacist,** Central DuPage Hospital, Winfield, IL
10/02 - 3/03 **Retail Pharmacist,** Kmart Corporation, Bloomingdale, IL
2/00 - 9/02 **Pharmacist Intern,** Kmart Corporation, Bloomingdale, IL

Committees/Task Forces

11/15	Nationwide Alliance of Patient Safety Organizations WorkGroup to Improve Adverse Event Reporting
6/13	Task Force on the TERCAP© (Taxonomy of Error, Root Cause Analysis and Practice Responsibility) Adverse Error Reporting System. National Council of State Boards of Nursing
2/13 – 3/14	Advanced Pharmacy Preceptor Experience Committee. Northwestern Memorial Hospital
1/12 - 12/13	Certified Professional in Healthcare Quality (CPHQ) Exam Committee. Healthcare Quality Certification Commission of the National Association for Healthcare Quality
9/10 – 3/14	Clinical Care Evaluation Committee. Northwestern Memorial Hospital
6/09 – 3/14	Pharmacy Quality Improvement Committee. Northwestern Memorial Hospital
1/09 – 1/10	Nursing Education Committee. Northwestern Memorial Hospital
7/08 – 3/14	Patient Safety Committee. Northwestern Memorial Hospital
5/08 – 3/14	Medication Reconciliation Leadership. Chair. Northwestern Memorial Hospital
5/08 – 3/14	Medication Safety Committee. Northwestern Memorial Hospital
2/08 – 8/08	Pursuit of Excellence Task Force. National Association for Healthcare Quality
1/06 – 5/08	Survey Committee. University HealthSystem Consortium
1/05 – 5/08	Customer Service Task Force. University HealthSystem Consortium

III. TEACHING EXPERIENCE

Lecturer

2013-2015	Northwestern University. Institute for Healthcare Studies. Master's Program in Healthcare Quality and Patient Safety. Instructor: Solutions and Hospital-Based Interventions: Components of Patient Safety; Identifying and Correcting Error.
2013-2015	University of Illinois at Chicago College of Pharmacy. 2nd Year Pharmacy Students. Guest Lecturer: Medication Safety.
1/13	Northwestern University Feinberg School of Medicine. 2nd Year Medical Students. Instructor: Mitigating Human Error *By Design.* Human Factors and Healthcare Design Challenges 2
7/12 & 7/11	Northwestern University. Institute for Healthcare Studies. Master's Program in

Healthcare Quality and Patient Safety. Instructor: Solutions and Hospital-Based Interventions: At-Risk Behavior, Human Factors in Design, Device Safety, and Process Improvement

7/10 Northwestern University. Institute for Healthcare Studies. Master's Program in Healthcare Quality and Patient Safety. Instructor: Safety Interventions and Practices.

7/09 Northwestern University. Institute for Healthcare Studies. Master's Program in Healthcare Quality and Patient Safety. Instructor: Case Studies in Patient Safety.

Preceptor

University of Illinois at Chicago, adjunct clinical instructor
2014 PGY2: Drug Information Resident, Med Safety rotation: Aparna Reddy
2014 PharmD candidate: Akwasi Amankwah, Keleya Jefferson, Zahabiya Aziz, Rebecca Lee
2013 PGY2: Drug Information Resident, Med Safety rotation: Michelle Bryson
2013 PharmD candidates: Preeankaa Patel, Emily Lin
2012 PGY2: Drug Information Resident, Medication Safety rotation: Lara Ellinger, Shadi Ghaibi
2012 PharmD candidates: Catherine Palladino, Magdalena Marzec
2011 PGY2 Drug Information Resident, Medication Safety rotation: Sheri VanOsdol

Northwestern Memorial Hospital Graduate Administrative Intern program
2014 MPH candidate: Alison E. Miller
2010 MD/MBA candidate: Michelle Hu Leppert

St. Louis College of Pharmacy, adjunct clinical instructor
2011 PharmD candidates: Jincy Philip, Pawel Sierbinski
2009 PharmD candidates: Nicholas Nowak, Bradley Meyer

Midwestern University, Chicago College of Pharmacy, adjunct clinical instructor
2008 PharmD candidate: Kimberly Levering
2007 PharmD candidates: Andrea Renwick, Stephanie Kincaid
2006 PharmD candidates: Margaret Kowalewska, Sun Kim, Lisa Ghandi

IV. RESEARCH EXPERIENCE

Funded Projects

9/10 - 9/12 Principle Investigator. Prevention of wrong-site procedures with the use of bedside procedural supply kits. $25,000 Medline Grant to demonstrate the benefits of the use of procedural supply kits for procedures performed at the bedside in terms of patient safety, clinician satisfaction, and cost effectiveness.

9/06 - 5/08 Project Manager. 24/7 Care Delivery Models. Facilitated an Agency for Healthcare Research and Quality $398,000 grant study, Contract No. HHSA290200600017I, awarded to the University of HealthSystem Consortium in collaboration with the RAND Corporation to evaluate strategies designed to improve efficiency in academic medical centers by modifying workload demand and staffing supply.

Publications

1. Brake H, Chun D. Raising The Bar: A Call to Action – Year 3. Progress Report: improving Quality Care in Illinois Hospitals. The Institute for Innovations in Care and Quality. Illinois Hospital Association. September 2014.

2. Ellinger, LK, Brake H, Gleason KM. Obtaining, validating, and documenting medication lists during medication reconciliation: preventing garbage in = garbage out. Illinois Council of Health-System Pharmacists. *KeePosted* News journal. December 2012;38(6):9-10.

3. Brake H. Creating a Meaningful & Actionable Medication Safety Dashboard. Illinois Council of Health-System Pharmacists. *KeePosted* News journal. February 2012;38(2):26-30.

4. Gleason KM, Brake H, Agramonte V, Perfetti C. Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation. Prepared by the Island Peer Review Organization, Inc., under Contract No. HHSA2902009000 13C. AHRQ Publication No.ll(12)-0059, December 2011. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/qual/match/.

5. Barsuk JH, Brake H, Caprio TM, Barnard C, Anderson DY, Williams MV. Process changes to increase compliance with the universal protocol for bedside procedures. *Archives of Internal Medicine.* 2011;171(10):947-9.

6. Brake H. Medication reconciliation: the journey to the goal. Illinois Council of Health-System Pharmacists *KeePosted* News journal. 2009;35(10):35-38.

7. Boord JB, Greevy RA, Braithwaite SS, Arnold PC, Selig PM, Brake, H, Cuny J, Baldwin D. Evaluation of hospital glycemic control at US academic medical centers. *Journal of Hospital Medicine* 2009;4(l):35-44.

8. Brake H. A Shared Commitment. Spotlight. National Association for Healthcare Quality. NAHQe-News. March 2008.

9. Brake, H. Commit to ACTion Collaborative, Glycemic Control 2006 Field Brief. Benchmarking & Improvement Services. University HealthSystem Consortium. October 2007

10. Kahn JM, Brake H, Steinberg KP. Intensivist physician staffing and the process of care in academic medical centers. *Quality and Safety in Health Care* 2007;16:329-33.

11. Brake, H. Improving Survival 2006 Field Book. Benchmarking & Improvement Services. University HealthSystem Consortium. July 2007.

12. Brake, H. Antifungal Use in Transplant 2006 Field Book. Benchmarking & Improvement Services. University HealthSystem Consortium. January 2007.

13. Brake, H. Mechanically Ventilated Patient (MVP) Bundle 2005 Field Book. Benchmarking & Improvement Services. University HealthSystem Consortium. December 2006.

14. Brake, H. Glycemic Control 2005 Field Book. Benchmarking & Improvement Services.University HealthSystem Consortium. May 2006.

15. MacLaren R, Weber, LA, Brake, H, Gardner MA, Tanzi M. A multicenter assessment of recombinant factor Vila off-label usage: clinical experiences and associated outcomes. *Transfusion* 2005;45(9):1434-42.

Presentations

1. PSOs – Supporting Patient Safety Through Protection and Collaboration. Illinois Society of Healthcare Risk Management. Champaign, IL. June 5, 2015.

2. Current Developments in the Illinois Patient Safety Landscape. Illinois Risk Management Services. Naperville, IL March 12, 2015.

3. Value-Based Care: The Intersection of Quality, Cost, and Accountability. Presented with Dale Bratzler, DO, MPH. 2013 HealthTrust University Conference. Nashville, TN. August 20, 2013.

4. Medication Safety, Readmissions, and Rural Affinity Groups. Partnership for Patients Tri-Affinity Group Working Session. Center for Medicare & Medicaid Innovation. Webinar. March 26, 2013.

5. Medication Reconciliation: Using the MATCH Toolkit. Health Research & Educational Trust Patient Safety Learning Network. Webinar Series. June - September 2012.

6. Using Quality Indicators for Quality Improvement. Health Research & Educational Trust. South Carolina Hospital Association. May 21, 2012.

7. Addressing Barriers & Identifying Opportunities to Implementation of the AHRQ Indicators. Health Research & Educational Trust. Indiana & Florida Hospital Association. Webinar. January 14, 2011.

8. Using AHRQ Patient Safety Indicators to Improve. Health Research & Educational Trust. Indiana & Florida Hospital Association. Webinar. November 19, 2010.

9. How Safe Are Your Patients? Creating a Meaningful and Actionable Medication Safety Dashboard. University HealthSystem Consortium Directors of Pharmacy Council. UHC Annual Fall Forum. San Diego, CA. September 30, 2010.

10. Medication Reconciliation: The Good, the Bad, and the Ugly in Illinois. Illinois Council of Health-System Pharmacists Annual Meeting. Oakbrook Terrace, IL. September 12, 2009.

11. Commit to ACTlon: Sepsis Management Results & Wrap-up. UHC Sepsis Management Collaborative. Oak Brook, IL. July 19, 2007.

12. Improving Survival and Utilizing Your Snake Mortality Chart. The Ohio State University Medical Center Cardiovascular Forum. Columbus, OH. January 20, 2007.

13. Clinical Benchmarking in Practice. UHC Supply Chain Optimization Forum, Dallas, TX. March 27, 2006.

14. Commit to ACTion: Ventilator Bundle Results & Wrap-up. UHC Ventilator Bundle Collaborative. Oak Brook, IL. September 13, 2006.

15. Where We Were & Where We Are Now: A Performance Improvement Comparative Analysis. UHC MVP Bundle Knowledge Transfer Meeting. Chicago, IL. November 14, 2005.

Posters

1. Lopez J, Rhodes NJ, Khan A, Pham CK, Brake H, Scheetz M. Evaluation of extended infusion piperacillin-tazobactam protocol using smart pump technology. Presented at the American Society of Health-System Pharmacists MidYear Clinical Meeting, Orlando, FL. Dec 8-12, 2013.

2. Brake H. A Strategic Approach to Prioritizing and Preventing Adverse Events. Presented at the 15th National Patient Safety Foundation Congress, New Orleans, LA. May 8-10, 2013.

3. Brake H, Barsuk J, Anderson D, Williams M, Barnard C. Preventing Wrong Site Procedures at the Bedside. Presented at the National Association for Healthcare Quality Annual Education Conference, Kansas City, MO. September 30-October 3, 2010.

4. Brake H, Barsuk J, Anderson D, Williams M, Barnard C. Preventing Wrong Site Procedures at the Bedside. Presented at the Association of American Medical Colleges Integrating Quality Conference, Chicago, IL. June 3-4, 2010.

5. Brake H, Barsuk J, Anderson D, Williams M, Barnard C. Preventing Wrong Site Procedures at the Bedside. Presented at the 12th Annual National Patient Safety Foundation Congress, Orlando, FL. May 17-19, 2010.

6. Brake H, Gleason KM, Green ML, Watts CM, Liebovitz D, Barnard C, Noskin GA. Implementing Medication Reconciliation in a Large Academic Medical Center. Presented at the Association of American Medical Colleges Integrating Quality: Linking Clinical and Educational Excellence Conference, Chicago, IL. June 15-16, 2009.

7. Szekendi MK, Barnard C, Erickson K, Brake H, Creamer J, Noskin GA. Patient Safety M&M Conferences: A Forum for the Open Interdisciplinary Review of Adverse Events and Errors. Presented at the 11th Annual National Patient Safety Foundation Congress, Washington DC. May 20-22, 2009.

8. Sloane M, Brake H, Kahn JM, Jacobi J. Evaluation of Ventilator Bundle Compliance at Academic Medical Centers: A University HealthSystem Consortium Benchmarking Project. Presented at the 36th Annual Society for Critical Care Medicine's Critical Care Congress, Orlando, FL. February 18-20, 2007.

9. Kahn JM, Brake H, Steinberg KP. The Association Between Intensivist Physician Staffing and the Process of Care at Academic Medical Centers. Presented at the 36th Society for Critical Care Medicine's Critical Care Congress, Orlando, FL. February 18-20, 2007.

10. Fishman N, Brake H, Baillie GM, Barron M. Multicenter Evaluation of Fungal Prophylaxis in

Solid Organ Transplant Recipients. A University HealthSystem Consortium Benchmarking Project. Presented at the 44th Annual Infectious Diseases Society of America Meeting, Toronto, Ontario, Canada. October 12-15, 2006.

11. Baldwin D, Boord J, Braithwaite S, Arnold P, Selig P, Brake H. UHC Benchmarking Project. Evaluation of Hospital Glycemic Control at Academic Medical Centers. Presented at 66th American Diabetes Association's Scientific Sessions, Washington DC. June 9-12, 2006.

V. HONORS AND AWARDS

Named 1 of "50 Experts Leading the Field of Patient Safety" by Becker's Hospital Review. For 2013 and 2014

ASHP Foundation. Team Award for Excellence in Medication Use Safety. 2008. Honors a pharmacist-led multidisciplinary team for its significant institution-wide system improvements relating to medication use

MWU-CCP Admission Scholarship, 1999-2002

Dean's List, 1999-2002

Recipient of the Walgreens Scholarship, 2002

Recipient of the CVS Scholarship, 2001

Recipient of the Albertsons Drug Stores Scholarship, 2000

VI. PROFESSIONAL MEMBERSHIPS

American Society of Professionals in Patient Safety

American Society of Health-System Pharmacists

- Poster mentor, ASHP Mid-Year 2011

Illinois Council of Health-System Pharmacists

- Spring meeting agenda planning committee, ICHP 2010

National Association for Healthcare Quality

- CPHQ Exam Committee 2012 - 2013
- Pursuit of Excellence Task Force 2008

Rho-Chi Pharmacy Honor Society

Phi Theta Kappa Honor Society

Parent Teacher Association

Helga Brake, Pharm.D., CPHQ, CPPS

Curriculum Vitae

Christopher M. Herndon
8463 Bluegill Dr.
New Baden, IL 62265
(618) 406 - 1408
cherndon12@gmail.com

Professional and Clinical Experience

07/12 to present	Associate Professor (Tenured), School of Pharmacy, Southern Illinois University Edwardsville; Edwardsville, IL
07/11 to present	Pharmacist Clinician, Pain; 375th Medical Group, Scott Air Force Base, Belleville, IL*
07/10 to present	Residency Program Coordinator, PGY-1, St. Elizabeth's Medical Center, Belleville, IL*
12/09 to 07/10	Residency Program Director, PGY-1, St. Elizabeth's Medical Center, Belleville, IL*
07/06 to 07/12	Assistant Professor, School of Pharmacy; Southern Illinois University Edwardsville; Edwardsville, IL
05/01 to 06/06	Science and Research Liaison; Regional Scientific Affairs; Janssen Medical Affairs, LLC. (Johnson & Johnson) Titusville, New Jersey
07/99 to 05/01	Assistant Professor; Department of Pharmacy Practice, School of Pharmacy; Texas Tech University Health Sciences Center; Amarillo, Texas
07/99 to 05/01	Clinical Pharmacy Specialist*; Crown of Texas Hospice, Inc.; Amarillo, Texas
12/00 to 05/01	Clinical Pharmacy Specialist*; Pain and Palliative Care Service; Don & Sybil Harrington Cancer Center; Amarillo, Texas
08/98 to 05/99	Clinical Pharmacist; University of New Mexico Hospital; Albuquerque, New Mexico
07/98 to 05/99	Geriatric Pharmacotherapy Specialty Resident, College of Pharmacy; University of New Mexico; Albuquerque, New Mexico
10/97 to 06/98	Relief Pharmacist; Walgreen's Pharmacy; Belleville, Illinois

** represents concurrent practice affiliations*

C.M. Herndon Updated 31 March 2015

Professional Appointments

01/15 to present	Assistant Professor in Family Medicine, Edward Herbert School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD
07/14 to present	Associate Clinical Professor, Department of Community and Family Medicine, School of Medicine, St. Louis University, St. Louis, Missouri
07/07 to present	Adjunct Clinical Instructor, St. Louis College of Pharmacy, St. Louis, Missouri
08/06 to 07/14	Assistant Clinical Professor, Department of Community and Family Medicine, School of Medicine, St. Louis University, St. Louis, Missouri
05/05 to present	Clinical Instructor, School of Nursing, Southern Illinois University Edwardsville, Illinois
05/01 to 05/07	Adjunct Assistant Professor; School of Pharmacy; Texas Tech University Amarillo, Texas

Education

1999	Geriatric Pharmacotherapy Specialty Residency; University of New Mexico Health Sciences Center; Residency Program Director: Ernest J. Dole, PharmD, BCPS, FASHP, CDE, PhC
1998	Doctor of Pharmacy; Saint Louis College of Pharmacy; Saint Louis, MO
1997	Bachelor of Science in Pharmacy; Saint Louis College of Pharmacy; Saint Louis, MO

Additional Training

03/15	Battlefield Acupuncture Protocol, 375th Medical Group, Scott AFB, IL
11/00	Method Development and Application; Liquid Chromatography & Mass Spectrometry; Waters Corporation; Boston, MA
06/00	Liquid Chromatography and Mass Spectrometry; Waters Corporation; Houston, TX
03/00	Pain and Palliative Care Scholars' Program; Ann Berger, MD, RN, MSN – preceptor; Robert Wood Johnson Medical School; Division of Hematology / Oncology; Camden, NJ
04/99	Northwestern Anticoagulation Preceptorship; American Heart Association; Tempe, AZ
11/98	Tutor Training and Case Development Workshop; Problem Based Learning; University of New Mexico School of Medicine; Albuquerque, NM

C.M. Herndon Updated 31 March 2015

Honors and Awards

2014	Preceptor of the Year, School of Pharmacy, Southern Illinois University Edwardsville
2013	Outstanding Achievement Award, St. Louis College of Pharmacy Alumni Association
2013	Community Service Project of the Year Award, Hospice Volunteer Initiative, Southern Illinois University Edwardsville
2012	Academic Educator of the Year, American Society of Pain Educators
2012	Professor of the Year, Pharmacy Practice, P4 class, School of Pharmacy
2011	Fellow recognition, American Society of Health-System Pharmacists
2011	Teaching Distinction Award, Southern Illinois University Edwardsville
2009	Professor of the Year, Pharmacy Practice, P4 class
2008	Professor of the Year, Pharmacy Practice
2008	Professor of the Year, Pharmacy Practice, P3 class
2006	Pain Initiative Champion Award, American Alliance of Cancer Pain Initiatives
2005	Encore Award, Silver**,** Johnson & Johnson
2003	Platinum Star Award, Johnson & Johnson
2000	Teaching Team of the Year, Texas Tech University School of Pharmacy
1998	Professional Drug Systems Award for Excellence in Medical Writing

Books

Herndon CM, Arnstein P, Darnall B, Hartrick C, Hecht K, Maleki J, Manworren R, Miaskowski C, Lyons M, Sehgal N, eds. *Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain*. 7th ed. Chicago, IL: American Pain Society Press (under development).

Book Chapters

Trombetta DR, **Herndon CM**. Osteoarthritis. In: Alldredge BK, Corelli RL, Ernst ME, Guguelmo BJ, Jacobson PA, Kradjan WA, and Williams BR, eds. *Koda-Kimble and Young's Applied Therapeutics: The Clinical Use of Drugs*. 10th ed. Baltimore, MD: Lippincott, Williams, and Wilkins (In Press).

Herndon CM, Strickland J, Ray J. Pain Management. In: DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds. *Pharmacotherapy: A Pathophysiologic Approach*. 10th ed. New York, NY:McGraw-Hill; (under development).

Rickert JL, Michels VJ, **Herndon CM**. Chronic Pain. In: *The Behavioral Health Specialist in Primary Care: Skills for Integrated Practice*. New York, NY: Springer Publishing (In Press).

Herndon CM, Gable K. Overview of sedative-hynotics, stimulants, and hallucinogens. In: Peppin J, Kirsh K, Smith H, and Coleman J, eds. *Pain and Prescription Drug Diversion: Healthcare, Law Enforcement, and Policy Perspectives*. New York, NY: Oxford University Press (In Press).

Baumann T, **Herndon CM,** Strickland J. Pain Management. In: DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds. *Pharmacotherapy: A Pathophysiologic Approach*. 9th ed. New York, NY:McGraw-Hill; 2013.

Baumann T, **Herndon CM,** Strickland J. Pain Management. In: DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds. *Pharmacotherapy Handbook*. 9th ed. New York, NY:McGraw-Hill; 2013.

Baumann T, Strickland J, **Herndon CM**. Pain Management. In: DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds. *Pharmacotherapy: A Pathophysiologic Approach*. 8th ed. New York, NY:McGraw-Hill; 2011.

Conry M, **Herndon CM**, Jackson DJ. Social work and pharmacy collaboration in palliative care. In: Altilio T, Otis-Green S, eds. *Textbook of Palliative Social Work*. New York:NY, 2011.

Refereed Publications

Lindsay S, **Herndon CM**. Media and legislative impact on provider attitudes toward a recently approved opioid analgesic. *Journal of Opioid Management* (In Prep).

Helmink DC, Lockman K, McPherson ML, **Herndon CM**. Practicing pharmacists' knowledge, skills, and attitudes of pain management. *Pain Medicine* (In Prep).

Herndon CM, Nee DB, Atayee RS, Craig DS, Lehn J, Moore PS, Nesbit SA, Ray JB, Fowler-Scullion B, Wahler RG, Waldfogel J. Pharmacist's role in palliative and supportive care: An ASHP Guideline. *American Journal of Health-System Pharmacy* (submitted).

Herndon CM. Managing opioid medications for pain relief while preventing overdose, diversion and misuse: The role of the pharmacist. *Pharmacy Times* 2015;81(5):75-87.

Ernst FR, Mills JR, Berner T, House J, **Herndon CM**. Opioid medication practices observed in chronic pain patients presenting for all-causes to Emergency Departments: Prevalence and impact on healthcare outcomes. *Journal of Managed Care & Specialty Pharmacy* 2015;21(10):925-936.

Herndon CM, Hammer MJ, Schimmelpfennig JK, Craig DS. Awareness and implementation of

recommendations made by the Strategic Planning Summit for Pain and Palliative Care Pharmacy in PGY-1 pharmacy residency programs. *Currents in Pharmacy Teaching and Learning* 2015;7(5):614-620.

Herndon CM, Zoberi K, Gardner BJ. Common questions on chronic low back pain. *American Family Physician* 2015;91(10):708-714.

Herndon CM, Dankenbring DM. Patient perceptions and knowledge of acetaminophen in a large family medicine service. *Journal of Pain and Palliative Care Pharmacotherapy* 2014;28(2):109-116.

Lewis M, **Herndon CM,** Chibnall JT. Patient aberrant drug taking behaviors in a large family medicine residency program: A retrospective chart review of screening practices, incidence, and predictors. *Journal of Opioid Management* 2014;10(3):169-175.

Atchison JW, **Herndon CM**, Rusie E. NSAIDs for musculoskeletal pain management: Current perspectives and novel strategies to improve safety. *Journal of Managed Care Pharmacy* 2013;19:S3-S19.

Devraj R, **Herndon CM,** Griffin J. Pain awareness and medication knowledge: A health literacy evaluation. Journal of Pain and Palliative Care Pharmacotherapy 2013;27:19-27.

Lindsay TJ, Vitrikas K, Temporal, M, **Herndon CM**. Diabetic Neuropathic Pain: Real world treatment options. Clinical Medicine Insights:Therapeutics 2012;4:169-183.

Matoushek TJ, Kearney T, Lindsay TL, **Herndon CM**. Loss of antinociceptive effectiveness of morphine and oxycodone following titration of levothyroxine: A case report and brief review. Journal of Opioid Management 2012;8:193-193.

Herndon CM, Strassels SA, Strickland JM, Kral LA, Craig DS, Amato-Nesbit S, Finley RS, McPherson ML. Consensus recommendations from the Strategic Planning Summit for Pain and Palliative Care Pharmacy. Journal of Pain and Symptom Management 2012;43:925-944.

Herndon CM. Topical delivery of nonsteroidal anti-inflammatory drugs for osteoarthritis. Journal of Pain and Palliative Care Pharmacotherapy 2012;26:18-23.

Herndon, CM, Lynch JA. A Mock "on-call" experience for students of pharmacy enrolled in a pain and palliative care elective. Journal of Pain and Palliative Care Pharmacotherapy 2010;24:387-392.

Herndon CM. Clinically significant drug interactions at end of life. Progress in Palliative Care 2010;18(3):147-156.

Herndon CM, Zimmerman E. High dose propofol drip for palliative sedation: A case report. American Journal of Hospice and Palliative Care 2008;25:492-495.

Herndon CM, Hutchison RW, Berdine HJ, Stacy ZA, Chen JT, et al. NSAIDs and chronic non-malignant pain: A joint opinion statement of the Cardiology, Ambulatory Care, and Pain and Palliative Care Practice and Research Networks of the American College of Clinical Pharmacy. Pharmacotherapy 2008;28:788-805.

Herndon CM. Iontophoretic delivery of medications: A focus on fentanyl. Pharmacotherapy 2007; 27(5):745-754.

Herndon CM. Pharmacologic management of cancer pain. Journal of Neuroscience Nursing 2003;35:321-326.

Herndon CM, Kalauokalani DL. Overview of pain management research for the practicing clinician. American Journal of Pain Management 2003;13:163-168.

Herndon CM, Jackson KC, Fike DS, Woods TA. End-of-life care education in United States pharmacy schools. American Journal of Hospice and Palliative Care 2003;20:350-355.

Herndon CM, Kalauokalani DL, Cunningham AC, Jackson KL, Dunteman E. Anticipating and treating opioid associated adverse effects. Expert Opinion on Drug Safety 2003;2:305-319.

Herndon CM, Jackson KC, Hallin PA. Management of opioid-induced gastrointestinal effects in patients receiving palliative care. Pharmacotherapy 2002;22:240-250.

Herndon CM, Fike DS, Anderson AC, Dole EJ. Continuous Subcutaneous Infusion practices of United States Hospices. Journal of Pain and Symptom Management. 2001;22:1027-1034.

Burleson BS, **Herndon CM**. Use of megestrol acetate for cancer related anorexia/cachexia in palliative care. TSHP Journal 2001;1:58-63.

Herndon CM. Cancer Pain Management. Panhandle Health 2001;11:29-32.

Herndon CM, Fike DS, Anderson AC, Dole EJ. Pharmacy Student Training In United States Hospices. American Journal of Hospice and Palliative Care 2001;18:181-186.

Herndon CM, Arayath JM, Hallin PA. The role of tamoxifen in hospice: Pros and cons. American Journal of Hospice and Palliative Care 2001;18:1-2.

Herndon CM, Dole EJ, Rhyne RL, Fike DS. Validity of home blood glucose reporting by a geriatric population. American Journal of Health-Systems Pharmacy 2001;58:320-322.

Herndon CM, Young KP, Herndon AD, Dole EJ. Parkinson's Disease revisited. Journal of Neuroscience Nursing 2000;32:161-166.

Herndon CM. Continuous Subcutaneous Infusion for Palliative Pain Management. American Journal of Pain Management 2000;10:53-59.

Herndon CM, Dole EJ. Long-term care consulting using a palm-sized computer. Consultant Pharmacist 1999;14:982-983.

Herndon CM, Finley MR., Dole EJ, Quaranta LT, Forman WB. Successful use of gabapentin in the treatment of phantom limb pain. American Journal of Pain Management 1999;9:124-127.

Non-Refereed Publications, Editorials, & Book Reviews

Blazier J, Reno L, **Herndon CM**. Tricyclic antidepressant related adverse effects based on neurotransmitter modulation: Selection for adjuvant analgesia. *KeePosted*: *The official news journal of the Illinois Council of Health-System Pharmacists* 2015;41(5):4-7.

Howell T, Ford R, **Herndon CM**. Clinical implications of the serotonin receptor. *Midwest Pain Society Update* 2015; Spring Edition.

Herndon CM. Pain therapeutics: A brief review. *Painview: Journal of the American Society of Pain Educators* (In Press).

McPherson ML, Cimino N, **Herndon CM**. Monitoring the outcomes of drug therapy: Empowering patients as partners. *Painview: Journal of the American Society of Pain Educators* 2014;9(4):22-25.

Thacker SM, Kerr JL, Rosselli JL, Butler L, **Herndon CM**. Group journal club as novel teaching method. In ACCP Ambulatory Care Pharmacist's Survival Guide Third Edition. Lenexa, Kansas; 2013. p324-330.

Herndon, CM (Guest Editor). Who is responsible for curbing the national prescription drug abuse crisis: Physicans, pharmacists, or both? *Pharmacy Today* 2013;19(9):49.

Courtright K, **Herndon CM**. Pain diaries in the technological age: Improving patient-provider communication through mobile applications. *Midwest Pain Society Update* 2013; Spring Edition.

Herndon CM. Review: Painful Diabetic Peripheral Neuropathy. *Journal of Pain and Palliative Care Pharmacotherapy* 2013;27(3):303.

Herndon, CM (Guest Editor). Tighter regulations for opioids create a catch-22 for patients. Pharmacy Today 2012;18(9):57.

Lindsay TJ, Rodgers BC, Savath V, Hettinger K, **Herndon CM**. Diabetic peripheral neuropathic pain: Is Gabapentin effective [response to letter]. *American Family Physician* 2011;84(5):482.

Herndon, CM (Guest Editor). Is there a safe method for treating chronic pain anymore? *Pharmacy Today* 2011;17(9):66.

Findall AL, **Herndon CM**. Buprenorphine: A mini-review with a focus on transdermal delivery. *Midwest Pain Society Update* 2011; Spring Edition.

Herndon, CM (Guest Editor). Pain management: Time for pharmacists to take action. *Pharmacy Today*

2010;16(9):1.

Herndon CM (Guest Editor). Pharmacists' role in pain management. *Pharmacy Today* 2009;15(Suppl 1):9.

Herndon CM, Johns A. Is oral tramadol a reasonable PRN analgesic? *Journal of Opioid Management* 2008;4:8-10.

Herndon CM. A Review of: "Teamwork in Palliative Care: Fulfilling or Frustrating." *Journal Of Pain & Palliative Care Pharmacotherapy* 2008;22(1):66.

Abstracts Presented

Herndon CM, Brock C, Holloman J. Impact of a pharmacist-led, multi-disciplinary chronic pain service embedded within a large family medicine residency program. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2015, Las Vegas, NV.

Brock C, **Herndon CM**. . Evaluating the Impact of Medication Therapy Management for Chronic Pain on Depression and Opioid Aberrant Behavior. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2015 Las Vegas, NV.

Jaiswal A, Scherrer J, **Herndon CM**. Association between opioid misuse, depression, and pain location. Poster presentation at the 2015 Primary Care Research Group, Society for Teachers of Family Medicine, June 2015, Bethesda, MD.

Saleem F, Scherrer J, **Herndon CM**. Gender differences in factors associated with depression in a chronic pain cohort. Poster presentation at the 2015 Primary Care Research Group, Society for Teachers of Family Medicine, June 2015, Bethesda, MD.

Lindsay S, **Herndon CM**. Media impact on provider acceptance toward a recently approved opioid analgesic. Poster presentation at the 49th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2014, Anaheim, CA.

Holloman J, **Herndon CM**. Impact of a pharmacist-led family medicine pain service: A retrospective chart review. Poster presentation at the 49th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2014, Anaheim, CA.

Lindsay S, **Herndon CM**. Legislative and media impact on provider knowledge and attitudes toward a recently approved opioid analgesic. Poster presentation at the 38th Annual Scientific Session of the Midwest Pain Society, 2014, Chicago, IL.

Lindsay S, Todd T, **Herndon CM**. Doctor of pharmacy program implements a hybrid pain independent study. Poster presentation at the 38th Annual Scientific Session of the Midwest Pain Society, 2014, Chicago, IL.

Todd T, Lindsay S, **Herndon CM**. Business plan development clinical pharmacy services in pain as part of a novel independent study course offering. Poster presentation at the 38th Annual Scientific Session

of the Midwest Pain Society, 2014, Chicago, IL.

Lindsay S, **Herndon CM**. Legislative and media impact on provider knowledge and attitudes toward a recently approved opioid analgesic. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2014, Las Vegas, NV.

Lindsay S, Todd T, **Herndon CM**. Doctor of pharmacy program implements a hybrid pain independent study. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2014, Las Vegas, NV.

Todd T, Lindsay S, **Herndon CM**. Business plan development clinical pharmacy services in pain as part of a novel independent study course offering. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2014, Las Vegas, NV.

Lockman K, Helmink D, **Herndon CM**, McPherson ML. Practicing Pharmacists' Knowledge, Skills, and Attitudes of Pain Management. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2014, Las Vegas, NV.

Mills OD, Kearney TC, **Herndon CM**. Illinois prescribers' attitudes on the utility of medical marijuana. Poster presentation at the 2014 Spring Meeting of the Illinois Council of Health-System Pharmacists, Mar 2014, Bloomington, IL (student best poster award winner)

Wong M, **Herndon CM**, Behnen E, Schimmelpfennig J. Evaluation of Perioperative Administration of Intravenous Acetaminophen and its Effectiveness in Postoperative Pain Management. Poster presentation at the 48th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2013, Orlando, FL.

Wong M, **Herndon CM**. Evaluation of Perioperative Administration of Intravenous Acetaminophen and its Effectiveness in Postoperative Pain Management: An Initial Exploratory Analysis. Poster presentation at the 36th Annual Scientific Meeting of the Midwest Pain Society, October 2013, Chicago, IL.

Ferguson M, **Herndon CM**, Tait RC, Hecht K, Lavin MA, Neumeister M, Rowland K, Behnen E, Wesley C. An innovative, case-based, inter-professional approach to pain. Poster presentation at the 32nd Annual Scientific Meeting of the American Pain Society; May 2013; New Orleans, LA.

Heisner R, **Herndon CM**. Inappropriate medication use by community dwelling elders in Southern Illinois. Poster presentation at the 47th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2012, Las Vegas, NV.

Helmink D, Lockman K, McPherson ML, **Herndon CM**. Practicing pharmacists' knowledge, skills, and attitudes of pain management. Poster presentation at the 47th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2012, Las Vegas, NV.

Hufendick A, Randazzo M, **Herndon CM**, Schimmelpfennig J. Implementation of an emergency department chronic pain management directive in a community hospital. Poster presentation at the 47th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2012, Las Vegas, NV.

Struemph KE, **Herndon CM**, Schimmelpfennig J. Evaluation of patients seeking frequent pain management services within a community hospital emergency department**.** Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2012, Las Vegas, NV.

Rosselli JL, **Herndon CM,** Lynch JC. Pharmacist managed diabetes in a medically underserved population. Poster presentation at the 46th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2011, New Orleans, LA.

Struemph KE, **Herndon CM**, Schimmelpfennig J. Evaluation of patients seeking frequent pain management services within a community hospital emergency department**.** Poster presentation at the 46th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2011, New Orleans, LA.

Griffin J, Devraj R, **Herndon CM**. Knowledge of chronic pain: An analysis of health literacy. Poster presentation at the 35th Annual Scientific Meeting of the Midwest Pain Society, 2011, Chicago, IL.

Swick ES, **Herndon CM**. Providing optimal care to the chronic pain patient in the community pharmacy: A patient survey. Poster presentation at the 35th Annual Scientific Meeting of the Midwest Pain Society, 2011, Chicago, IL.

Griffin J, Devraj R, **Herndon CM**. Knowledge of chronic pain: An analysis of health literacy. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2011, Las Vegas, NV.

Swick ES, **Herndon CM**. Providing optimal care to the chronic pain patient in the community pharmacy: A patient survey. Poster presentation at PAINWeek, the Annual Meeting of the American Society of Pain Educators, 2011, Las Vegas, NV.

Yurcisin E, Schimmelpfennig J, **Herndon CM.** Initiation, acceptance, and implementation of an updated patient controlled analgesia (PCA) order form and worksheet. Poster presentation at the 45th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2010, Anaheim, CA.

Swick ES, **Herndon CM**. Providing optimal care to the chronic pain patient in the community pharmacy: A patient survey. Poster presentation at the 45th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2010, Anaheim, CA.

Dankenbring D, **Herndon CM.** Patient perception and knowledge of acetaminophen in a large family medicine service. Poster presentation at the 45th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2010, Anaheim, CA.

Hammer M, Schimmelpfennig J, **Herndon CM**. Awareness and implementation of recommendations made by the Strategic Planning Summit for Pain and Palliative Care Pharmacy in post-graduate year one pharmacy residency programs. Poster presentation at the 45th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2010, Anaheim, CA.

McPherson ML, **Herndon CM**. Didactic and experiential curriculum: Recommendations from the

Strategic Planning Summit of Pain and Palliative Care Pharmacy. Poster presentation at PAINWeek, The Annual Meeting of the American Society of Pain Educators. 2010; September 2010; Las Vegas, NV.

Herndon C, Craig D, Kral L, McPherson ML, Nesbit S, Finley R. A stepwise approach to changing the landscape of pharmacist education on pain and palliative care: a report from the Strategic Planning Summit for the Advancement of Pain and Palliative Care Pharmacy. 11th Clinical Team Conference of the National Hospice and Palliative Care Organization; September 2010; Nashville, TN.

McPherson ML, **Herndon CM**, Craig D, Kral L, Nesbit S, Finley R, Strassels S. A stepwise approach to changing the landscape of pharmacist education on pain and palliative care: A report from the Strategic Planning Summit for the Advancement of Pain and Palliative Care Pharmacy. Poster presentation at the 20th Annual National Conference of the American Society for Pain Management Nursing; September 2010; Minneapolis, MN.

McPherson ML, **Herndon CM**. Didactic and experiential curriculum: Recommendations from the Strategic Planning Summit of Pain and Palliative Care Pharmacy. Poster presentation at the offsite satellite symposium Moving the Pain Education Agenda Forward: Innovative Models, of the 13th World Congress on Pain; International Association for the Study of Pain; August 2010; Toronto, Ontario, Canada.

Herndon CM, McPherson ML, Strassels S, Finley R, Nesbit S, Kral L, Strickland J, Dole E, Temporal M, Craig D, Grauer P, Nazzario M, Nee D. Recommendations from the Strategic Planning Summit for Pain and Palliative Care Pharmacists. Poster presentation at the 13th World Congress on Pain; International Association for the Study of Pain; August 2010; Montreal, Quebec, Canada.

Herndon CM, Finley RS, McPherson ML, Nesbit S, Kral L, Craig D. Consensus recommendations from the Strategic Planning Summit for the Advancement of Pain and Palliative Care Pharmacy. Poster presentation at the 2010 Annual Meeting and Seminars of the American Association of Colleges of Pharmacy; May 2010; Seattle, WA.

Herndon CM, Craig D, Kral L, McPherson ML, Nesbit S, Finley R, Strassels S. A stepwise approach to changing the landscape of pharmacist education on pain and palliative care: A report from the Strategic Planning Summit for the Advancement of Pain and Palliative Care Pharmacy. Poster presentation at the 29th Annual Scientific Meeting of the American Pain Society; May 2010; Baltimore, MD.

McPherson ML, **Herndon CM**. Didactic and experiential curriculum: Recommendations from the Strategic Planning Summit of Pain and Palliative Care Pharmacy. Poster session presented at: American College of Clinical Pharmacy Spring Practice and Research Forum; April 2010; Charlotte, NC.

Strassels S, **Herndon CM**. Practice site specific competencies of a certificate program: Recommendations from the Strategic Planning Summit of Pain and Palliative Care Pharmacy. Poster session presented at: American College of Clinical Pharmacy Spring Practice and Research Forum; April 2010; Charlotte, NC.

Gable K, **Herndon CM**. A stepwise approach to changing the landscape of pharmacist education on

pain and palliative care: A report from the Strategic Planning Summit for the Advancement of Pain and Palliative Care Pharmacy. Poster presentation at the 2010 Annual Meeting of the College of Psychiatric and Neurologic Pharmacists; April 2010; San Antonio, TX.

Guthrie M, Kearney T, McCarthy JC, Nash A, **Herndon CM**. Factors influencing compliance in cervical dysplasia patients. Poster session presented at: Society of Teachers of Family Medicine Annual Spring Conference; 2010 April 24-28; Vancouver, British Columbia.

Lewis M, **Herndon CM**, Chibnall J. Aberrant drug taking behavior associated with opioids by patients in a large family medicine residency clinic: A retrospective chart review. Poster presentation at the 44th American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2009, Las Vegas, NV.

Niemerg JR, Nanney LM, Chun DS, **Herndon CM**. Appropriate use of stress ulcer prophylaxis in general medicine patients. Poster session presented at: ACCP/ESCP International Congress on Clinical Pharmacy; 2009 April 24-28; Orlando, FL.

Layman M, Brand A, **Herndon CM.** Utilization of the Illinois prescription monitoring program by community pharmacists. Poster session presented at: ACCP/ESCP International Congress on Clinical Pharmacy; 2009 April 24-28; Orlando, FL.

Peters G, Roseboom A, Oliver C, **Herndon CM**. Analgesic patterns and perceptions of opioid narcotics among pharmacy / nonpharmacy university students. Poster Presentation at the 43rd American Society of Health-System Pharmacists Midyear Clinical Meeting, Dec 2008, Orlando, FL

Geller TJ, **Herndon CM**, Chibnall JC, Tait, RC. Missouri Pain Initiative's SURE project: A survey of pain education availability and needs statewide. Journal of Pain 2007;8(4):S1-S146.#935. Poster Presentation at the 2007 American Pain Society Annual Conference.

Herndon CM, Sathyan G, Gupta S. Pharmacokinetics of fentanyl delivered by a patient-controlled transdermal analgesic system (PCTS): Effects of patient demographics and multiple-day dosing schedules. Pharmacotherapy 2005;25:474. Poster presentation at the 2005 American College of Clinical Pharmacy Annual Meeting.

Herndon CM, Ray J, Grauer P, Dasta J, Smith C, Moore K, Zaugg T, Pai V, Finnell, D. Pharmacist education in pain and palliative care: A report from the 2003 National Pain and Palliative Care Summit. Journal of Pain 2004;5(3):[suppl 1]137. Poster presentation at the 2004 American Pain Society Annual Conference.

Herndon CM, Jackson KC, Fike D, Woods T. End-of-Life care education in United States pharmacy schools. Pharmacotherapy 2003;23:396. (abstract). Poster presentation at the 2003 American College of Clinical Pharmacy Annual Meeting.

Herndon CM, Dole EJ, Rhyne RL. Validity of home blood glucose reporting by a geriatric population. ASHP Midyear Clinical Meeting *IPA*. 1999;36:2256. Poster presentation at the 34th Annual Midyear Clinical Conference of the American Society of Health-Systems Pharmacists. 1999 Dec, Orlando, FL.

Enduring Media and Webinars

12/14	Opioid induced hyperalgesia. Delta Rx. Presentation to member hospices nationwide
10/14	Pain therapeutics. PainWeek. Online CME presentation
12/13	Alternative delivery techniques in palliative care. Delta Rx. Presentation to member hospices nationwide
10/13	Evaluation and Assessment of Pain. Family Medicine Residency Curriculum. Society for Teachers of Family Medicine
01/13	Barriers to Effective Chronic Pain Management. Certified for CME. ScientiaCME.
11/12	Cancer Pain, Osteoarthritis, Low-back pain. Pain Certificate Program. American Society of Consultant Pharmacists.
10/11	Cancer Pain, Palliative Care, and Pain of Life Limiting Disease. Pain and Palliative Care Traineeship. American Society of Health-System Pharmacists Foundation.
07/11	The emerging role of the pharmacist in chronic pain. Webinar posted on www.emergingsolutionsinpain.com.
07/11	Effective implementation of opioid risk evaluation and mitigation Strategies (REMS) in the pharmacy setting. Live webinar hosted on Power-Pak C.E.®
06/11	"Opium." World Book Student (Online). World Book, 2011.
06/11	"Oxycodone." World Book Student (Online). World Book, 2011.
05/09	*Cardiovascular effects of opioids: A focus on EKG monitoring for methadone*. Podcast for the American Society of Health System Pharmacists.

Editorial Boards

International Journal of Palliative Care, 2012 - present

Pain Medicine, 2012 - present

Journal of Pain and Palliative Care Pharmacotherapy, 2009-2014

Journal of Opioid Management, 2004 - present

Ad Hoc Journal, Book, and Technical Review

Journal of Pain and Symptom Management, 2013 - present

Clinical Drug Investigation, 2014 - present

The Medical Letter, 2013 - present

Currents in Pharmacy Teaching and Learning, 2013-present

Pain Management Nursing, 2012 - present

Journal of Pain Research, 2012-present

Guideline for the management of post-operative pain. American Pain Society, American Society of Anesthesiologists, U.S. Veteran's Health Administration Health System, and the Department of Defense Health System, December 2010.

American Journal of Health-System Pharmacy, 2009-present

Pharmacotherapy considerations in palliative care; Pharmacotherapy Self-Assessment Program, Sixth Edition; American College of Clinical Pharmacy

Neurology; Journal of the American Academy of Neurology, 2007 - present

American Journal of Hospice and Palliative Care, 2002 - present

Southern Medical Journal, 2002 - 2003

Pharmacotherapy, 2001 - present

Home Health Nurse, 2000

Annals of Long Term Care, 1998 - 1999

American Journal of Pain Management, 2000 - 2006

Pain Medicine, 2004 – present

National Presentations

12/14 *BPS Ambulatory Care Recertification Intensive: Pain Management (half-day workshop).* 2014 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Anaheim, CA (Invited).

11/14 *Pain in Geriatrics Certificate Program (Full day workshop).* Annual Meeting of the American Society of Consultant Pharmacists, Washington, D.C (Invited).

09/14 *Neuropathica Gallactica. A highly interactive journey through the care of a patient in pain.* (Full day pre-meeting workshop). 2014 PAINWeek: Annual Meeting of the American Society of Pain Educators, Las Vegas, NV.

09/14 *Pain Therapeutics*. 2014 PAINWeek: Annual Meeting of the American Society of Pain Educators, Las Vegas, NV. (Invited)

09/14 *Pharmacokinetic and Pharmacodynamic Drug Interaction in Pain*. 2014 PAINWeek: Annual Meeting of the American Society of Pain Educators, Las Vegas, NV. (Invited)

09/14 *Pharmacology of Adjuvant Analgesics*. 2014 PAINWeek: Annual Meeting of the American Society of Pain Educators, Las Vegas, NV. (Invited)

06/14 *Survey Says! An interactive approach to chronic pain*. 2014 Summer Meeting and Exhibition of the American Society of Health-System Pharmacists. Las Vegas, NV. (Invited)

05/14 *Pharmacogenomics and pain.* 33rd Annual Scientific Meeting of the American Pain Society; Tampa, FL. (Invited)

11/13 *Pain in Geriatrics Certificate Program (Full day workshop).* Annual Meeting of the American Society of Consultant Pharmacists, Washington, D.C (Invited).

10/13 *New approaches and treatment considerations in mild to moderate musculoskeletal pain*. Academy of Managed Care Pharmacy 2013 Nexus Meeting, San Antonio, TX

10/13 *Challenges and opportunities in the management of chronic pain*. Academy of Managed Care Pharmacy 2013 Nexus Meeting, San Antonio, TX (Invited).

09/13 *Pharmacogenomic testing in the chronic pain patient*. 2013 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV (Invited).

03/13 *Chronic opioid performance improvement research collaboration*. 32nd Annual Scientific Meeting of the American Pain Society; New Orleans, LA (Invited).

03/13 *Improving Pain Education in Medical, Pharmacy, Nursing, and Dental Schools in the United States*; 32nd Annual Scientific Meeting of the American Pain Society; New Orleans, LA.

12/12 *Opioids and mortality in the cancer patient;* 2012 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; New Orleans, LA.

12/12 *Risk avoidance in the sleep apnea patient receiving opioids;* 2012 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; New Orleans, LA

11/12 *Pain in Geriatrics Certificate Program (Full day workshop).* Annual Meeting of the American Society of Consultant Pharmacists, Washington, D.C (Invited)

10/12 *The ins and outs of REMS*; 2012 Annual Meeting of the Midwest Pain Society, Chicago, IL (Invited).

09/12 *Monitoring and management of adverse effects: Adjuvants and co-analgesics;* 2012 PAINWeek:

The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV (Invited).

09/12 *Chronic Disease Management for Pain: It CAN be done in primary care;* 2012 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV (Invited).

09/12 *Pain therapeutics*: 2012 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV (Invited).

08/12 *A painful complication: A pathophysiologic approach to managing diabetic peripheral neuropathy*; 2012 Annual Meeting and Exposition of the American Association of Diabetes Educators

06/12 *I'll take pain for $1000 Alex: An interactive case based approach to pain management*; 2012 Summer Meeting of the American Society of Health-Systems Pharmacists; Baltimore, MA (Invited).

03/12 *Breaking Down the Barriers: Improving Pain Management in the Community Pharmacy Setting*; 2012 Annual Meeting and Exposition of the American Pharmacists Association; New Orleans, LA (Invited).

03/12 *Transforming the future of pain management*: 2012 Annual Meeting and Exposition of the American Pharmacists Association; New Orleans, LA (Invited).

12/11 *Squabbling about pain. A point / counter-point discussion of controversial topics*; 2011 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; New Orleans, LA

12/11 *Pathophysiology, pharmacology, and therapeutics: Connecting the dots in advancing pain management;* 2011 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; New Orleans, LA

09/11 *A "topical" review of pain*; 2011 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV

09/11 *Pain therapeutics*; 2011 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV.

09/11 *Insights to being a Certified Pain Educator as a pharmacist: A panel discussion;* 2011 PAINWeek: The Annual Meeting of the American Society of Pain Educators; Las Vegas, NV

12/10 *Establishing a pharmacist-run outpatient chronic pain service;* 2010 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Anaheim, CA

10/09 *Pain management education and training for healthcare providers*; 2009 Annual Meeting of the Alliance of State Pain Initiatives; San Francisco, CA

12/09 Facilitator, *Pain and Palliative Care Pre-meeting Workshop*; 2009; Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Las Vegas, NV

12/08 Moderator, *Pain and Palliative Care Pre-meeting Workshop*; 2008; Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Orlando, FL

12/08 Network Facilitator, Pain and Palliative Care Networking Session; 2008 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Orlando, FL

12/08 *Pain Pathophysiology: A focus on novel pharmacology*; 2008 Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists, Orlando, FL

12/07 Moderator, *Pain and Palliative Care Pre-meeting Workshop*; 2007; Midyear Clinical Meeting of the American Society of Health-Systems Pharmacists; Las Vegas, NV

06/07 *Pain management pharmacotherapy: Making new friends and revisiting old ones*. Alliance of State Pain Initiatives Annual Meeting. Boston, MA

06/04 *Pharmacist education in pain and palliative care: A report from the 2003 National Pain and Palliative Care Summit*; 2004 Annual Meeting of the American Alliance of Cancer Pain Initiatives; New Brunswick, NJ

11/03 *Mechanisms and Management of Painful Diabetic Neuropathy*; 2003 Kilo Diabetes and Vascular Research Foundation Annual Meeting, Washington University in St. Louis School of Medicine; St. Louis, MO

09/03 *Pain and Palliative Care in Pharmacy Education*; 2003 National Pain & Palliative Care Summit; Ohio State University; Columbus, OH

12/01 *Pathophysiology of Cancer Pain;* Update in Cancer Pain Management; Annual Midyear Clinical Meeting; American Society of Health-System Pharmacy; New Orleans, LA

06/01 *Management of Painful Peripheral Neuropathy*: Annual Essentials on Aging Conference; New Mexico Geriatric Education Center; University of New Mexico HSC; Albuquerque, NM

06/00 *Geriatric Syndromes from a Pharmacologic Perspective*; Annual Essentials on Aging Conference; New Mexico Geriatric Education Center; University of New Mexico HSC; Albuquerque, NM

10/99 *Pharmacotherapy for an Aging Population;* Annual Conference on Geriatrics; American Academy of Family Physicians; Albuquerque, NM

05/99 *Validity of Home Blood Glucose Reporting by Patients: Conventional Logbook Reporting versus Computerized Glucose Tracking;* Western States Conference; Monterey, CA

09/98 *Cross-Cultural Communication and Medication Issues*; Essentials on Aging Conference; New Mexico Geriatric Education Center; University of New Mexico HSC; Albuquerque, NM

Regional Presentations

10/14 *Pain Management: Improving HCAHPS scores on the path to improved patient outcomes and perceptions.* All day workshop delivered to member hospitals of the VHA GPO network. Grand Rapids, MI.

09/14 *Chronic pain management: Darned if you do, darned if you don't.* 2014 Illinois Council of Health-Systems Pharmacy / Missouri Health-Systems Pharmacy Joint Spring Meeting; St. Charles, MO.

06/14 *Rational polypharmacy in the treatment of pain*. 2014 PAINWEEKend Summer Series; Atlanta, GA & Chicago, IL

06/14 *Adjuvant analgesics*. 2014 PAINWEEKend Summer Series; Atlanta, GA & Chicago, IL

04/14 *Pain Management: Improving HCAHPS scores on the path to improved patient outcomes and perceptions.* All day workshop delivered to member hospitals of the VHA GPO network. Indianopolis, IN.

10/13 *Core REMS training for prescribers of CR / LA opioids.* 2013 Annual Scientific Conference of the Midwest Pain Society, Chicago, IL.

10/13 *Analgesic pharmacology is fun and other lies your teacher told you*. 2013 Scientific Conference of the Midwest Pain Society, Chicago, IL.

05/13 *Practical Pain Management*. Illinois Dental Society, Mt. Vernon, IL.

04/13 *Pharmacology Review Course.* Illinois Society of Advanced Practice Nurses. Springfield, IL.

08/12 *Methadone, buprenorphine, and liposomal bupivacaine (webinar).* Illinois Council of Health System Pharmacists, Chicago, IL.

06/12 *Pharmacology Review Course*. Illinois Society of Advanced Practice Nurses. Champaign, IL.

10/11 *A holistic approach to chronic pain management* (moderator); Midwest Pain Society Annual Meeting; Chicago, IL.

09/11 *Multidisciplinary care of the chronic pain patient.* Illinois Pharmacists Association Annual Meeting; Springfield, IL.

09/11 *Case studies in post-operative pain management.* Illinois Council of Health-Systems Pharmacy Annual Meeting; Springfield, IL.

07/11 *A pharmacist's roadmap to pain management*; 2011 Georgia Society of Health System Pharmacists, Amelia Island, FL.

06/11 *A pharmacist's roadmap to pain management;* 2011 Washington Society of Health System

Pharmacists; Coeur d'Alene, Idaho.

05/11 *A pharmacist's roadmap to pain management;* 2011 Louisiana Society of Health System Pharmacists; New Orleans, LA.

04/11 *Establishment of a rural pharmacy practice residency program;* 2011 Illinois Council of Health-System Pharmacy / Missouri Society of Health-System Pharmacy Spring Meeting: St. Charles, MO.

10/10 *Acetaminophen and the Food and Drug Administration;* 2010 Annual Meeting of the Midwest Pain Society; Chicago, IL

11/09 *The pros and cons of opioid therapy for chronic nonmalignant pain*; 2009 Annual Meeting of the Michigan Society of Health-System Pharmacists; Novi, MI

09/09 *Chronic Pain Management*; Phillipino Medical Society of St. Louis Annual Conference; St. Louis, MO

10/08 *Pharmacology: An update for nurse practitioners*; St. Louis University; St. Louis, MO

10/08 *Ambulatory Pain Management*; New Mexico Society of Health Systems Pharmacists Annual Balloon Fiesta Meeting; Albuquerque, NM

04/08 *Chronic Pain Management: The 900lb gorilla in your clinic*; Illinois Council of Health Systems Pharmacists Annual Conference; Peoria, IL

10/07 *Analgesics from a pharmacology perspective: Science or voodoo?* Missouri Hospice and Palliative Care Organization Annual Meeting; Kansas City, MO

09/07 *Assessment of pain in the demented patient*; Neurology Grand Rounds; School of Medicine; Washington University in St. Louis; St. Louis, MO

03/07 *Chronic pain and palliative care from a pharmacist's perspective*; Spring Joint Meeting of the Illinois Council of Health-System Pharmacists and the Missouri Society of Health-System Pharmacists; St. Charles, MO

02/06 *Future Areas of Pain Management Research*; Grand Rounds; Dept of Anesthesiology; Washington University in St. Louis School of Medicine; St. Louis, MO

01/05 *Considerations of Channelopathies in Pain Syndromes*; Grand Rounds; Dept. of Anesthesiology; Washington University in St. Louis School of Medicine; St. Louis, MO

09/02 *Channelopathies and Neuropathic Pain*; Neurology and Neurosurgery Grand Rounds; St. John's Mercy Health System; St. Louis, MO

06/02 *Opioid Pharmacotherapy: Clinical Application;* Neurology Residents' and Fellows' Conference; Saint Louis University School of Medicine; St. Louis, MO

03/02 *Clinical Pain Management: Principles and Practice in Psychiatry*; Jefferson Barracks Veteran's Administration Medical Center Grand Rounds; St. Louis, MO

03/02 *Opioid Pharmacotherapy: Clinical Application;* Neurology Residents and Fellows Conference; Washington University in St. Louis School of Medicine; St. Louis, Missouri

01/01 *Continuous Subcutaneous Infusion in Pain Management;* Crown of Texas Hospice; Amarillo, Texas

09/00 *Pain Management in the Hospice Patient;* Hospice Hands of West Texas; Plainview, Texas

08/99 *Basic Pharmacokinetic and Dynamic Principles in Geriatrics*; Texas Tech Family Medicine Grand Rounds; Amarillo, Texas

06/99 *Research Design: Choosing the Statistical Analysis;* Geriatric Grand Rounds; University of New Mexico HSC; Albuquerque, New Mexico

04/99 *Polypharmacy: Assessment and Management;* New Mexico Geriatric Education Center; Durango, Colorado

03/99 *Community Acquired Pneumonia in the Elderly; G*eriatric Grand Grounds; University of New Mexico HSC; Albuquerque, New Mexico

01/99 *Platelet Active Drugs;* Geriatric Grand Rounds; University of New Mexico HSC; Albuquerque, New Mexico

11/98 *Opportunities in Health Care*; University of New Mexico Health Sciences Center; Albuquerque, New Mexico

08/98 *An Update on Parkinson's Disease;* Geriatric Grand Rounds; University of New Mexico HSC; Albuquerque, New Mexico

Local Presentations / Public Service Presentations

10/14 *Medical cannabis in Illinois: Practical selection and use*. St. Louis University Family Medicine Grand Rounds; Belleville, Il.

03/14 *Challenges in pain management: Balancing analgesia and safety.* 2014 Annual Conference of The St. Louis Chapter of the American Society for Pain Management Nurses, St. Louis, MO.

10/13 *Controlled Substances Risk Mitigation for the Community Pharmacist*. Metro-East Pharmacists Association, Fairview Heights, IL.

04/13 *Pain management and risk mitigation for the practicing dentist*. Mound Society of Dental Medicine, St. Louis, MO

04/13	*Pain extravaganza (4 hr workshop).* Department of Community and Family Medicine, St. Louis University, Belleville, IL
04/13	*Dental pain management*. Resident's Conference, School of Dental Medicine, Southern Illinois University Edwardsville, Alton, IL
03/13	*Universal Precautions in Pain*; St. Louis Chapter of the American Society for Pain Management Nursing, St. Louis, MO
01/13	*Painful Diabetic Peripheral Neuropathy*; St. Louis Association of Diabetes Educators, St. Louis, MO
08/12	*Migraine and Primary Headache Disorders*; St. Louis University Family Medicine Grand Rounds; Belleville, Il
02/12	*Prescribing controlled substances*; St. Louis University Conference for Advanced Practice Nurses, St. Louis, MO
11/11	*Patient controlled analgesia and opioids*; OSF St. Francis Pharmacy Grand Rounds, Peoria, IL
09/11	*Acute pain management for the dental practitioner*; Madison County Dental Society, Alton, IL
09/11	*Medications and weight gain*; TOPS weight control support group, Highland, IL

Course Coordination

Spring 07 to Present	PHPT 727, Gastrointestinal, pulmonary, rheumatology, and transplantation Integrated Pharmacotherapeutics, School of Pharmacy, SIUE
Fall 08	PHPT 740, Neurology and Psychiatry Integrated Therapeutics; School of Pharmacy, SIUE
Fall 07 to Present	PHEL 764, Pain and Palliative Care Pharmacotherapy, Advanced Elective, School of Pharmacy, SIUE

Didactic Teaching

2014 to present	Personalized medicine in pain and mental health (PHEL 786); School of Pharmacy, SIUE
2007 to present	Pain and Pallliative Care Pharmacotherapy (PHEL 764); Course coordinator, School of Pharmacy, SIUE
2006 to present	NVDC - PHPT 727, Gastrointestinal, pulmonary, rheumatology, and transplantation Integrated Pharmacotherapeutics, School of Pharmacy, SIUE
2006 to 2009	Inflammatory Bowel Disorder - PHPT 727, Gastrointestinal, pulmonary, rheumatology,

	and transplantation Integrated Pharmacotherapeutics, School of Pharmacy, SIUE
2006 to 2009	Chronic obstructive pulmonary disease - PHPT 727, Gastrointestinal, pulmonary, rheumatology, and transplantation Integrated Pharmacotherapeutics, School of Pharmacy, SIUE
2006 to present	Rheumatoid arthritis, osteoarthritis, and gout – PHPT 727, Gastrointestinal, pulmonary, rheumatology, and transplantation Integrated Pharmacotherapeutics, School of Pharmacy, SIUE
2006 to present	Stroke Pharmacotherapy – PHPT 724, Cardiovascular and Renal Integrated Therapeutics, School of Pharmacy, SIUE
2006 to Present	Thyroid Pharmacotherapy – PHPT 726, Endocrinology Integrated Therapeutics, School of Pharmacy, SIUE
2001 to present	Pain and Palliative Care; Nursing 314 & 315 – School of Nursing; SIUE
05/01	Pain and Palliative Care; TexPharm Neurosensory; University of Texas /
01/00 to 05/01	Course Coordinator - Pharm 4142; Grand Rounds (Senior Seminars); Texas Tech University School of Pharmacy
09/00	Neurosensory Pharmacotherapy / Pain; Pharm 3261 (2 hours); Texas Tech University School of Pharmacy
10/00	Hemodynamic Monitoring; TexPharm Critical Care; University of Texas
03/00	Pharmaceutical Care I / Medical Devices; Pharm 1301 (2 hours); Texas Tech University School of Pharmacy
02/00	Pharmaceutical Care I / OTC Analgesics; Pharm1301 (4 hours); Texas Tech University School of Pharmacy
11/99	Pharmaceutical Care II / SOAP Notes; Pharm2301 (1 hour); Texas Tech University School of Pharmacy
09/99	Neurosensory Pharmacotherapy / Epilepsy; Pharm 3261 (1 hour); Texas Tech University School of Pharmacy
03/99	Alzheimer's Disease (1 hour); Pharmacy 751 / 431; (Clinical Therapeutics II); University of New Mexico College of Pharmacy
03/99	Mental Status Examination & Dermatology; Physical Assessment and Communication; Pharmacy 750 (15 hours); University of New Mexico College of Pharmacy
01/99	Parkinson's Disease (2 hours); Pharmacy 752 / 432; (Clinical Therapeutics II); University

	of New Mexico College of Pharmacy
11/98	Geriatrics (1 hour); Pharmacy 751 / 431 (Clinical Therapeutics I); University of New Mexico College of Pharmacy
10/98	Gastroesophageal Reflux Disease (1 hour); Pharmacy 751 / 431; (Clinical Therapeutics I); University of New Mexico College of Pharmacy
10/98	Laxatives and Antidiarrheals (1 hour); Pharmacy 751 / 431 (Clinical Therapeutics I); University of New Mexico College of Pharmacy
06/98	Fluid, Electrolyte, and Acid-Base Disorders (1 hour); Medical-Surgical Nursing; Maryville University College of Nursing; Chesterfield, Missouri
05/98	Acute Myocardial Infarction (1 hour); Medical-Surgical Nursing; Maryville University College of Nursing; Chesterfield, Missouri

Experiential Teaching

Student Research Mentorship

Committee-work and Offices

Southern Illinois University of Edwardsville and Practice

01/16 to 01/17	Chair, Pharmacy Administration Team Review Committee
01/15 to 01/16	Chair-Elect, Pharmacy Administration Team Review Committee
10/14 to 06/15	Member, Health Sciences Expansion Taskforce, Office of the Provost
08/14 to 01/15	Chair, Promotion and Tenure Committee, School of Pharmacy
04/14 to 06/14	Member, Search Committee, Director of Grant Development, Graduate School
01/14 to 05/14	Member, Search Committee, SOP Research Faculty, School of Pharmacy
09/13 to Present	Promotion and Tenure Review Guidelines Task Force, School of Pharmacy
08/13	Merit Review Committee, School of Pharmacy, School of Pharmacy
05/13	Member, Search Committee, Honor's Director, Office of the Provost
03/13 to 5/13	Member, Promotion and Tenure Committee, School of Pharmacy
02/13 to 06/15	Member, Honorary Degrees and Distinguished Service Committee
08/10 to 05/11	Member, Dean Search Advisory Committee, School of Pharmacy
05/10 to 12/10	Capstone Project Task Force, School of Pharmacy
01/10 to 03/12	Peer Consulting and Mentoring Program, Office of Institutional Diversity
11/09 to 03/10	Dean's Quadrennial Review Committee, School of Pharmacy
10/09	Chair, Life Sciences Review Panel, Graduate School, SIUE Seed Grant Program
07/09 to 06/15	Research and Scholarship Committee, School of Pharmacy
08/08	Pre-Commencement Task Force, School of Pharmacy
10/08 to 05/09	Chair, Admissions committee, School of Pharmacy
09/07	Summer Research Fellowship Review Committee, Graduate School
07/07 to 07/08	Programming Subcommittee, Graduate Council, Graduate School

08/06 to 10/09	Advanced Pharmacy Practice Experience task force, School of Pharmacy
08/06 to 05/09	Awards and Scholarship Committee, School of Pharmacy
07/06 to Present	Pharmacy and Therapeutics Committee, St. Elizabeth's Hospital
08/05 to 05/09	Admissions Committee, School of Pharmacy

International Association for the Study of Pain

10/10 to Present	Member, Curriculum Task Force on Pain for Schools of Pharmacy

American Society of Health-Systems Pharmacy / ASHP Research and Education Foundation

06/15 to present	Co-Chair, Pharmacist role in palliative care guideline task force
01/14 to 03/14	Reviewer, Midyear Clinical Meeting symposium proposals
07/13 to 07/14	Survey Panel, Center for Health-System Pharmacy Leadership (Foundation)
08/12 to present	Faculty and Training Site Preceptor, ASHP Foundation Pain and Palliative Care Traineeship
05/13 to Present	Advisor, Ambulatory Pharmacy Practice Model Initiative
02/13 to 07/14	Member, Education Steering Committee
08/11 to Present	Faculty, Pain and Palliative Care Traineeship Program (Foundation)
07/11 to 06/12	Chair, Section Advisory Group on Pain and Palliative Care, Section for Ambulatory Care Practitioners
02/11 to 12/11	Member, Educational Programming Committee, 2011 Midyear Clinical Meeting
07/05 to Present	Member, Section Advisory Group on Pain and Palliative Care, Section for Ambulatory Care Practitioners
01/07 to 12/08	Network Facilitator, Pain Management; Section of Clinical Specialists and Scientists
10/04 to 06/05	Member, ASHP Task Force on Pain Management

Illinois Council of Health-Systems Pharmacy

08/14 to 03/15	Member, Scientific Planning Committee

American Pain Society

11/14	Abstract Submission Review
10/14 to Present	Chair, revision task force for Principles of Analgesic Use
03/13 to 05/16	Member, Scientific Program Committee
08/12 to Present	Member, Clinical Practice Guidelines Committee
10/11 to Present	Board of Directors, Midwest Pain Society, A regional society of the American Pain Society
01/11 to 01/13	Co-Chair, Scientific Planning Committee, Midwest Pain Society, A regional society of the American Pain Society
01/07 to Present	Organizing Committee and Founding Member, Pharmacotherapy Special Interest Group

American Association of Colleges of Pharmacy

09/13	Reviewer, New Investigator Awards

State of Illinois

03/12 to Present	Member, Illinois Prescription Monitoring Program Advisory Committee, Department of Health Services, State of Illinois

American College of Clinical Pharmacy

02/13	Expert Reviewer, Updates in Therapeutics®: The Ambulatory Care Pharmacy Preparatory Review and Recertification Course
12/12 to 03/13	Member, Item Writing Committee, Clinical Pharmacy Challenge
07/06	Pain Practice and Research Network Sabbatical Review Committee

Board of Pharmacy Specialties

05/11 to 08/12	Member, Practice analysis task force for pain and palliative care

American Academy of Neurology

01/07 to 10/09	Therapeutics and Technology Assessment Subcommittee, Guidelines and Practice Parameters Committee

Alliance of State Pain Initiatives and Regional

05/07 to 05/10	Board of Advisors (National)
07/06 to 06/07	Scientific Program Steering Committee (National)
01/04 to 01/05	President, Missouri Pain Initiative

Opioid Management Society

10/05 to Present	Educational Advisory Board

Texas Tech University Health Sciences Center and Practice

06/00 to 05/01	Academic Affairs Committee; Member, Credentialing Sub Committee; School of Pharmacy
05/00 to 05/01	Faculty Delegate; American Association of Colleges of Pharmacy; School of Pharmacy
05/00 to 05/01	Veterans Affairs Research & Development Committee (IRB) ; Amarillo VAMC
06/00 to 04/01	Board of Advisors; Amarillo Quality of Life Project
03/00 to 05/01	Advisory Committee; Pain and Palliative Care Initiative; Don & Sybil Harrington Cancer Center
08/99 to 05/01	Health Sciences Center Institutional Review Board
08/99 to 05/01	Chair, Faculty Search Committee, School of Pharmacy
09/99	State Employee Charitable Contribution Committee

University of New Mexico

11/98 to 06/99	Pain Management and Palliative Care Subcommittee; Pharmacy and Therapeutics Committee

Other Activities

External reviewer, Promotion & Tenure Committee, College of Pharmacy, University of New Mexico 2014.
External reviewer, Promotion & Tenure Committee, St. Louis College of Pharmacy, 2014.
External reviewer, Promotion & Tenure Committee, School of Pharmacy, UC San Diego, 2013

Certification

2009 Certified Pain Educator, American Society of Pain Educators
2000 Pharmacotherapy Specialist, Board of Pharmaceutical Specialties (recertified 2007)

Licensure

2013 Registered Pharmacist, Washington (Active)
1997 Registered Pharmacist, Illinois (Active)

Extramural Grants - Funded

National Institutes of Health Pain Consortium Centers of Excellence in Pain Education. Role: Principal Investigator (Funded - $879,224 Grant # HHSN271201500056C). 2015-2019.

Substance Abuse and Mental Health Services Administration, iCARE: Initiative to Create Awareness, Recognition, and Education (iCARE) on suicide prevention. Role: Co-Principal Investigator (Funded - $299,442 Grant # 1 U79 SM062499-01). 2015-2018.

National Institutes of Health Pain Consortium Center of Excellence in Pain Education. Role: Co-Principal Investigator (Funded - $268,000; NIH contract solicitation through Altarum). 2012-2014.

National consensus project on improving the education of pharmacists on pain and palliative care. Role: Principal Investigator (Funded - $152,500; Mayday Fund). 2007-2010.

American Pharmacist's Association outreach grant ($1000); Co-Principal Investigator (Awarded Feb 2007)

Changing the face of pain in Missouri: A state-wide stakeholder collaborative initiative;Co-Investigator (Funded - $20,000; American Pain Foundation). 2006

Power over pain: A state-wide public awareness project. Role: Co-Investigator (Funded - $10,000; American Pain Foundation) Missouri Pain Initiative. 2006

The show-me urban and rural education (SURE) project: A state-wide pain education initiative. Role: Principal Investigator (Funded - $10,000; Lance Armstrong Foundation / American Alliance of Cancer Pain Initiatives) Missouri Pain Initiative. 2005

A prospective clinical pharmacodynamic study of gatifloxacin; it's clinical efficacy, and tolerability in geriatric patients with community acquired pneumonia. Role: Co-Principal Investigator (funded - $80,028; Bristol Meyers-Squibb) 2000

Comparing incidence of adverse events between levalbuterol and racemic albuterol in the acute-care setting. Role: Co-Investigator (funded - $23,000; Sepracor Pharmaceuticals) 2000

The percutaneous systemic bioavailability of pluronic lecithin organogel (PLO) - administered morphine sulfate: A pilot study. Role: Principal Investigator (funded - $1,200; Crown of Texas Hospice Foundation) 2000

In Vitro compatibility and stability of medications administered via subcutaneous infusion. Role: Principal Investigator (funded - $4,645; Texas Society of Health-Systems Pharmacy Foundation) 2000

Validity of home blood glucose reporting by patients: Conventional logbook reporting versus computerized glucose tracking. Role: Principal Investigator (funded- $2,500; Lifescan, Inc.) 1998

Intramural Grants - Funded

The Hospice Volunteer Initiative. Meridian Society Grant. Role Co-Principal Investigator (funded - $1600). 2013.

Bridging hospice volunteerism and the millennial generation: A student directed outreach project. Meridian Society Grant. Role Principal Investigator. (funded- $3600). 2012

Putting narcotics into perspective – a visit to Covidien laboratories. Excellence in Undergraduate Education (EUE) grant. Role Principal Investigator. (funded - $800). 2007

Treatment of paclitaxel-induced peripheral neuropathy in breast cancer with mirtazapine: A pilot study. Role: Principal Investigator. (funded - $5,500; Women's Health Research Institute). 2001

End-of-Life care education in United States pharmacy schools / colleges. Role: Principal Investigator (funded - $550; University Seed Grant Program) 2001

Transdermal bioavailability of hydromorphone hydrochloride. Role: Principal Investigator. (funded - $5,675; TTUHSC pilot grant). 2000

Subcutaneous infusion practices of United States Hospices: A pilot questionnaire and *in vitro* compatibility analysis. Role: Principal Investigator (funded - $1,200; National Hospice Organization, $4,841 - TTUHSC pilot grant) 1999

Intramural Grants – Unfunded

Multidisciplinary Research Award. Communication competence in hospice care. $8520. 2014.

Extramural Grants - Unfunded

American Association of Colleges of Pharmacy (Submitted Nov. 2013; PI; unfunded $18,500) – The Hospice Volunteer Initiative. Student Community Engaged Award.

Mayday Foundation (Submitted March 2011; PI; unfunded $324,520) – Establishing consensus driven patient education modules for the Certified Pain Educator to satisfy CMS requirements for CPT code G0108.

Robert Wood Johnson Foundation Pioneer Grant Program (Submitted Jan 2011; PI; unfunded $824,400) - A system-wide educational intervention to reduce presentee-ism due to five frequent health conditions.

HRSA Federal Training Grant (submitted Jan 2007; Co-I; unfunded $57,811) – Overcoming disparate and literary barriers to effective pain and palliative care in a family medicine residency training program.

Dr. Jeff Alexander

Randy:
We are recommending Dr. Jeff Alexander, a podiatrist at Rush University, as the podiatry representative to the Prescription Monitoring Program Jeff's email is Jeffery_Alexander@rush.edu<mailto:Jeffery_Alexander@rush.edu>. Jeff is a member of the Board of Directors of the Illinois Podiatric Medical Association.

Specialty:

[*] Foot Surgery

Board Certification:

[*] Foot Surgery

Faculty Rank:

Instructor

Medical or Graduate Education:

Dr. William M. Scholl College of Podiatric Medicine

Residency:

Jesse Brown VA Medical Center - Podiatry

Clinical Expertise:

[*] Ankle replacement
[*] Arthroscopy
[*] Bunions
[*] Diabetic neuropathy
[*] Foot and ankle injuries and disorders
[*] Plantar fasciitis

Research Interests:

[*] Diabetic foot ulcerations
[*] Treatment of diabetic foot infections
[*] Bunion surgery outcomes
[*] Wound healing
[*] Treatment of painful diabetic neuropathy

Languages Spoken:

[*] Spanish

Additional Contact information:

[*] Midwest Podiatry Services, LTD.
[*] 610 S. Maple Ave.
[*] Suite 2550
[*] Oak Park, IL 60304
[*] Phone: (708) 660-6100
[*] Fax: (708) 660-0447

[Google Map]

[*] Midwest Podiatry Services, LTD.
[*] 1611 W. Harrison St.
[*] Suite 510
[*] Chicago, IL 60612
[*] Phone: (708) 660-6100
[*] Fax: (708) 660-0447

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Executive Director, Illinois Podiatric Medical Association
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Burr Ridge, IL 60527
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JULIE ADKINS DNP, APN, FNP-BC, FAANP
FAMILY NURSE PRACTITIONER

208 SUSANN DRIVE
WEST FRANKFORT, ILLINOIS 62896

HOME PHONE: 618-932-3591
WORK PHONE: 618-937-6300
CELL PHONE: 618-218-7381
FAX: 618-937-6363

E-MAIL: julieadkins@mchsi.com

EDUCATION

2009 TO AUGUST, 2011-DOCTORATE OF NURSING PRACTICE
UNIVERSITY OF ALABAMA, BIRMINGHAM

2003-CERTIFIED LIPID MANAGEMENT, UNIVERISITY OF SOUTHERN INDIANA

MAY 2001- SOUTHERN ILLINOIS UNIVERSITY AT EDWARDSVILLE, MASTERS DEGREE IN NURSING AND FAMILY NURSE PRACTITIONER.

MAY 1984-BACHELOR OF SCIENCE IN NURSING, SOUTHERN ILLINOIS UNIVERSITY, EDWARDSVILLE.

1974-REGISTERED NURSE, ASSOCIATE DEGREE IN NURSING, KASKASKIA COLLEGE, CENTRALIA.

EMPLOYMENT

2012 TO PRESENT-FAMILY NURSE PRACTITIONER, SIMCA (SOUTHERN ILLINOIS MEDICAL CARE ASSOCIATES
2001-2012-FAMILY NURSE PRACTITIONER, ULTIMED PLUS, WEST FRANKFORT, ILLINOIS

ORGANIZATIONS AND APPOINTMENTS

2015-INDUCTED AS A FELLOW OF THE AMERICAN ASSOCIATION OF NURSE PRACTITIONERS
2015-APPOINTED BY ILLINOIS GOVERNOR RAUNER TO THE STATE BOARD OF HEALTH
2014-COMMITTEE MEMBER, ILLINOIS PRESCRIPTION MONITORING PROGRAM
JUNE 2012-APPOINTED BY ILLINOIS GOVERNOR PAT QUINN TO THE STATE BOARD OF HEALTH

STEERING COMMITTEE-NURSING VISION 2020

ILLINOIS SOCIETY OF ADVANCED PRACTICE NURSES
REGION #6 CHAIR (2002 TO 2006)
SECRETARY (2006-2008)
PRESIDENT (2008-OCT. 2012)

AMERICAN ACADEMY OF NURSE PRACTITIONERS
ILLINOIS REPRESENTATIVE (2006-2008)
ILLINOIS REPRESENTATIVE (2008-2010)
ILLINOIS REPRESENTATIVE (2010-2012)

ILLINOIS REPRESENTATIVE (2012-to 2014)
ILLINOIS REPRESENATIVE (2014-2016)
SIGMA THETA TAU-EPSILON CHAPTER

PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

MENTOR AND PRECEPTORSHIP
DNP CAPSTONE PROJECT MENTOR-UNIVERSITY OF IOWA

SERVE AS CLINICAL PRECPTOR FOR SIUE, SEMO, UNIVERSITY OF SOUTHERN INDIANA, VANDERBILT, UNIVERSITY OF INDIANA, SLU, GEORGETOWN UNIVERSITY

PROFESSIONAL LICENSE

ADVANCED PRACTICE NURSE-CERTIFIED NURSE PRACTITIONER
ILLINOIS REGISTERED NURSE

AWARDS
CLINICAL EXCELLENCE AWARD, EPSILON ETA CHAPTER, SIGMA THETA TAU, APRIL 2003

MARIE LINDSEY SPIRIT OF ADVANCED PRACTIC NURSING, ISAPN, OCTOBER 2006

AMERICAN ACADEMY OF NURSE PRACTITIONERS NURSE PRACTITIONER EXCELLENCE AWARD FOR ILLINOIS, 2007

MARIE LINDSEY SPIRIT OF ADVANCED PRACTICE NURSING, ISAPN, OCTOBER 2012

SPEAKER
ILLINOIS SOCIETY FOR ADVANCED PRACTICE NURSES
(REGIONAL AND STATE CONFERENCES)

SEPTEMBER 12, 2012-WEBINAR ON HEALTH POLICY
ST. ANTHONY'S UNIVERSITY, ROCKFORD ILLINOIS

PUBLISHING

CO-CONTRIBUTOR-PRENTICE HALL REVIEWS IN NURSING: MEDICAL SURGICAL
JANUARY 2001

CONTRIBUTOR-PRENTICE HALL REVIEWS IN NURSING: PATHOPHYSIOLOGY
MARCH 2001

CONTRIBUTOR-PRENTICE HALL NURSING SERIES: PATHOPHYSIOLOGY
APRIL 2001

CONTRIBUTOR-PRENTICE HALL NURSING SERIES: PHARMACOLOGY
JULY 2001

CONTRIBUTOR-PRENTICE HALL NURSING SERIES: FUNDAMENTALS-MAGNESIUM
AUGUST 2001

CONTRIBUTOR-PRENTICE HALL NURSING SERIES: PHARMACOLOGY- GASTROINTESTINAL SYSTEM MEDICATIONS
DECEMBER, 2001

CONTRIBUTING AUTHOR: INSTRUCTOR'S GUIDE-GERONTOLOGICAL NURSING: A HEALTH PROMOTION/PROTECTION APPROACH, THIRD EDITION, F.A. DAVIS: JANUARY 2003

AUTHOR: KNOW YOUR CHOLESTEROL AND HEART RISK: PATIENT PRIMER (NONPUBLISHED), 2004

ACHIEVING LIPID GOALS: A STUDY OF OUTCOMES IN AN NP CLINIC, ADVANCE FOR NURSE PRACTITIONERS, JUNE 2007, VOL. 15/NO.6. PAGE 61.

CONTRIBUTOR-CASH, J. & GLASS, C. FAMILY PRACTICE GUIDELINES. SPRINGER LLC. NEW YORK. (MUSCULOSKELETAL AND SYSTEMIC DISORDER CHAPTERS). 2010.

CONTRIBUTOR-CASH, J. & GLASS, C. ADULT GERONTOLOGY PRACTICE GUIDELINES. SPRINGER LLC., NEW YORK. (MUSCULOSKELETAL, SYSTEMIC, ENDOCRINE AND NEUROLOGICAL DISORDERS CHAPTERS). 2014.

CURRICULUM VITAE
RANDY D. MALAN, R.PH., FASCP

PERSONAL INFORMATION

Home Address:	512 Huntington Glen Carbon, Illinois 62034
Business Address:	Illinois Department of Human Services 401 North 4th St., 1st Floor Springfield, Illinois 62702
Marital Status:	Married Wife: Vicki
Licensure:	Illinois
Faculty Appointments:	Assistant Clinical Professor Division of Pharmacy Practices University of Illinois College of Pharmacy St. Louis College of Pharmacy Adjunct Associate Professor Department of Psychiatry SIU School of Medicine
Professional Organizations:	American Society of Consultant Pharmacists American Society of Health-System Pharmacists

EDUCATION

1968-1971	St. Louis College of Pharmacy B.S. in Pharmacy
1966-1968	Greenville College Major: Chemistry and Biology

PROFESSIONAL EXPERIENCES

July 2013 – Present — Clinical Director, Illinois Prescription Monitoring Program

Responsibilities:
As Clinical Director, I am responsible for the clinical and administrative oversight over the Electronic Prescription Monitoring Program in compliance with 720 ILCS 570. This includes evaluation of individuals who have been identified as meeting the 6-6-1 criteria and the

authorization of unsolicited letters to their prescribers. Additionally, am responsible for being the lead regarding updates to scheduling of products within the authority of the Controlled Substances Act, including Peremptory Rulemaking to address changes issued by DEA. Chair the Prescription Monitoring Program Advisory Committee meetings and to oversee the responses to inquiries for data from the program.

September 1997 - 2013

Director of Pharmacy & Clinical Support Services
Office of Clinical, Administrative and Program Support
Bureau of Pharmacy and Clinical Support Services

Responsibilities:
As Director of Pharmacy Services for the Department of Human Services, Office of Clinical, Administrative and Program Support, Bureau of Pharmacy and Clinical Support Services, the responsibilities include: all of the previous responsibilities plus clinical and administrative oversight over the Electronic Prescription Monitoring Program in compliance with ILCS 570/100; oversight of the consolidated clinical laboratory contract for all DHS facilities; budgetary and clinical oversight for the Unit Dose Procurement, Drug Distribution, and Repackaging Center; Design, development, and implementation of expanded clinical services to community based agencies as a means of enhanced continuity of care and clinical outcome; Manage DHS portion of the Illinois FOID Program (Firearms Owner's Identification Card Program) in conjunction with the Illinois State Police; Chair the DHS Mental Health and Developmental Disabilities Services Pharmacy & Therapeutics Committee; Serve as the User Project Manager for the Department's Clinical Information System; and provide consultation to the Program Offices of Mental Health and Developmental Disabilities relative to staffing, ethical, legal, licensing and other operational issues concerning the practice of pharmacy within the state-operated facilities of DHS. In addition to the above, serve as the central pharmacist to the Il. Dept. of Public Health's Disaster Preparedness Section. Co-Director of the DHS / SIU Medical School Clinical Updates Conference for the past eighteen years.

1983 - September 1997

Director of Pharmacy Services
Illinois Department of Mental Health and Developmental Disabilities
Division of Clinical Services
Springfield, Illinois 62765

Responsibilities:
As Director of Pharmacy Services for the Department of Mental Health and Developmental Disabilities (approximately 5,000 beds), the responsibilities include: developing and implementing policies and procedures regarding pharmacy services on a Department-wide basis, developing and monitoring pharmaceutical administration protocols regulating accurate administration of medication and standardization of the process; monitoring pharmaceutical utilization through the Department's facilities with regard to patient conditions, required clinical chemistries, prescription practices, drug-drug, drug-food, and drug-lab interactions and patient outcome. Establish and direct on-

going drug use reviews as part of the Department's Quality Assurance Program for clinical care; serve as a voting member of the Department of Mental Health and Developmental Disabilities Drug Review Committee which contributes to the establishment of Department policies on pharmacotherapy; serve as chairperson of the following Department of Mental Health and Developmental Disabilities Drug Review Committee's Formulary, Rational Drug Protocol, and Pharmacy Policy and Procedures Subcommittees; serve as User Project Manager for the Department's computerized clinical care systems; on request provides clinical pharmacy consultation services to the Department's 21 facilities.

1982 - 1985

Pharmacy Director
Unit Dose Central Procurement Facility
Department of Mental Health and
Developmental Disabilities
Lincoln, Illinois

Responsibilities:
Establishing and organizing a Unit Dose Center Repackaging and Acquisition Center to supply all 21 Departmental facilities on a weekly basis; to interpret and comply with Food and Drug Administration, Drug Enforcement Administration, and State regulatory agencies requirements for the establishment, licensure, and operation of a pharmaceutical repackaging-relabeling and distribution operation; to design computer-based reorder programs to efficiently handle manufacturing schedules and resupply oral solid medication to Department operations on a weekly basis, and to maintain constant inventory levels and supplies from manufacturers to address the demands on the central warehouse operation; to provide day-to-day personnel and financial management to ensure net cost savings to the Department on an annual basis with regard to pharmaceutical acquisitions and disbursement.

1980 - 1982

Chief of Pharmacy
Alton Mental Health & Developmental Center
Alton, Illinois

Responsibilities:
Providing clinical and administrative guidelines to a 300-bed state mental health and developmental facility; serve on a facility Pharmacy and Therapeutics Committee, Behavior Management Committee, Infectious Disease Committee, and Professional Staff Committee; monitoring patient profiles, charts, diets, and clinical chemistry reports, reviewing and monitoring physician prescribing patterns; scheduling and managing personnel, implementing and planning clinical programs for pharmacy; disseminating drug information to patients, physician and nursing staff; maintaining an adequate supply of medication and sundry items required by the facility.

1979 - 1980

Chief Pharmacist
Pharmacy Manager

Family Pharmacy
Greenville, Illinois

Responsibilities:
Managing a computerized pharmacy operation; establishment of clinical pharmacy services to the two nursing homes serviced by the pharmacy, served as the consultant pharmacist for the two nursing homes; responsible for conducting nursing in-service, drug monitoring, patient consulting and patient and family drug inquiry/complaint, chart review, participate in monthly pharmacy/physician/nursing meeting; performed review and maintenance of emergency box and convenience box items.

1972 - 1979 — Chief Pharmacist
Pharmacy Manager
Family Pharmacy
Cahokia, Illinois

Responsibilities:
(Same as Family Pharmacy, Greenville, Illinois.)

1971 - 1972 — Staff Pharmacist
Family Pharmacy
Greenville, Illinois

Responsibilities:
Monitoring adequate inventory of supplies and medications; patient counseling on prescriptions and over-the-counter medications, monitored and maintained patient profiles.

PROFESSIONAL AWARDS

2009 SIU Edwardsville School of Pharmacy Preceptor Excellence Award: **Specialty Practice**

2008 IPHA Honorary President

2004 SIU Medical School Department of Psychiatry ***Adjunct Faculty of the Year***

PRESENTATIONS

"Updates to the Illinois Controlled Substance Act", May 16, 2012, lecture presented to the Long Term Care Pharmacists Association in Oakbrook, IL.

"Medications with Secondary Affect on Metabolic Factors: Additional Considerations in Parmacotherapy Development & Management", November 5th, 2009, lecture presented as part of the Division of Developmental Disabilities broadcast video continuing education conference.

"DHS / HFS Collaborative Psychopharmacology Project: 6 year longitudinal study", 2007 National Symposium on Co-Occurring Disorders, University of Georgia at Athens, February 8th, 2007.

"DHS / HFS Collaborative DD Psychotropic Quality Assurance Waiver Project", 2007 National Symposium on Co-Occurring Disorders, University of Georgia at Athens, February 7th, 2007.

"Drug-Drug Interactions", Grand Rounds Psych-Residency Lecture Series, SIU School of Medicine, April 10, 2006.

"Clinical Outcomes of Collaborative Practice Between DHS and DHFS", 26th National Symposium for Psychiatric Practitioners, Athens, Georgia, February 5-9, 2006.

"DHS -DHFS Collaborative Psychopharmacology Outcome Study", Grand Rounds Lecture at Elgin Mental Health Center, January 31, 2006.

"Evaluating the Effectiveness of Drug Therapy", Grand Rounds Psych-Residency Lecture Series, SIU School of Medicine, May 23, 2005.

"Depression", Grand Rounds Psych-Residency Lecture Series, SIU School of Medicine, April 22, 2005.

"Special Populations", Grand Rounds Psych-Residency Lecture Series, SIU School of Medicine, April 18, 2005.

"Drug-Drug Interactions", Grand Rounds Psych-Residency Lecture Series, SIU School of Medicine, March 28, 2005.

"Pharmacoeconomics: Update on State of Illinois Drug Program", 24th National Symposium for Psychiatric Practitioners, Athens, Georgia, February 5, 2004.

"Development of Algorithms: The Illinois Medication Algorithm Project" (or Modified TMAP), T. Sunder, M.D. and R. Malan, R.Ph., FASCP, 24th National Symposium for Psychiatric Practitioners, Athens, Georgia, February 3-4, 2004.

" Illinois Experience: Atypical Antipsychotic Usage in Persons With Developmental Disabilities", Use of Atypical Antipsychotics in the Behavioral and Psychiatric Treatment of Individuals With Developmental Disabilities Conference, SIU School of Medicine, Springfield, Illinois, November 21, 2003.

"Over the Counter Pharmaceuticals", Lecture for Department of Human Services, Bureau of Accreditation and Licensure, Springfield, Illinois, May 23, 2003.

"Review of Psychopharmacology and Prescribing Trends", Grand Rounds Lecture at Elgin Mental Health Center, Elgin, Illinois, May 6, 2003.

"Is Antipsychotic Polypharmacy Effective?", PRIMEDIA Healthcare/Interactive Medical Networks (IMN), psychLINK live, interactive video symposium, Dallas, Texas, March 26, 2003.

"Pharmacoeconomics: Update on State of Illinois Drug Program Within DHS", 23rd National Symposium for Psychiatric Practitioners, Athens, Georgia, February 5, 2003.

"Drug-Drug Interactions: Factors Affecting Pharmacological Activity of Medications", T. Sunder, M.D., R. Malan, R.Ph., FASCP, Grand Rounds Lecture at SIU School of Medicine, Springfield, Illinois, January 27, 2003.

"Rational Pharmacotherapy: Its Impact on Clinical Outcomes and Healthcare Resources", Grand Rounds Lecture at Elgin Mental Health Center, Elgin, Illinois, December 17, 2002.

"Rational Psychopharmacology", T. Sunder, M.D., R. Malan, R.Ph., FASCP, Grand Rounds Lecture at SIU School of Medicine, Springfield, Illinois, November 1, 2002.

"Expert Concensus Recommendations for Best Practices Polypharmacy", J. Parks, M.D., S. Bartels, M.D., R. Littrell, Pharm.D., R. Malan, R.Ph., FASCP, and P. Knapp M.D., American Psychiatric Association 54th Institute on Psychiatric Services, Chicago, Illinois, October 10, 2002.

"Rational Psychopharmacology", Mental Health Center of Central Illinois, Springfield, Illinois, October 2, 2002.

"Polypharmacy and Other Factors Affecting Rational Pharmacotherapy and Clinical Outcomes", The University of Texas College of Pharmacy's 14th Psychiatric Pharmacy Update, Austin, Texas, September 27, 2002.

"Interactions Between Psychotropic and Non-Psychotropic Medications", Primary Care at State Psychiatric Facilities Conference at McFarland Mental Health Center, June 13, 2002.

"Rational Pharmacotherapy Relative to Tracking Clinical Outcome and Analyzing for Trends", Comprehensive NeuroScience Inc. Schizophrenia Symposia 2002, Little Rock, Arkansas, June 4, 2002.

"Rational Pharmacotherapy Relative to Tracking Clinical Outcome and Analyzing for Trends", Comprehensive NeuroScience Inc. Schizophrenia Symposia 2002, Indianapolis, Indiana, May 8, 2002.

"Antidepressants, Antianxiety Agents, Etc.", Lecture for Department of Human Services, Bureau of Accreditation and Licensure, Springfield, Illinois, February 14, 2002.

"Pharmacoeconomics: Doing More With Less", 22nd National Symposium for Psychiatric Practitioners, Athens, Georgia, February, 2002.

"Rational Pharmacotherapy with Antipsychotics and Cost Containment Initiatives Within the Illinois State Mental Health System", Indiana Division of Mental Health and Addictions, Indiana State Hospital Medical Directors Quarterly Meeting, Indianapolis, Indiana, December 11, 2001.

"Rational Psychopharmocology", Grand Rounds Lecture at Elgin Mental Health Center, Elgin, Illinois, November 20, 2001.

"Rational Psychopharmocology", Grand Rounds Lecture at Zeller Mental Health Center, Peoria, Illinois, October 18, 2001.

"Drug Interactions with Psychotropic Medications", 2001 Metro East Comprehensive Mental Health Consumer Conference, Collinsville, Illinois, October 12, 2001.

"Review of Psychotropic Medications", NAMI (National Association for Mental Illness), Granite City, Illinois, October 10, 2001.

"Posttraumatic Stress Syndrome", CNS Affective Disorders Advisory Forum, Titusville, New Jersey, June, 2001.

"Polypharmacy", NASMHPD National Association of State Mental Health Program Directors, Medical Directors Council Technical Report Meeting, New Orleans, Louisiana, May, 2001.

"Psychiatric Disorders in Patients With Developmental Disabilities: Clinical Update", University of Georgia, 21st National Symposium for Psychiatric Practitioners, Athens, Georgia, February, 2001.

"Psychotropic Medication Education", 3rd Annual Southern Illinois Consumer Conference, Mt. Vernon, Illinois, August, 1999.

"Factors Affecting the Pharmacological Activity of Medication", Elgin, Illinois, February 16, 1999.

"Continuity of Care and Its Impact on Pharmacoeconomics", St. Louis Hospital Pharmacist's Association, February 11, 1999.

"Treating Epilepsy in the Developmentally Disabled Population", University of Georgia 19th National Symposium for Mental Health, Developmental Disabilities, and Substance Abuse Practitioners, Athens, Georgia, February, 1999.

"Continuity of Care in the Mental Health System: Impact on Clinical Outcomes and Pharmacoeconomics", Finch University of Health Sciences/The Chicago Medical School Department of Psychiatry and Behavioral Sciences Grand Rounds Program, Chicago, Illinois, January 21, 1999.

"Treatment Resistant Schizophrenia: Strategies and Expectations", PRIMEDIA Healthcare/Interactive Medical Networks (IMN), psychLINK live, interactive video symposium, Dallas, Texas, January 13, 1999.

"Advisory Panel on Depression", 1998 Pfizer Behavioral Healthcare Pharmacy Advisory Council, New York, New York, November 13-15, 1998.

"Continuity of Care: Its Impact on Pharmacoeconomics and Clinical Outcome - an Update", American College of Neuropsychopharmacology, Hawaii, December, 1997.

"Continuity of Care: Its Impact on Pharmacoeconomics and Clinical Outcome", 17th Annual Symposium for Mental Health, Mental Retardation, Substance Abuse Pharmacists, University of Georgia at Athens, February 5, 1997.
"The Recommended Dosing Schedule for Risperidone Should be Altered", Luchins, M.D., Klass, M.D., Malan, R.Ph., Hanarhan, Ph.D., American College of Neuropsychopharmacology, San Juan, Puerto Rico, December, 1996.

"Pharmacoeconomics: A Component of Outcome Evaluations", Treatment of Persons with Severe and Persistent Mental Illness: A New Season Conference sponsored by Southern Illinois University School of Medicine, Springfield, IL, November 10, 1996.

"Computerized Practice Guidelines for Psychiatrists", D. Klass, M.D., D. Luchins, M.D., R. Malan, R.Ph., Symposium #22, American Psychiatric Association 48th Institute on Psychiatric Services, Chicago, IL, October 18-22, 1996.

"Outcome Assessment and Critical Pathways in the Treatment of the Neuropsychiatric Patient", 7th Annual Psychopharmacy Update Conference, University of Texas at Austin.

"Pharmacoeconomic Justification for Changing the Roles of the Pharmacist", 15th National Conference for Mental Health, Developmental Disabilities, Substance Abuse Pharmacists, University of Georgia at Athens, January 30-February 2, 1995.

"Psychopharmacology Review & Update", Adler School of Psychology Ph.D. Program extension at Sangamon State University January 20-22, 1995.

"Drug-Interactions of the Antidepressants", Springfield Pharmacists Association January 5, 1995.

"Prospectives in Formulary Development within a Governmental Mental Health System", 33rd Annual Meeting American College of Neuropsychopharmacology, San Juan, Puerto Rico December 12, 1994.

"Food-Drug Interactions as a Factor in Alteration of Pharmaceutical Affects of Medication", DMHDD Nutritional Conference, September 21, 1994.

"Cost of Depression vs. Patient Outcome", Third Annual Midwest Managed Health Care Congress,
Chicago, IL, September 8-10, 1993.

"Pharmaceutical Dosage Calculations", to nursing service 217 EVAC Hospital (U. S. Army), Riyadh, Saudi Arabia, January 9-20, 1991.

"Management of Nuclear Biological Chemical Injuries within the Theater of War", to pharmacy and medical personnel at King Fahd Saudi Army National Guard Hospital, Riyadh, Saudi Arabia, January 16, 1991.

"Expansion of Clinical Pharmacy Activity through Dietary, Laboratory, Pharmacy", To pharmacy administration, King Faisal Specialist Hospital and Research Center, February 16, 1991.

"Computerized Pharmacy Control System: To Meet Current Federal Requirements for HCFA, ICF-DD Facilities", Paper presented to the 1987 Meeting, National Conference of State Human Services Fiscal Officers.

"Cost Containment in a Department of Mental Health and Developmental Disabilities Group: Through Centralization and Standardization of Pharmacy Practices", Paper presented to the Annual Meeting of American Society of Hospital Pharmacies, Reno, Nevada.

"Factors Affecting the Pharmacological Affects of Medication", Presented to physicians attending the 139th Medical Group (U. S. Army) Medical Symposium, St. Louis, Missouri.

PUBLISHED ARTICLES

"Health and Economic Consequences in Schizophrenia", CD-ROM, Johns Hopkins University School of Medicine; Rivkin, P.; Casey, D.; Lloyd, J.; Malan, R.; Schooler, N.; Weiden, P.; March, 2004.

"Computerized Analysis of Therapeutic Drug Monitoring Practices in a State Hospital System", Luchins, D.; Klass, D.; Hanrahan, P.; Patrick, G.; Malan, R.; Fichtner, C.; P & T, September, 2001, pages 478-485.

"Discontinuity of Outpatient Antipsychotic Pharmacotherapy: Risperidone Maintenance After Hospitalization", Malan, R.; Luchins, D.; Fichtner, C.; Hanrahan, P.; Klass, D.; Journal of Pharmacy Technology, Volume 17, May/June 2001, pages 90-94.

"Impacting Behavioral Healthcare: The Role of Pharmacy", The University of Kentucky College of Pharmacy, 2001 Pfizer Behavioral Healthcare Pharmacy Advisory Council CD Rom, New York, New York, March, 2001.

"Computerized Monitoring of Valproate and Physician Responsiveness to Laboratory Studies as a Quality Indicator", Luchins, D.; Klass, D.; Hanrahan, P.; Qayyum, M.; Malan, R.; Raskin-Davis, V.; Fichtner, C.; Psychiatric Services, September, 2000, pages 1179-1181.

"Real-World Pharmacotherapy with Novel Antipsychotics", Fichtner, C.; Luchins, D.; Malan, R.; Hanrahan, P.; Journal of Practical Psychiatry and Behavioral Health, January, 1999, pages 37-43.

"Clozapine for Refractory Schizophrenia: The Illinois Experience", Buckman, R.; Malan, R.; Journal of Clinical Psychiatry, 1999, pages 18-22.

"Alteration in the Recommended Dosing Schedule for Risperidone", Luchins, D.; Klass, D.; Hanrahan, P.; Malan, R.; Harris, J.; American Journal of Psychiatry, 1998, 155:365-366.

"Pharmaceutical Care in a State Operated Mental Health and Developmental Disabilities Department", Malan, R.; Journal of Pharmacy Practice, Vol. IX. No. 4,August, 1996, pages 229-249.

"Advances in Therapy of Schizophrenia", Malan, R.; Watanabe, M.; U. S. Pharmacist, March, 1996.

"User-Friendly CQI for the Mental Health Care Team", Corrigan, P.; Luchins, D.; Malan, R.; Harris, J.; Medical Interface, December, 1994.

ARTICLES SUBMITTED FOR PUBLICATION

"Rehospitalization and Antipsychotics: Real World Data Over Five Years", Malan, R., Fichtner, C., Matticks, R., Journal of American Psychiatric Association.

"Real World Drug Utilization Review: Antiepileptic Medications Part 1: Conversion from Depakote DR to Depakote ER", Malan, R., Frenkel, A., Sunder, T., Matticks, R., Koechle, B., Beck, D., Luchins, D., Journal of American Psychiatric Association.

"Indications and Guidelines for Psychiatric Medication use in Children and Adolescents", Nierman, P.; Lelio, D.; Roy, P., Malan, R., Journal of American Psychiatric Association.

RESEARCH IN PROGRESS

- Retrospective Study of Antipsychotic Pharmacotherapy - January, 1993 to August, 1995 - 6,850 Patients

- Interface with IDPA Billing System for Continuity of Care Study on all Patients Discharged on Clozapine and Risperidol

This Study covers the following areas:

- Continuity of care in the community relative to same pharmacotherapy
- Recidivism data
- Frequency of ER visits, psychiatric ward stays in the community, MD office visits, laboratory costs, crisis intervention, medical transportation costs
- Quality of life issues

MILITARY EXPERIENCE

February 9, 1999	U.S. Army Reserve Retired
January 1, 1993 - February 9, 1999	DEP MEDS Training Coordinator.
April 1, 1991 - February 9, 1999	Officer in Charge - 21st General Hospital Pharmacy (U. S. Army Reserve), St. Louis, MO.
December 28, 1990 - March 20, 1991	Chief of Pharmacy, 217 EVAC Hospital, Riyadh, Saudi Arabia, Operation Desert Shield/Storm.
1985 - December 22, 1990	Officer in Charge - 21st General Hospital Pharmacy (U. S. Army Reserve), St. Louis, MO.
1980 - 1985	Individual Ready Reserves.
1978 - 1980	Health Care Logistics Officer, 25th Combat Support Hospital (U. S. Army Reserve), St. Louis, MO.
1976 - 1978	Headquarters Unit Commander, 25th Combat Support Hospital (U. S. Army Reserve), St. Louis, MO.

Date of Rank	
1989	LTC
1986	MAJ

1979 CPT
1976 1LT

Revised 02-04-10

Curriculum Vitae
Mindy C. Nguyen, O.D.

11809 Main Street
Huntley, IL 60142
Email: huntleyeyecare@gmail.com

EDUCATION

Jul 2005 – Jun 2006 — **University of Houston College of Optometry** – Houston, TX
Post-Graduate Residency in Community-Based Family Practice

Aug 2001 – May 2005 — **Illinois College of Optometry** – Chicago, IL
Doctor of Optometry

Aug 1996 – May 2000 — **Loyola University Chicago** – Chicago, IL
Bachelor of Science; Biology Major/Chemistry Minor

PROFESSIONAL EXPERIENCE

April 2008 – Present — **Huntley Eye Care, L.L.C.** – Huntley, IL
Optometrist

Jul 2006 – Present — **Illinois College of Optometry** – Chicago, IL
Assistant Professor of Optometry

June 2011 – Present — **Target Optical**
Independent Contracting Optometrist

May 2007 – March 2011 — **Eyemed**
Medical Chart Auditor

Nov 2006 – June 2007 — **Lenscrafters** – Old Orchard, IL
Associate Optometrist

RESIDENCY EXPERIENCE

Primary Care
- *Good Neighbor Eye Clinic* – Houston, TX
- *University Eye Institute Family Practice Adult Clinic* – Houston, TX
- *University Eye Institute Ocular Diagnostic Clinic* – Houston, TX
  San Jose Clinic Eye Clinic – Houston, TX

Cornea and Contact Lenses
- *University Eye Institute Contact Lens Clinic* – Houston, TX
- *Whitsett Vision Group* – Houston, TX
- *Houston Eye Associates* – Houston, TX
- *Eyecenter of Texas* – Houston, TX

Glaucoma
- *University Eye Institute Medical Clinic* – Houston, TX

Low Vision Rehabilitation
- *Texas Institute of Rehabilitation and Research* – Houston, TX
- *University Eye Institute Center for Sight Enhancement* – Houston, TX

Neuro-Ophthalmology
- *Whitsett Vision Group* – Houston, TX

Oculoplastics
- *University Eye Institute, Medical Clinic* – Houston, TX

Retina
- *Whitsett Vision Group* – Houston, TX
- *Eye Center of Texas* – Houston, TX
- *University Eye Institute, Medical Clinic* – Houston, TX

Teaching
- *Faculty Assistant for 2nd Year Ocular Procedures Laboratory*

- *Faculty Assistant for 2nd Year Contact Lens Laboratory*
- *Guest Lecturer for 3rd Year Clinical Rounds Course*
- *Clinical Attending*
  - Good Neighbor Eye Clinic – Houston, TX
  - Family Practice Adult Clinic – Houston, TX
- *Guest Lecturer for Texocop Pre-Optometry Summer Course*

Presentations

- *Grand Rounds and New Developments*
  University of Houston College of Optometry – Houston, TX
  - Basal Cell Carcinoma – Summer 2006
  - Ocular Toxoplasmosis – Spring 2006
  - Pregnancy-Induced Central Serous Chorioretinopathy – Fall 2005

Community Service

- *Macugen Sponsored Vision Screening* – May 2006, Houston, TX
- *The Lighthouse for the Blind 24th Annual Beeping Egg Hunt* – Apr 2006, Houston, TX
- *Feria de la Salud Community Health Fair* – Mar 2006, Houston, TX
- *South Central Community Center Health Fair* – Nov 2005, Houston, TX

CLINICAL EXPERIENCE

Feb 2005 – May 2005	**St. James Olympia Fields Hospital** – Olympia Fields, IL *Emphasis: Ocular Disease and Primary Eye Care*
Nov 2004 – Feb 2005	**Illinois Eye Institute/Children's Family Eyecare** – Chicago, IL *Emphasis: Contact Lens and Pediatrics*
Aug 2004 – Nov 2004	**Franklin D. Roosevelt Veteran Affairs Hospital/Castle Point Veteran Affairs Medical Center** – Montrose, NY *Emphasis: Ocular Disease and Primary Eye Care*
May 2004 – Aug 2004	**James H. Quillen Veteran Affairs Medical Center** – Mountain Home, TN *Emphasis: Ocular Disease and Low Vision*
May 2003 – May 2004	**Illinois Eye Institute** – Chicago, IL *Emphasis: Primary Eye Care*

LICENSURES

Illinois Optometry Board

OPTOMETRY CERTIFICATIONS

Texas Glaucoma Specialist Certification
Treatment and Management of Ocular Disease (TMOD)
National Board of Examiners in Optometry (NBEO)

- Parts 1, 2, and 3

PROFESSIONAL PUBLICATIONS/PRESENTATIONS

- Nguyen M. "Utilization of ocular coherence tomography and electroretinogram in the diagnosis of myopic macula schisis." American Optometric Association Poster Number: 110. Chicago, IL Jun 2012.
- Nguyen M. "Utilization of digital imaging in the assessment of students' performance on direct ophthalmoscopy." American Academy of Optometry Poster Number: 98. Orlando, FL Nov 2009.
- Nguyen M. "Visualization of iriociliary cyst using various imaging techniques." American Academy of Optometry Poster Number: 122. Orlando, FL Nov 2009.
- Nguyen M. "Consider surgical management of glaucoma in pregnant women." *Primary Care Optometry News* 11 (2): 20.
- Nguyen M, Pate L, Segu P. "Glaucoma and pregnancy: how do we treat?" American Optometric Association Poster Number: 30. Las Vegas, NV. Jun 2006.
- Nguyen M, Steenbakkers M, Segu P. "Pregnancy-induced central serous chorioretinopathy." American Academy of Optometry Poster Number: 124. San Diego, CA. Dec 2005.

PROFESSIONAL ACTIVITIES AND MEMBERSHIP

Member of American Academy of Optometry

- *Fellow of American Academy of Optometry* – November 2007, Tampa, FL

Member of American Optometric Association
Member of Illinois Optometric Association

- *Membership Trustee* – September 2014

Member of College of Optometrists in Vision Development
Member of American Academy of Orthokeratology and Myopia Control
Examiner of the National Board of Examiners in Optometry

ADDITIONAL EDUCATION AND PROFESSIONAL CERTIFICATIONS

ASCO Summer Faculty Institute
Injections Lecture, Laboratory, and Exam
American Heart Association Cardiopulmonary Resuscitation (CPR) Certification
Baush & Lomb Overnight Orthokeratology Interactive Educational Program
Paragon CRT for Corneal Refractive Therapy

MINDY M. SANDERS PA-C, CPAAPA

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Springfield, IL 62703

217.528.7541

MSanders@SpringfieldClinic.com

Education

- Southern Illinois University at Carbondale – Physician Assistant Program

  2005 – 2007 Bachelor of Science in Physician Assistant Studies

- Richland Community College – Surgical Technology / Pre-PA

  1997 – 2000 Associate in Science

Professional Experience

- Springfield Clinic – Department of Advanced Practice Nurse / Physician Assistant

  APN / PA Manager 2014 – Present

  - Recruitment, Retention, and Transfers
  - Evaluations and Orientation
  - Clinical Practice – Dr. Dan Lanzotti, MD

  PA-C Family Practice 2008 – Present

  - Involved in all aspects of patient care
  - Collaborating physicians: Dr. Lanzotti, MD and Dr. Sapetti, MD

  PA-C Prompt Care 2012 – Present

  - PRN Provider
  - Diagnose and Treat Acute Illness and Injury

- Memorial Physician Services – Koke Mill Medical Center

  PA-C Internal Medicine & Pediatrics 2007 – 2008

  - Complementing the practices of Dr. E. Bleyer, MD and Dr. L. Bleyer, MD
  - First PA-C to be employed in the practice

- Orthopaedic Center of Illinois – Dr. B. Mulshine

  Surgical and Clinical First Assistant 2000 – 2005

  - Assist surgeon during rounds, office visits, and operative procedures
  - Wound closure, cast/splint application, perioperative counseling

- St. John's Hospital – Department of Surgery

  Certified Surgical Technologist 1998 – 2000

  - Perioperative preparation of supplies, equipment, and instruments
  - Orthopedic / Trauma Charge for 15 room OR

Certification / Licensure

- Board Certified NCCPA 2007 – Present
- DEA License 2007 – Present
- Illinois State Physician Assistant License 2007 – Present
- Illinois State Controlled Substance License 2007 – Present
- ACLS American Heart Association 2005 – 2008
- BLS American Heart Association 1998 – Present
- Certified Surgical Technologist 1999 – 2005

Professional Affiliations, Appointments, Awards

- American Academy of Physician Assistants. Fellow member since 2005. Served as SIU Student House of Delegates Representative 2007.
- Illinois Academy of Physician Assistants. Fellow member since 2005. President Elect 2015 – 2016. Provided live testimony to Illinois State Legislative Assembly regarding expansion of privileges of PAs in Illinois.
- Southern Illinois University Preceptor of the Year 2013 and 2015. Serving routinely as a preceptor for physician assistant and nurse practitioner students.
- American Academy of Physician Assistants Clinical Preceptor. (CPAAPA) Recognized for service and support of the PA profession and the advancement of healthcare. 2015 – Present.
- Member Springfield Clinic APN / PA Advisory Committee. 2014 – Present.
- Member Springfield Clinic Credentialing Committee. 2014 – Present.
- Member Springfield Clinic Quality Management Committee. 2014 – Present.
- Member Springfield Clinic ACO Measures. 2014 – Present.
- Proposed clinical guidelines for work up and management of hypertension by Department of Family Medicine at Springfield Clinic in 2011. Approved by Quality Management in 2013.
- Southern Illinois University Physician Assistant Student Organization. Class of 2007 Secretary.
- Richland Community College Surgical Technology Advisory Board. Elected as a student to the Board in 1998 and continue to serve.
- Richland Community College Distinguished Alumnus of the Year 2009. Awarded to one alumnus annually.

Community Presentations / Activities

- Osteoporosis. Springfield Senior Health Fair.
- Immunization Update. Springfield Farmers' Market.
- Girl Scout Troop Leader.
- Williamsville Junior High School Career Day Speaker
- Williamsville Junior Football League First Aid Provider

Eldon A. Trame, M.D.

2900 Frank Scott Parkway West
Belleville, IL 62223
(O) 618-234-0640
(F) 314-851-4475

Clinical Practice:

Esse Health, Belleville, IL 62223

Internal Medicine 1985 – present

Scott Air Force Base:

Air Force Medical Officer 1981 – 1985

Education:

Medical Degree: Medical School of St. Louis University, St. Louis, MO

Residency: St. John's Mercy Medical Center, St. Louis University

Board Certification: American Board of Internal Medicine

Organized Medicine:

American Medical Association 1983 – present

Organized Medical Staff Section (OMSS) Delegate 2000 – present
Illinois State Chair, OMSS Delegation 2005 – 2008

Illinois State Medical Society 1985 – present

President 2013 – present
Trustee 2002 – 2013
Downstate Caucus Secretary 2006 – 2008
Downstate Caucus Chairman 2008 – 2010
Alternate Delegate to the AMA 2005 – 2014
ISMS President 2013

St. Clair County Medical Society 1985 – present

President 1995

Delegate to ISMS House of Delegates 1994-2002

Awards:

Recognition by the National Committee for Quality Assurance (NCQA) and the American Diabetes Association for patient care in Diabetes.

Personal:

Married with two children

Appendix B

STATE OF ILLINOIS

Illinois Department of Human Services
Prescription Monitoring Program Advisory Committee

Policies
(Approved by Advisory Group on February 26th, 2016)

ARTICLE I

Membership:

Section 1-1. The voting members of the Prescription Monitoring Program Advisory Committee (PMPAC) are appointed by the PMP Clinical Director with the concurrence of the DHS Secretary. PA99-0480, 720 ILCS 570/320 (b)

Section 1-2. Members shall serve terms of three (3) years unless a member is appointed to a vacancy in which case the appointment shall be for the remainder of the term vacated. Terms shall be from July 1st to June 30th for each year of the appointment. Membership appointments are limited to two (2) consecutive terms. No member may be reappointed to serve more than two (2) consecutive terms without a break of at least twelve months between the last consecutive term served and the next term.

Section 1-3: Voting members shall be licensed healthcare professionals who are legal residents of the State of Illinois.

Section 1-4: Non-voting technical advisory members of the Prescription Monitoring Program Advisory Committee (PMPAC) may be appointed by the chair of the PMPAC.

Section 1-5: The Advisory Committee shall be made up of no more than twenty-one (21) members. In order to ensure diversity, the voting membership shall represent academic clinicians from various schools of medicine, pharmacy, medical informatics, medical biostatistics, as well as practitioners from the various associations representing either the long term care industry and / or professional associations. The licensed clinicians serving as voting members of the Committee shall consist of 4 physicians licensed to practice medicine in all its branches; 3 registered pharmacists representing hospital, community and academic practices; 1 advance practice nurse; 1 physician's assistant, 1 optometrist; 1 dentist, and 1 podiatric physician. The Clinical Director of the PMP shall serve as the Chair of the PMP Advisory Committee. PA99-0480, 720 ILCCS 570/320 (b)

Section 1-6: When adding new members, the limit of 21 persons shall not be exceeded and the make-up of the committee members stated in Section 1-5 shall not be altered. New members will be considered and appointed as positions open, taking into consideration the required makeup of the Board.

Section 1-7: Each member shall be required to complete the State of Illinois Ethics Training and sign a Conflict of Interest Statement annually. State of Illinois Open Meetings Act Training shall be one time only.

Section 1-8: Members may be removed from the Advisory Committee by a majority vote for any of the following reasons: conflict of interest, an ethics breach, or any other serious action deemed removable by the Advisory Committee.

Section 1-9: The Clinical Director of the Prescription Monitoring Program shall select 5 of the licensed clinicians of the PMPAC to serve on its peer-review committee. The 5 members shall consist of 3 physicians and 2 pharmacists. This peer-review subcommittee of the Prescription Monitoring Program Advisory Committee shall fulfill the functions established within PA99-480 affecting 720 ILCS 570/320 (f)(1),(2),(3), (4) and (5).

ARTICLE II

Meetings:

Section 2-1: Regular meetings of the Advisory Committee shall occur at least quarterly (four [4] times per year) at a time and place determined by the Advisory Committee. The Advisory Committee may meet more frequently dependent upon a majority vote, or needed activity of the peer-review subcommittee.

Section 2-2: Members are required to provide diligent service to the Advisory Committee. Service requires attendance at Committee meetings. Three (3) consecutive unexcused absences shall cause automatic removal from the Advisory Committee. Excused absences may be granted at the discretion of the Chairperson, upon notification by PMPAC members within a reasonable period of time, prior to the scheduled meeting.

Section 2-3: A meeting may be rescheduled or a special meeting called by the Chairperson, or his designee. In the event an emergency meeting is called, it should be the consensus of the group to convene that meeting via audio conference call. Public notice shall be given by posting a copy of the notice at the principal office of the body holding the meeting 48 hours

prior to the meeting. The proceedings may be audio recorded for accuracy of minutes.

Section 2-4: All meetings shall comply with the *Open Meetings Act* [5 ILCS 120].

Section 2-5: The Chairperson, or his/her designee, shall assist the appointed clerical staff from the Department of Human Services, in the preparation of an agenda prior to each meeting. The approval of Minutes from the previous meeting shall be included on each Agenda.

ARTICLE III

Officers:

Section 3-1: There shall be a Chairperson of the Advisory Group. The PMPAC Chairperson shall be the Clinical Director for the Department of Human Services, Prescription Monitoring Program.

Section 3-2: The Chairperson may designate a member of the Advisory Group to serve as Parliamentarian.

Section 3-3: The advisory committee may appoint its other officers as it deems appropriate.

ARTICLE IV

Conducting Business:

Section 4-1: A quorum shall consist of a majority of voting members of the Advisory Group. (Seven voting members)

Section 4-2: The meetings and proceedings of the PMPAC shall be conducted in the orderly manner and in accordance with the current edition of *Robert's Rules of Order*, unless otherwise specified in these Bylaws.

Section 4-3: Each PMPAC member, excluding Ad Hoc members, shall have one vote on each motion.

Section 4-4: Any Action, recommendation or decision of the PMPAC shall be proposed by motion. All motions shall be passed by a majority vote of the members present.

Section 4-5: The Illinois Department of Human Services shall provide a clerical person to record and prepare the Minutes of the PMPAC meetings with the cooperation and approval of the Chairperson.

Section 4-6: The Chair shall notify all PMPAC members of all dates, times and locations for all regularly scheduled, rescheduled or special meetings. Meeting agendas will be developed by the Chair. Calendar of scheduled meetings shall be posted at the offices of the PMP in Springfield, Il., and on the official website of the PMP (www.ILPMP.org.).

Section 4-7: The PMPAC may establish standing or ad hoc committees to address particular issues or immediate concerns. Recommendations of these committees shall be reviewed and approved by the full PMPAC members. Members of the AD Hoc committees that are not voting members of the CPMPAC shall not have voting rights on the committees.

Section 4-8: The PMPAC shall form one (1) standing subcommittee: The Peer-review Committee. This Subcommittee shall be limited to health care professionals (as defined in Section 697 of the Illinois Administrative code), and pharmacists, the quorum shall be four (4) voting members.

Section 4-9: Final recommendations of the PMPAC shall be forwarded to the Secretary of the Illinois Department of Human Services for consideration. Quarterly and Annually, the PMPAC will submit reports as required within PA99-0480.

ARTICLE V

Remuneration and Reimbursement:

Section 5-1: PMPAC members are not eligible for reimbursement or remuneration for participation in PMPAC sponsored activities, including serving on standing or ad hoc committees.

Section 5-2: Non-voting PMPAC members are not eligible for reimbursement or remuneration for participation in PMPAC sponsored activities including serving on standing or ad hoc committees.

ARTICLE VI

Amendments to Bylaws:

Section 6-1: Amendments shall be proposed at a meeting of the PMPAC and voted upon during the next subsequent meeting. Adoption or amendment of these Bylaws requires a 2/3 majority vote of the PMPAC members present.

Section 6-2: Bylaws for the PMPAC will be reviewed and updated on an annual basis.

Bylaws enacted by Committee Vote:

_____ Date:_____

Randy D. Malan, R.Ph., FASCP
Clinical Director
Illinois Prescription Monitoring Program

Appendix C

2017

ILLINOIS

REGISTER

Rules of
Governmental Agencies

Volume 41, Issue 8

February 24, 2017

Pages 2,145 - 2,708

Index Department
Administrative Code Division
111 E. Monroe St.
Springfield, IL 62756
217-782-7017

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DEPARTMENT OF HUMAN SERVICES

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: Electronic Prescription Monitoring Program

2) Code Citation: 77 Ill. Adm. Code 2080

3)

Section Numbers:	Proposed Actions:
2080.20	Amendment
2080.190	Amendment
2080.210	Amendment
2080.230	Amendment
2080.320	New Section
2080.325	New Section

4) Statutory Authority: Implementing and authorized by Sections 316, 317, 318, 319, 320 and 321 of Article III of the Illinois Controlled Substances Act [720 ILCS 570/316, 317, 318, 319, 320 and 321].

5) A Complete Description of the Subjects and Issues involved: This rulemaking affects the Electronic Prescription Monitoring Program (PMP) which is designed to control the abuse of Schedule II, III, IV and V retail dispensed drugs. These amendments establish the implementation and operational processes of the Illinois Controlled Substances Act (720 ILCS 570). Specifically, this rulemaking amends the definition section, certain criteria regarding personal information reports, how the Prescription Information Library is accessed and it designates other drugs which may be included on the schedule of controlled substances. The proposed rulemaking also establishes both the Prescription Monitoring Program Advisory Committee and the Peer Review Subcommittee. The proposed amendments are designed to enhance reporting of controlled substances in order to reduce medication shopping and substance abuse. The proposed amendments will provide a more up to date resource for evaluating the need for opioid prescription medications and other controlled substances. This rulemaking will also assist the Department in providing the most up to date prescription information to prescribers and dispensers of controlled substances.

6) Any published studies or reports, along with the sources of underlying data, that were used when composing this rulemaking? No

7) Will this rulemaking replace an emergency rule currently in effect? No

8) Does this rulemaking contain an automatic repeal date? No

DEPARTMENT OF HUMAN SERVICES

NOTICE OF PROPOSED AMENDMENTS

9) Does this rulemaking contain incorporations by reference? No

10) Are there any other rulemakings pending on this Part? No

11) Statement of Statewide Policy Objective: This rulemaking does not create or expand a State mandate.

12) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: Interested persons may present their comments concerning these rules within 45 days after the date of this issue of the *Illinois Register*. All requests and comments should be submitted in writing to:

Tracie Drew, Chief
Bureau of Administrative Rules and Procedures
Department of Human Services
100 South Grand Avenue East
Harris Building, 3rd Floor
Springfield IL 62762

217/785-9772

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not-for-profit corporations affected: Community pharmacies who report controlled substance prescriptions

B) Reporting, bookkeeping or other procedures required for compliance: All prescribers of controlled substances are required to register with the PMP.

C) Types of professional skills necessary for compliance: None

14) Regulatory agenda on which this rulemaking was summarized: July 2016

The full text of the Proposed Amendments begin on the next page:

DEPARTMENT OF HUMAN SERVICES

NOTICE OF PROPOSED AMENDMENTS

TITLE 77: PUBLIC HEALTH
CHAPTER X: DEPARTMENT OF HUMAN SERVICES
SUBCHAPTER e: CONTROLLED SUBSTANCES ACTIVITIES

PART 2080
ELECTRONIC PRESCRIPTION MONITORING PROGRAM

Section

AUTHORITY: Implementing and authorized by Sections 316, 317, 318, 319, 320 and 321 of

DEPARTMENT OF HUMAN SERVICES

NOTICE OF PROPOSED AMENDMENTS

Article III of the Illinois Controlled Substances Act [720 ILCS 570/316, 317, 318, 319, 320 and 321].

SOURCE: Adopted at 10 Ill. Reg. 4497, effective March 3, 1986; amended at 17 Ill. Reg. 11424, effective July 6, 1993; amended at 20 Ill. Reg. 3107, effective February 2, 1996; recodified from the Department of Alcoholism and Substance Abuse to the Department of Human Services at 21 Ill. Reg. 9319; amended at 26 Ill. Reg. 3975, effective March 4, 2002; amended at 33 Ill. Reg. 17333, effective December 9, 2009; amended at 39 Ill. Reg. 6421, effective April 22, 2015; amended at 40 Ill. Reg. 3737, effective February 29, 2016; amended at 41 Ill. Reg. _____, effective _____.

Section 2080.20 Incorporation by Reference and Definitions

No incorporations by reference in this Part include any later amendments or editions. The definitions that apply to this Part are those found in the Act.

"Act" means the Illinois Controlled Substances Act [720 ILCS 570].

"Account" refers to the clinical entity that is providing direct patient care and is registered with the PMP to have access to patient specific data through the Prescription Information Library (PIL).
"Account Custodian" means the licensed healthcare professional whose registration may be used by other members of the healthcare group for access to the PIL.

"Birth Date" means medication recipient's birth date.

"Central Repository" means a place designated by the Department where Schedule II, III, IV and V drug data is stored or housed.

"Clinical Director" or "PMP Administrator" *means a Department of Human Services administrative employee licensed to either prescribe or dispense controlled substances who shall run the clinical aspects of the Department of Human Services Prescription Monitoring Program and its Prescription Information Library* [720 ILCS 570/102 (d-5)]. The Clinical Director may be assisted by a PMP Assistant Administrator.

"Controlled Substance" means a drug, substance, or immediate precursor in the Schedules of Article II of the Illinois Controlled Substances Act or a drug or other

substance, or immediate precursor, designated as a controlled substance by DHS [720 ILCS 570/102(f)].

"DEA Number" means the United States Drug Enforcement Agency prescriber or dispenser registration number.

"Department" or "DHS" means the Illinois Department of Human Services, or its successor agency.

"DFPR" means the Illinois Department of Financial and Professional Regulation.

"Dispenser" means any practitioner or pharmacy that dispenses a controlled substance to an alternative user or research subject by or pursuant to the lawful order of a prescriber [720 ILCS 570/102(p) and (q)].

"DPH" means the Illinois Department of Public Health.

"EHR" means electronic health record.

"Electronic Device" means using a computer system to transmit prescriptions from a prescriber directly to a dispenser.

"Electronic Integration" means the process by which an entity with EHRs applies to have its EHRs integrated with the PMP.

"Exempt Prescribers in Hospitals and Institutions" means prescribers in hospitals or institutions licensed under the Hospital Licensing Act [210 ILCS 85] who authorize the administration or dispensing of Schedule II drugs within the hospital or institution, for consumption within the hospital or institution (e.g., controlled substance prescriptions when a prescriber does not maintain his or her own DEA and State controlled substance license, but prescribes based upon the institution's (hospital's) controlled substance license).

"Facsimile Equipment" means any device capable of sending or receiving facsimiles of documents through connection with a telecommunications network.

"Freestanding Clinic" means urgent care operations or outpatient surgery centers and similar operations that do not provide overnight in-house stays.

DEPARTMENT OF HUMAN SERVICES

NOTICE OF PROPOSED AMENDMENTS

"Illinois Controlled Substances License Number" means the State license number issued by DFPR permitting prescribers to possess, prescribe or dispense, and permitting dispensers to possess and dispense, controlled substances in Illinois pursuant to the Controlled Substances Act (see 77 Ill. Adm. Code 3100).

"Illinois Healthcare License Number" means the license assigned by DPH to facilities designated to provide specific types or levels of healthcare.

"Licensed Healthcare Entity" means those operations that are licensed to provide health services by either DPH or DFPR.

"Licensed Healthcare Provider" means any individual who meets the professional licensing requirements and follows the standards set forth by DFPR and is authorized to prescribe or dispense controlled substances within Illinois.

"Licensed Professional Administrator" means the clinical director of the Prescription Monitoring Program, who must be licensed to either prescribe or dispense controlled substances.

"Medication Shopping" means the conduct prohibited under Section 314.5(a) of the Act.

"Mid-level Practitioner" means:

> *a physician assistant who has been delegated authority to prescribe through a written delegation of authority by a physician licensed to practice medicine in all of its branches, in accordance with Section 7.5 of the Physician Assistant Practice Act of 1987* [225 ILCS 95];
>
> *an advanced practice nurse who has been delegated authority to prescribe through a written delegation of authority by a physician licensed to practice medicine in all of its branches or by a podiatrist, in accordance with Section 65-40 of the Nurse Practice Act* [225 ILCS 65]*; or*
>
> *an animal euthanasia agency.*

"National Drug Code Identification Number" or "NDC Identification Number" means the number used to provide uniform product identification for all substances recognized as drugs in the United States Pharmacopoeia National

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Formulary, USP31-NF26 (US Pharmacopoeial Convention, 12601 Twinbrook Parkway, Rockville, Maryland 20852 (2013)).

"NCPDP Protocol" means the computing standards implemented by the National Council for Prescription Drug Programs.

"Patient ID" means the identification of the individual receiving the medication or the responsible individual obtaining the medication on behalf of the recipient or the owner of the animal. The standards for establishing patient ID for the purpose of proper filling of a prescription are established by Section 2080.70(d).

"Patient Location Code" means the location of the patient when receiving pharmacy services.

"Pharmacist-In-Charge" means the licensed pharmacist whose name appears on the pharmacy license and who is responsible for all aspects of the operation related to the practice of pharmacy.

"Pharmacy Shopping" means the conduct prohibited under Section 314.5(b) of the Act.

"PMIX Based Protocol" means industry and government standards used to facilitate and reduce the cost of participating and sharing the PMP information by requiring end-to-end security, standards based exchange services, common exchange data and metadata, and hub-to-hub capability.

"PMP Administrator" See definition of "Clinical Director".

"PMP Assistant Administrator" means an employee of the Department with a background in computer and business processes who operates under the designated, specific authority of the Clinical Director.

"Prescribed" means ordered by a prescriber verbally, electronically or in writing.

"Prescriber" means the healthcare professional that is authorized to prescribe medications as set forth in the various professional practices of the State of Illinois.

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"Prescription Information Library" or "PIL" means an electronic library containing 12 months of controlled substance, retail, prescription *information* that is accessible only by prescribers and dispensers for patient treatment usage [720 ILCS 570/102(nn-5)].

"Prescription Monitoring Program" or "PMP" means the entity that collects, tracks, and stores reported data on controlled substances and select drugs [720 ILCS 570/102(nn-10)].

"Prescription Monitoring Program Advisory Committee" or "PMPAC" means a committee consisting of licensed healthcare providers representing all professions that are licensed to prescribe or dispense controlled substances. The committee serves in a consultant context regarding longitudinal evaluations of compliance with evidence based clinical practice and controlled substances. The committee makes recommendations regarding scheduling of controlled substances and recommendations concerning continuing education designed to improve the health and safety of the citizens of Illinois regarding pharmacotherapies of controlled substances.

"Push Reports" means the electronic exchange of patient specific health care information contained in electronic medical records from the PMP, without the requirement of the individual clinician having to "sign" into the PMP and request the patient information.

"Quantities of a Controlled Substance Dispensed" means the total of an NDC product dispensed whether it is in a solid unit such as a tablet or capsule, in a liquid unit such as milliliters, or in another unit as specified within the product identification.

"Recipient's Name" means the given or common name of a person who is the intended user of a dispensed medication. It may also mean the species or common name or common given name of an animal that is the intended user of a dispensed medication. If an animal's name is entered, the owner's name is required also.

"RESTful Based Web Service" means a computing architectural style, consisting of a coordinated set of components, connectors and data elements within a distributed hypermedia system, in which the focus is on component roles and a specific set of interactions between data elements rather than implementation

details. Its purpose is to induce performance, scalability, simplicity, modifiability, visibility, portability and reliability.

"Sample Trend Analysis" means the summary reports that look at utilization rates for specific classes of medications over time.

"Schedule Drug" means any substances listed in the federal Controlled Substances Act (21 USC 812) or the Illinois Controlled Substances Act [720 ILCS 570] or by the Department pursuant to its authority under Section 202 of the Illinois Controlled Substances Act [720 ILCS 570/202]. Schedule I, II, III, IV and V substances are listed in section 812 of the federal Controlled Substances Act (21 USC 812(b)(2), (b)(3), (b)(4), (b)(5) and (c)) and Sections 204, 206, 208, 210 and 212 of the Illinois Controlled Substances Act [720 ILCS 570/204, 206, 208, 210 and 212].

"Sex" means the medication recipient's gender.

"SOAP Based Web Service" means a messaging protocol that allows programs that run on disparate operating systems (e.g., Windows or Linux) to communicate using Hypertext Transfer Protocol (HTTP) and its Extensible Markup Language (XML).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 2080.190 Reports

a) For the purpose of intervention to prevent misuse, a prescriber or dispenser may request that reports about his or her patients be sent to them via a secure method if a patient meets the current PMP indications of potential misuse criteria set forth by the PMPAC.

b) A personal information report of a patient's prescription profile may be obtained if:

1) The patient, parent or guardian completes a notarized request; and

2) The patient, parent or guardian submits the notarized request by mail to the PMP at:

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Illinois Prescription Monitoring Program
401 North 4th Street, First Floor
Springfield, Illinois 62702

c) *When a person has been identified as having 3~~6~~ or more prescribers or 3~~6~~ or more pharmacies, or both, that do not utilize a common electronic file as specified in Section 20 of the Pharmacy Practice Act* [225 ILCS 85] *for controlled substances within the course of a continuous 30-day period, the PMP may issue an unsolicited report to the prescribers informing them of the potential medication shopping* [720 ILCS 570/314.5(d)]. The individual prescriber's judgment determines what actions, if any, he or she should take upon receipt of the unsolicited 3-3-1~~6-6-1~~ reports.

d) *The PMP is authorized to develop operational push reports to entities with compatible electronic medical records* [720 ILCS 570/318(n)]. The push report will only include information for patients that are in the PMP organization's electronic medical record (EMR). It is the responsibility of the entity to keep the access to this confidential patient information secure. These entities must:

1) Meet and maintain the PMP's current security standards prior to the electronic transfer of information from the PMP to its respective EMR;

2) Be a licensed healthcare entity; and

3) Only use this confidential patient information for the treatment of the relevant patient.

e) Technical error and administrative function reports needed to determine that the records are received and maintained in good order may be used.

f) Sample trend analysis reports may be prepared extemporaneously by PMP staff. The disposition of all extemporaneous reports shall be at the discretion of the licensed, professional administrator of the PMP.

g) Authorized persons listed in this subsection may request information from the PMP.

1) Official inquiries must be from any one of the following:

A) DFPR;

B) An investigator from the Illinois Consumer Protection Division of the Office of the Attorney General; or

C) A law enforcement officer.

2) Inquiries must be submitted in writing and demonstrate that:

A) *The applicant has reason to believe that a violation under State or federal law that involves a controlled substance by an individual has occurred; and* [720 ILCS 570/318(e)(1)]

B) *The requested information is reasonably related to the investigation of the individual, adjudication, or prosecution of the violation.* [720 ILCS 570/318(e)(2)]

3) The Department may impose a fee for the cost of generating and furnishing the requested information.

h) Any other reports concerning the information received from dispensers shall only be prepared at the direction of the Clinical Director~~Manager, Bureau of Pharmacy and Clinical Support Services,~~ or successor administrator who meets the statutory requirements. *The information described in subsection* (g) *may not be released until it has been reviewed by an employee of the Department who is licensed as a prescriber or a dispenser and until that employee has certified that further investigation is warranted* [720 ILCS 570/318(g)].

i) As directed by the PMPAC and the Clinical Director for the PMP, aggregate data that does not indicate any prescriber, practitioner, dispenser, or patient may be used for clinical studies under Article VIII, Part 21 of the Code of Civil Procedure [735 ILCS 5/Art. VIII, Part 21] (Medical Studies).

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 2080.210 Access to the Prescription Information Library (PIL)

~~a) Medical prescribers or dispensers may utilize the PIL for patient care after obtaining authorization from the PMP.~~

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~~a~~b) Any entity choosing to undergo electronic integration should do so using the process in this subsection (a). ~~*A hospital emergency department or a freestanding healthcare facility providing healthcare to walk in patients may obtain, for the purpose of improving patient care, a unique identifier for each shift to utilize the PIL system* [720 ILCS 570/318(o)]. It is the responsibility of the hospital emergency department or the freestanding clinic to secure access to the system so that only licensed healthcare providers with HIPAA training can view these materials. The security shall be both electronic and physical. Misuse by the account (security failures) will be handled as any other case of HIPAA violation (see 42 USC 1320 et seq.).~~

1) The entity shall email dhs.pmp@illinois.gov to request the Automated Connection Guide (ACG) and shall review its contents once the ACG is received.

A) The ACG describes the electronic message exchange processing flow and provides all the technical specifications for the transaction.

B) The entity shall share the ACG with its EHR vendor and its information technology support team to begin work to prepare for the electronic integration.

2) The entity shall determine its connectivity to the PMP for electronic integration.

A) The PMP Automated Connection supports two connectivity options. The entity must use one of the following connectivity options:

i) a SOAP based web service that uses a PMIX based protocol; or

ii) a RESTful based web service that uses the NCPDP protocol.

B) The entity shall complete the Meaningful Use Registration of Intent with the Illinois Department of Public Health

(https://murs.illinois.gov). Once the Meaningful Use Registration of Intent is completed, the PMP will arrange a connectivity consultation with the entity.

3) The PMP will set up a secure, HIPAA compliant electronic integration testing environment during the connectivity determination process for use to test transactions. This testing environment shall be used by the entity to test transactions before moving to production.

4) Following successful testing, the connection is ready to be activated. The PMP will activate the production environment for the entity's use in exchanging transactions and the electronic integration process is complete.

A) The participating entities must maintain both electronic and physical security of the information.

B) Security failures or misuse of the account will be handled as any other case of HIPAA violation pursuant to 42 USC 1320 et seq.

b) Medical prescribers or dispensers or their authorized designee may utilize the PIL for patient care after obtaining authorization from the PMP.

c) Only the following licensed healthcare professionals shall serve as an authorized designee for a prescriber or dispenser for office or pharmacy practice sites:

1) registered nurse;

2) licensed practical nurse;

3) pharmacy technician;

4) student pharmacist; or

5) certified medical assistant.

d) The prescriber or dispenser shall only have up to three designees.

e) The prescriber and dispenser shall register the designees and must also agree to the terms and conditions for designees.

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f) Each designee shall have an individual account that must be linked to the prescriber or dispenser.

g) PMP staff shall verify the following information about each designee:

1) license/certification number;

2) employer's phone number and address; and

3) work email address. If no work email is available, PMP staff shall contact the prescriber or dispenser to verify the designee.

h) PMP shall send out a notice for the prescriber or dispenser to ensure continued employment of their designees. If the designee is no longer employed with the prescriber or dispenser, the prescriber or dispenser shall terminate the designee's access to the PMP by locking the designee's account or by notifying the PMP that the designee's account should be locked.

~~i~~e) A user may only access the PIL for a patient's medical treatment.

~~j~~d) Department staff shall develop, modify and maintain data files of the PIL.

~~k~~e) PIL users are ultimately responsible for any usage of their authorization credentials.

~~l~~f) In order to expedite the approval and oversight of PIL applicants and users, the PIL must be managed by a licensed dispenser.

~~m~~g) PIL staff determine if a PIL user applicant may become a PIL user by using the following criteria:

1) Applicant's first and last name;

2) Pharmacy, clinic or office street address, city, state and zip code;

3) DEA number;

4) For a pharmacist's application, the pharmacy DEA number;

5) Illinois prescriber or dispenser license number; and

6) Business telephone number.

nk) PIL staff determine if a PIL user applicant may become a PIL group user by applying the following criteria:

1) The prescriber or dispenser who will be the account's custodian shall provide the following information:

A) First and last name;

B) DEA number;

C) National Provider Identifier (NPI) number;

D) Illinois prescriber or dispenser license number; and

E) Business telephone number;.

2) Hospital emergency department's or freestanding clinic's street address, city, state and zip code;

3) The pharmacist-in-charge (PIC) as the central user of the hospital pharmacy; and

4) A listing of all users with the following information:

A) First and last name; and

B) Illinois healthcare license number.

oi) The ~~PIL PMP~~ Clinical Director or designee shall~~will~~ review user applications that are unusual and render a professional decision as to whether access shall be granted.

pj) The PMP Assistant Administrator shall~~PIL manager will~~ review the user access log for any unusual or improper activity by a user.

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gk) The Clinical Director or his or her designee shall~~PIL manager will~~ directly monitor the development, modification and/or expansion of the PIL.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 2080.230 Designated Controlled Substances and Other Selected Drugs

For tracking purposes, the Department, upon recommendation of the PMPAC, may designate and list drugs, other substances and immediate precursors as:

a) A Schedule I if the Department finds that:

1) *the substance has high potential for abuse; and*

2) *the substance has no currently accepted medical use in treatment in the United States or lacks accepted safety for use in treatment under medical supervision* [720 ILCS 570/203].

b) A Schedule II if the Department finds that:

1) *the substance has high potential for abuse;*

2) *the substance has currently accepted medical use in treatment in the United States, or currently accepted medical use with severe restrictions; and*

3) *the abuse of the substance may lead to severe psychological or physiological dependence* [720 ILCS 570/205].

c) A Schedule III if the Department finds that:

1) *the substance has a potential for abuse less than the substances listed in Schedules I and II;*

2) *the substance has currently accepted medical use in treatment in the United States; and*

3) *abuse of the substance may lead to moderate or low physiological dependence or high psychological dependence* [720 ILCS 570/207].

d) A Schedule IV if the Department finds that:

1) *the substance has a low potential for abuse relative to substances in Schedule III;*

2) *the substance has currently accepted medical use in treatment in the United States; and*

3) *abuse of the substance may lead to limited physiological dependence or psychological dependence relative to the substances in Schedule III* [720 ILCS 570/209].

e) A Schedule V if the Department finds that:

1) *the substance has low potential for abuse relative to the controlled substances listed in Schedule IV;*

2) *the substance has currently accepted medical use in treatment in the United States; and*

3) *abuse of the substance may lead to limited physiological dependence or psychological dependence relative to the substances in Schedule IV, or the substance is a targeted methamphetamine precursor as defined in the Methamphetamine Precursor Control Act* [720 ILCS 648]. [720 ILCS 570/211]

f) Other Selected Drugs, including:

1) those medications that may contribute to clinical reviews of scheduled medications; and

2) the dispensing of Naloxone for opioid overdose prevention.

(Source: Amended at 41 Ill. Reg. _____, effective _____)

Section 2080.320 Prescription Monitoring Program Advisory Committee (PMPAC)

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A Prescription Monitoring Program Advisory Committee is established to aid in the implementation of the PMP and to advise the Clinical Director on the professional performance of prescribers and dispensers and other matters relevant to the PMPAC's field of competence.

a) The Clinical Director shall appoint the members of the PMPAC with the approval of the Secretary of the Department of Human Services.

b) The PMPAC shall consist of the following:

1) the Clinical Director who shall serve as the chairperson of the PMPAC;

2) four physicians licensed to practice medicine in all of its branches;

3) three pharmacists;

4) one dentist;

5) one podiatric physician;

6) one optometrist;

7) one advanced practice nurse; and

8) one physician assistant.

c) The PMPAC shall:

1) evaluate and recommend changes to the Illinois Controlled Substances Act [720 ILCS 570];

2) evaluate and recommend changes to the Administrative Rules regarding the PMP;

3) recommend inclusions of training materials for prescribers and dispensers regarding Continuing Medical Education and Continuing Education programs;

4) at least on a quarterly basis, review the contents of the Illinois Prescription Monitoring Program website (ilpmp.org) to ensure that the contents are current;

5) at least on a quarterly basis, review opportunities for federal grants and other forms of funding to support projects to increase the number of EHRs integrating seamlessly to the PMP; and

6) at least on a quarterly basis, review and prepare any communication to be sent to all registered users of the system relevant to prescribing and dispensing of controlled substances.

(Source: Added at 41 Ill. Reg. _____, effective _____)

Section 2080.325 Peer Review Subcommittee

The PMPAC is authorized to have a standing subcommittee. This subcommittee shall be a five member peer review subcommittee. The peer review subcommittee shall advise the PMP on matters relating to the advisory committee's field of competence, establish a formal peer review of professional performance of prescribers and dispensers, and develop communications to transmit to prescribers and dispensers. The deliberations, information and communications of the peer review subcommittee are privileged and confidential and shall not be disclosed in any manner except in accordance with current law.

a) The Clinical Director shall appoint the five members of the peer review subcommittee.

b) The peer review subcommittee shall consist of the following:

1) three physicians of the PMPAC; and

2) two pharmacists of the PMPAC.

c) Technical advisors from state medical and pharmacy schools with no voting authority may be appointed to the peer review subcommittee to aid the voting members on an as needed basis.

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d) The peer review subcommittee shall meet, at a minimum, quarterly. The scheduling of these meetings should be set to allow the meetings to occur the month prior to the publicly scheduled meeting of the PMPAC.

e) The peer review subcommittee shall periodically review the data contained within the prescription monitoring program to identify those prescribers or dispensers who may be prescribing or dispensing outside the currently accepted standards in the course of their professional practice.

f) The peer review subcommittee shall identify prescribers or dispensers who may be prescribing outside of the currently accepted medical standards in the course of their professional practice and send the identified prescriber or dispenser a request for information regarding his or her prescribing or dispensing practices. A prescriber or dispenser shall have 30 days to respond to the request for information.

g) The peer review subcommittee shall refer a prescriber or dispenser to the Department of Financial and Professional Regulation:

1) if a prescriber or dispenser does not respond to three successive requests for information;

2) if, in the opinion of a majority of members of the peer review subcommittee, the prescriber or dispenser does not have a satisfactory explanation for the practices identified by the peer review subcommittee or the prescriber or dispenser does not have a satisfactory explanation for the practices identified by the peer review subcommittee in its request for information; or

3) if, following communications with the peer review subcommittee, the prescriber or dispenser does not sufficiently rectify the practices identified in the request for information in the opinion of the majority of the members of the peer review subcommittee.

h) The peer review subcommittee shall prepare an annual report starting on July 1, 2017. The report shall contain the following information:

1) the number of times the peer review subcommittee was convened;

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2) the number of prescribers or dispensers who were reviewed by the peer review subcommittee;

3) the number of requests for information sent out by the subcommittee; and

4) the number of prescribers or dispensers referred to the Department of Financial and Professional Regulation.

i) The following process shall be followed to allow PMP data to be publicly disseminated:

1) all data formats considered for dissemination shall be presented to the peer review subcommittee by its chairperson;

2) all deliberations shall be recorded to ensure accuracy of the minutes for each meeting;

3) Based upon the deliberations of the peer review subcommittee regarding the data to be disseminated, a summary report shall be written by the chairperson and forwarded to the General Counsel for review and approval of dissemination by the General Counsel, Chief of Staff and Secretary.

4) Official direction for the final processing and/or dissemination of the data will be sent via the General Counsel, Chief of Staff or Secretary's office to the chairperson of the PMPAC peer review subcommittee who will then disseminate the data accordingly.

(Source: Added at 41 Ill. Reg. _____, effective _____)

Appendix D

DEPARTMENT OF HUMAN SERVICES

NOTICE OF EMERGENCY AMENDMENT

TITLE 77: PUBLIC HEALTH
CHAPTER X: DEPARTMENT OF HUMAN SERVICES
SUBCHAPTER e: CONTROLLED SUBSTANCES ACTIVITIES

PART 2070
SCHEDULE OF CONTROLLED SUBSTANCES

SUBPART A: GENERAL

Section

SUBPART B: SCHEDULE OF CONTROLLED SUBSTANCES – SCHEDULE I

Section

2070.157 Beta-hydroxyfentanyl
2070.160 Betameprodine
2070.165 Betamethadol
2070.170 Betaprodine
2070.175 Clonitazene
2070.180 Dextromoramide
2070.185 Diampromide
2070.190 Diethylthiambutene
2070.195 Difenoxin
2070.200 Dimenoxadol
2070.205 Dimepheptanol
2070.210 Dimethylthiambutene
2070.220 Dioxaphetylbutyrate
2070.230 Dipipanone
2070.235 Ethylmethylthiambutene
2070.240 Etonitazene
2070.245 Etoxeridine
2070.247 3-Methylfentanyl (Renumbered)
2070.250 Furethidine
2070.255 Hydroxpethidine
2070.260 Ketobemidone
2070.265 Levomoramide
2070.270 Levophenacylmorphan
2070.271 U-47700
EMERGENCY
2070.272 3-Methylfentanyl
2070.273 3-Methylthiofentanyl
2070.275 Morpheridine
2070.280 Noracymethadol
2070.285 Norlevorphanol
2070.290 Normethadone
2070.295 Norpipanone
2070.297 Para-fluorofentanyl
2070.300 Phenadoxone
2070.310 Phenampromide
2070.320 Phenomorphan
2070.330 Phenoperidine
2070.340 Piritramide
2070.350 Proheptazine

2070.360 Properidine
2070.370 Propiram
2070.380 Racemoramide
2070.385 Sufentanil (Renumbered)
2070.388 Thiofentanyl
2070.389 THJ-2201 [1-(5-fluoropentyl)-1*H*-indazol-3-yl](naphthalen-1-yl)methanone
2070.390 Tilidine
2070.395 Trimeperidine
2070.397 Beta-hydroxy-3-methylfentanyl
2070.400 Opium Derivates
2070.405 Acetorphine
2070.410 Acetyldihydrocodeine
2070.412 Alpha-pyrrolidinobutiophenone ("a-PBP")
2070.414 Alpha-pyrrolidinopentiophenone ("a-PVP")
2070.415 Benzylmorphine
2070.420 Codeine methylbromide
2070.425 Codeine-N-Oxide
2070.430 Cyprenorphine
2070.435 Desomorphine
2070.440 Diacetyldihydromorphine (Dihydroheroin)
2070.445 Dihydromorphine
2070.450 Drotebanol
2070.455 Etorphine (except hydrochloride salt)
2070.460 Heroin
2070.465 Hydromorphinol
2070.470 Methyldesorphine
2070.475 Methyldihydromorphine
2070.480 Morphine methylbromide
2070.485 Morphine methylsulfonate
2070.490 Morphine-N-Oxide
2070.495 Myrophine
2070.500 Nicocodeine
2070.505 Nicomorphine
2070.510 Normorphine
2070.515 Pholcodine
2070.520 Thebacon
2070.530 1-(1,3-benzodioxol-5-yl)-2(methylamino)butan-1-one ("butylone")
2070.540 1-(1,3-benzodioxol-5-yl)-2-(methylamino)pentan-1-one ("pentylone")
2070.545 1-(naphthalene-2-yl)-2-(pyrrolidin-1-yl)pentan-1-one ("naphyrone")

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2070.600	Hallucinogenic Substances
2070.602	2-(methylamino)-1-phenylpentan-1-one ("pentedrone")
2070.604	3-fluoro-N-methylcathinone ("3-FMC")
2070.605	3, 4 Methylenedioxyamphetamine
2070.606	Alpha-ethlytryptamine
2070.607	3,4 Methylenedioxymethamphetamine (MDMA)
2070.608	3,4-methlyenedioxy-N-ethylamphetamine
2070.610	3-methoxy-4, 5-methylenedioxyamphetamine (MMDA)
2070.615	3, 4, 5-trimethoxyamphetamine (TMA)
2070.616	4-fluoro-N-methylcathinone ("4-FMC")
2070.617	4-methyl-N-ethylcathinone ("4MEC")
2070.618	4-methylalpha-pyrrolidinopropiophenone ("4-MePPP")
2070.620	5-hydroxydimethyltryptamine (Bufotenine)
2070.625	Diethyltryptamine (DET)
2070.630	Dimethyltryptamine (DMT)
2070.635	4-methyl, 2, 5-dimethoxyamphetamine (DOM, STP)
2070.640	Ibogaine
2070.645	Lysergic acid diethylamide
2070.650	3, 4, 5-trimethoxyphenethylamine (Mescaline)
2070.655	Peyote
2070.660	N-ethyl-3-piperidyl benzilate (JB 318)
2070.665	N-methyl-3-piperidyl benzilate
2070.667	N-hydroxy-3,4-methylenedioxyamphetamine
2070.670	Parahexyl
2070.675	Psilocybin
2070.680	Psilocyn
2070.685	Alpha-methyltryptamine (AMT)
2070.690	2,5-dimethoxyamphetamine
2070.695	4-bromo-2,5-dimethoxyamphetamine
2070.700	4-methoxyamphetamine (4-methoxy-alpha-methylphenethylamine; paramethoxyamphetamine, PMA)
2070.705	Thiophene analog of phencyclidine (TPCP)
2070.710	Ethylamine analog of phencyclidine
2070.715	Pyrrolidine analog of phencyclidine
2070.720	5-methoxy-3,4-methylenedioxy-amphetamine
2070.725	2,5-dimethoxy-4-ethylamphetamine
2070.730	1-[1-(2-thienyl) cyclohexyl] pyrrolidine
2070.735	3,4-methylenedioxy-amphetamine
2070.740	Thiophene analog of phencyclidine

SUBPART C: SCHEDULE OF CONTROLLED SUBSTANCES--SCHEDULE II

2070.1120 Cocaine
2070.1130 Concentrate of Poppy Straw
2070.1150 Opiates
2070.1155 Alphaprodine
2070.1160 Anileridine
2070.1165 Bezitramide
2070.1170 Bulk Dextropropoxyphene
2070.1175 Dihydrocodeine
2070.1180 Diphenoxylate
2070.1185 Fentanyl
2070.1186 Alfentanil
2070.1187 Carfentanil
2070.1190 Isomethadone
2070.1193 Levo-alphacetylmethadol
2070.1195 Levomethorphan
2070.1200 Levorphanol
2070.1205 Metazocine
2070.1210 Methadone
2070.1215 Methadone – Intermediate
2070.1220 Moramide – Intermediate
2070.1225 Meperidine
2070.1230 Pethidine-Intermediate-A
2070.1235 Pethidine-Intermediate-B
2070.1240 Pethidine-Intermediate-C
2070.1245 Phenazocine
2070.1250 Piminodine
2070.1255 Racemethorphan
2070.1260 Racemorphan
2070.1265 Sufentanil
2070.1300 Stimulants
2070.1310 Amphetamine
2070.1320 Methamphetamine
2070.1330 Methylphenidate
2070.1370 Phenmetrazine
2070.1400 Depressants
2070.1405 Methaqualone (Renumbered)
2070.1410 Amobarbital
2070.1420 Secobarbital
2070.1425 Pentobarbital

SUBPART D: SCHEDULE OF CONTROLLED SUBSTANCES--SCHEDULE III

SUBPART E: SCHEDULE OF CONTROLLED SUBSTANCES – SCHEDULE IV

2070.2215	Barbital
2070.2217	Bromazepam
2070.2218	Camazepam
2070.2220	Chloral Betaine
2070.2225	Chloral Hydrate
2070.2230	Chlordiazepoxide
2070.2232	Clobazam
2070.2235	Clonazepam
2070.2240	Clorazepate
2070.2241	Clotiazepam
2070.2242	Cloxazolam
2070.2244	Delorazepam
2070.2245	Diazepam
2070.2246	Eluxadoline
2070.2248	Estazolam
2070.2250	Ethchlorvynol
2070.2255	Ethinamate
2070.2256	Ethyl Loflazepate
2070.2258	Fludiazepam
2070.2259	Flunitrazepam
2070.2260	Flurazepam
2070.2265	Halazepam
2070.2266	Haloxazolam
2070.2268	Ketazolam
2070.2269	Loprazolam
2070.2270	Lorazepam
2070.2272	Lormetazepam
2070.2275	Mebutamate
2070.2277	Medazepam
2070.2280	Meprobamate
2070.2285	Methohexital
2070.2290	Mephobarbital
2070.2291	Midazolam
2070.2292	Nimetazepam
2070.2293	Nitrazepam
2070.2294	Nordiazepam
2070.2295	Oxazepam
2070.2297	Oxazolam
2070.2300	Paraldehyde

SUBPART F: SCHEDULE OF CONTROLLED SUBSTANCES – SCHEDULE V

DEPARTMENT OF HUMAN SERVICES

NOTICE OF EMERGENCY AMENDMENT

2070.2750 Pyrovalerone
2070.2800 Other Substances

AUTHORITY: Implementing and authorized by Section 100 of the Illinois Controlled Substances Act [720 ILCS 570/100].

SOURCE: Filed and effective November 19, 1975; rules repealed, new rules adopted at 2 Ill. Reg. 16, p. 151, effective April 24, 1978; amended at 2 Ill. Reg. 33, p. 63, effective August 15, 1978; amended at 2 Ill. Reg. 44, p. 127, effective October 30, 1978; amended at 2 Ill. Reg. 45, p. 19, effective November 10, 1978; amended at 2 Ill. Reg. 52, p. 283, effective January 5, 1979; amended at 3 Ill. Reg. 8, p. 112, effective February 23, 1979; amended at 3 Ill. Reg. 12, p. 246, effective March 23, 1979; amended at 4 Ill. Reg. 33, p. 193, effective August 4, 1980; amended at 5 Ill. Reg. 2987, effective March 5, 1981; amended at 5 Ill. Reg. 5156, effective April 29, 1981; amended at 5 Ill. Reg. 13454, effective November 25, 1981; amended at 6 Ill. Reg. 5176, effective April 16, 1982; amended at 6 Ill. Reg. 7200, effective June 7, 1982; amended at 7 Ill. Reg. 16142, effective December 2, 1983; amended at 7 Ill. Reg. 16639, effective December 9, 1983; transferred to the Department of Alcoholism and Substance Abuse by the Alcoholism and Substance Abuse Act (supp. to Ill. Rev. Stat. 1983, ch. 111 1/2, pars. 634 et seq.) effective July 1, 1984; amended at 8 Ill. Reg. 13138, effective July 27, 1984; amended at 8 Ill. Reg. 16760, effective September 14, 1984; codified at 8 Ill. Reg. 19319; amended at 8 Ill. Reg. 21212, effective October 19, 1984; amended at 9 Ill. Reg. 1837, effective January 29, 1985; amended at 9 Ill. Reg. 10649, effective July 2, 1985; amended at 10 Ill. Reg. 914, effective January 7, 1986; amended at 10 Ill. Reg. 11222, effective June 16, 1986; emergency amendment at 10 Ill. Reg. 15662, effective September 10, 1986, for a maximum of 150 days; amended at 10 Ill. Reg. 18159, effective October 8, 1986; amended at 10 Ill. Reg. 19709, effective November 6, 1986; emergency amendment at 11 Ill. Reg. 4048, effective February 24, 1987, for a maximum of 150 days; amended at 11 Ill. Reg. 5192, effective March 17, 1987; amended at 11 Ill. Reg. 11944, effective July 2, 1987; amended at 20 Ill. Reg 3081, effective February 2, 1996; recodified from Department of Alcoholism and Substance Abuse to Department of Human Services at 21 Ill. Reg. 9319; peremptory amendment at 38 Ill. Reg. 8439, effective April 7, 2014; peremptory amendment at 39 Ill. Reg. 3171, effective February 13, 2015; peremptory amendment at 39 Ill. Reg. 16482, effective December 17, 2015; emergency amendment at 40 Ill. Reg. _____, effective _____, for a maximum of 150 days; amended at 40 Ill. Reg._____, effective_____.

Section 2070.271 U-47700
EMERGENCY

U-47700 3,4-dichloro-N-[(1R,2R)-2-(dimethylamino)cyclohexyl]-N-methylbenzamide

DEPARTMENT OF HUMAN SERVICES

NOTICE OF EMERGENCY AMENDMENT

(Source: Amended by emergency rulemaking at 40 Ill. Reg. _____, effective _____, for a maximum of 150 days)

Appendix E

Peer-Review Subcommittee of the PMP Advisory Committee

Chair:	**Randy D. Malan, R.Ph., FASCP**
Members:	**Scott Glaser, M.D.**
	Christopher Herndon, Pharm. D., R.Ph.
	Darin Jordan, M.D.
	David Liebovitz, M.D.
	Garry Moreland, R.Ph.

Appendix F

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016

Recommendations and Reports / March 18, 2016 / 65(1);1–49

On March 15, 2016, this report was posted online as an MMWR *Early Release.*

***Please note:** An erratum has been published for this report. To view the erratum, please click here.*

Deborah Dowell, MD[1]; Tamara M. Haegerich, PhD; Roger Chou, MD[1] (View author affiliations)

View suggested citation

Summary

This guideline provides recommendations for primary care clinicians who are prescribing opioids for chronic pain outside of active cancer treatment, palliative care, and end-of-life care. The guideline addresses 1) when to initiate or continue opioids for chronic pain; 2) opioid selection, dosage, duration, follow-up, and discontinuation; and 3) assessing risk and addressing harms of opioid use. CDC developed the guideline using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework, and recommendations are made on the basis of a systematic review of the scientific evidence while considering benefits and harms, values and preferences, and resource allocation. CDC obtained input from experts, stakeholders, the public, peer reviewers, and a federally chartered advisory committee. It is important that patients receive appropriate pain treatment with careful consideration of the benefits and risks of treatment options. This guideline is intended to improve communication between clinicians and patients about the risks and benefits of opioid therapy for chronic pain, improve the safety and effectiveness of pain treatment, and reduce the risks associated with long-term opioid therapy, including opioid use disorder, overdose, and death. CDC has provided a checklist for prescribing opioids for chronic pain (http://stacks.cdc.gov/view/cdc/38025 (http://stacks.cdc.gov/view/cdc/38025)) as well as a website (http://www.cdc.gov/drugoverdose/prescribingresources.html (http://www.cdc.gov/drugoverdose/prescribing/resources.html)) with additional tools to guide clinicians in implementing the recommendations.

Introduction

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Background

Opioids are commonly prescribed for pain. An estimated 20% of patients presenting to physician offices with noncancer pain symptoms or pain-related diagnoses (including acute and chronic pain) receive an opioid prescription (*1*). In 2012, health care providers wrote 259 million prescriptions for opioid pain medication, enough for every adult in the United States to have a bottle of pills (*2*). Opioid prescriptions per capita increased 7.3% from 2007 to 2012, with opioid prescribing rates increasing more for family practice, general practice, and internal medicine compared with other specialties (*3*). Rates of opioid prescribing vary greatly across states in ways that cannot be explained by the underlying health status of the population, highlighting the lack of consensus among clinicians on how to use opioid pain medication (*2*).

Prevention, assessment, and treatment of chronic pain are challenges for health providers and systems. Pain might go unrecognized, and patients, particularly members of racial and ethnic minority groups, women, the elderly, persons with cognitive impairment, and those with cancer and at the end of life, can be at risk for inadequate pain treatment (*4*). Patients can experience persistent pain that is not well controlled. There are clinical, psychological, and social consequences associated with chronic pain including limitations in complex activities, lost work productivity, reduced quality of life, and stigma, emphasizing the importance of appropriate and compassionate patient care (*4*). Patients should receive appropriate pain treatment based on a careful consideration of the benefits and risks of treatment options.

Chronic pain has been variably defined but is defined within this guideline as pain that typically lasts >3 months or past the time of normal tissue healing (*5*). Chronic pain can be the result of an underlying medical disease or condition, injury, medical treatment, inflammation, or an unknown cause (*4*). Estimates of the prevalence of chronic pain vary, but it is clear that the number of persons experiencing chronic pain in the United States is substantial. The 1999–2002 National Health and Nutrition Examination Survey estimated that 14.6% of adults have current widespread or localized pain lasting at least 3 months (*6*). Based on a survey conducted during 2001–2003 (*7*), the overall prevalence of common, predominantly musculoskeletal pain conditions (e.g., arthritis, rheumatism, chronic back or neck problems, and frequent severe headaches) was estimated at 43% among adults in the United States, although minimum duration of symptoms was not specified. Most recently, analysis of data from the 2012 National Health Interview Study showed that 11.2% of adults report having daily pain (*8*). Clinicians

should consider the full range of therapeutic options for the treatment of chronic pain. However, it is hard to estimate the number of persons who could potentially benefit from opioid pain medication long term. Evidence supports short-term efficacy of opioids for reducing pain and improving function in noncancer nociceptive and neuropathic pain in randomized clinical trials lasting primarily ≤12 weeks (*9,10*), and patients receiving opioid therapy for chronic pain report some pain relief when surveyed (*11–13*). However, few studies have been conducted to rigorously assess the long-term benefits of opioids for chronic pain (pain lasting >3 months) with outcomes examined at least 1 year later (*14*). On the basis of data available from health systems, researchers estimate that 9.6–11.5 million adults, or approximately 3%–4% of the adult U.S. population, were prescribed long-term opioid therapy in 2005 (*15*).

Opioid pain medication use presents serious risks, including overdose and opioid use disorder. From 1999 to 2014, more than 165,000 persons died from overdose related to opioid pain medication in the United States (*16*). In the past decade, while the death rates for the top leading causes of death such as heart disease and cancer have decreased substantially, the death rate associated with opioid pain medication has increased markedly (*17*). Sales of opioid pain medication have increased in parallel with opioid-related overdose deaths (*18*). The Drug Abuse Warning Network estimated that >420,000 emergency department visits were related to the misuse or abuse of narcotic pain relievers in 2011, the most recent year for which data are available (*19*). Although clinical criteria have varied over time, opioid use disorder is a problematic pattern of opioid use leading to clinically significant impairment or distress. This disorder is manifested by specific criteria such as unsuccessful efforts to cut down or control use and use resulting in social problems and a failure to fulfill major role obligations at work, school, or home (*20*). This diagnosis has also been referred to as "abuse or dependence" and "addiction" in the literature, and is different from tolerance (diminished response to a drug with repeated use) and physical dependence (adaptation to a drug that produces symptoms of withdrawal when the drug is stopped), both of which can exist without a diagnosed disorder. In 2013, on the basis of DSM-IV diagnosis criteria, an estimated 1.9 million persons abused or were dependent on prescription opioid pain medication (*21*). Having a history of a prescription for an opioid pain medication increases the risk for overdose and opioid use disorder (*22–24*), highlighting the value of guidance on safer prescribing practices for clinicians. For example, a recent study of patients aged 15–64 years receiving opioids for chronic noncancer pain and followed for up to 13 years revealed that one in 550 patients died from opioid-related overdose at a median of 2.6 years from their first opioid prescription, and one in 32 patients who escalated to opioid dosages >200 morphine milligram equivalents (MME) died from opioid-related overdose (*25*).

This guideline provides recommendations for the prescribing of opioid pain medication by primary care clinicians for chronic pain (i.e., pain conditions that typically last >3 months or past the time of normal tissue healing) in outpatient settings outside of active cancer treatment, palliative care, and end-of-life care. Although the guideline does not focus broadly on pain management, appropriate use of long-term opioid therapy must be considered within the context of all pain management strategies (including nonopioid pain medications and nonpharmacologic treatments). CDC's recommendations are made on the basis of a systematic review of the best available evidence, along with input from experts, and further review and deliberation by a federally chartered advisory committee. The guideline is intended to ensure that clinicians and patients consider safer and more effective treatment, improve patient outcomes such as reduced pain and improved function, and reduce the number of persons who develop opioid use disorder, overdose, or experience other adverse events related to these drugs. Clinical decision making should be based on a relationship between the clinician and patient, and an understanding of the patient's clinical situation, functioning, and life context. The recommendations in the guideline are voluntary, rather than prescriptive standards. They are based on emerging evidence, including observational studies or randomized clinical trials with notable limitations. Clinicians should consider the circumstances and unique needs of each patient when providing care.

Rationale

Primary care clinicians report having concerns about opioid pain medication misuse, find managing patients with chronic pain stressful, express concern about patient addiction, and report insufficient training in prescribing opioids (*26*). Across specialties, physicians believe that opioid pain medication can be effective in controlling pain, that addiction is a common consequence of prolonged use, and that long-term opioid therapy often is overprescribed for patients with chronic noncancer pain (*27*). These attitudes and beliefs, combined with increasing trends in opioid-related overdose, underscore the need for better clinician guidance on opioid prescribing. Clinical practice guidelines focused on prescribing can improve clinician knowledge, change prescribing practices (*28*), and ultimately benefit patient health.

Professional organizations, states, and federal agencies (e.g., the American Pain Society/American Academy of Pain Medicine, 2009; the Washington Agency Medical Directors Group, 2015; and the U.S. Department of Veterans Affairs/Department of Defense, 2010) have developed guidelines for opioid prescribing (*29–31*). Existing guidelines share some common elements, including dosing thresholds, cautious titration, and risk mitigation strategies such as using risk assessment tools, treatment agreements, and urine drug testing. However, there is considerable variability in the specific recommendations (e.g., range of dosing thresholds of 90 MME/day to 200 MME/day), audience (e.g., primary care clinicians versus specialists), use of evidence (e.g., systematic review, grading of evidence and recommendations, and role of expert opinion), and rigor of methods for addressing conflict of interest (*32*). Most guidelines, especially those that are not based on evidence from scientific studies published in 2010 or later, also do not reflect the most recent scientific evidence about risks related to opioid dosage.

This CDC guideline offers clarity on recommendations based on the most recent scientific evidence, informed by expert opinion and stakeholder and public input. Scientific research has identified high-risk prescribing practices that have contributed to the overdose epidemic (e.g., high-dose prescribing, overlapping opioid and benzodiazepine prescriptions, and extended-release/long-acting [ER/LA] opioids for acute pain) (*24,33,34*). Using guidelines to address problematic prescribing has the potential to optimize care and improve patient safety based on evidence-based practice (*28*), as well as reverse the cycle of opioid pain medication misuse that contributes to the opioid overdose epidemic.

Scope and Audience

This guideline is intended for primary care clinicians (e.g., family physicians and internists) who are treating patients with chronic pain (i.e., pain lasting >3 months or past the time of normal tissue healing) in outpatient settings. Prescriptions by primary care clinicians account for nearly half of all dispensed opioid prescriptions, and the growth in prescribing rates among these clinicians has been above average (*3*). Primary care clinicians include physicians as well as nurse practitioners and physician assistants. Although the focus is on primary care clinicians, because clinicians work within team-based care, the recommendations

refer to and promote integrated pain management and collaborative working relationships with other providers (e.g., behavioral health providers, pharmacists, and pain management specialists). Although the transition from use of opioid therapy for acute pain to use for chronic pain is hard to predict and identify, the guideline is intended to inform clinicians who are considering prescribing opioid pain medication for painful conditions that can or have become chronic.

This guideline is intended to apply to patients aged ≥18 years with chronic pain outside of palliative and end-of-life care. For this guideline, palliative care is defined in a manner consistent with that of the Institute of Medicine as care that provides relief from pain and other symptoms, supports quality of life, and is focused on patients with serious advanced illness. Palliative care can begin early in the course of treatment for any serious illness that requires excellent management of pain or other distressing symptoms (*35*). End-of-life care is defined as care for persons with a terminal illness or at high risk for dying in the near future in hospice care, hospitals, long-term care settings, or at home. Patients within the scope of this guideline include cancer survivors with chronic pain who have completed cancer treatment, are in clinical remission, and are under cancer surveillance only. The guideline is not intended for patients undergoing active cancer treatment, palliative care, or end-of-life care because of the unique therapeutic goals, ethical considerations, opportunities for medical supervision, and balance of risks and benefits with opioid therapy in such care.

The recommendations address the use of opioid pain medication in certain special populations (e.g., older adults and pregnant women) and in populations with conditions posing special risks (e.g., a history of substance use disorder). The recommendations do not address the use of opioid pain medication in children or adolescents aged <18 years. The available evidence concerning the benefits and harms of long-term opioid therapy in children and adolescents is limited, and few opioid medications provide information on the label regarding safety and effectiveness in pediatric patients. However, observational research shows significant increases in opioid prescriptions for pediatric populations from 2001 to 2010 (*36*), and a large proportion of adolescents are commonly prescribed opioid pain medications for conditions such as headache and sports injuries (e.g., in one study, 50% of adolescents presenting with headache received a prescription for an opioid pain medication) (*37,38*). Adolescents who misuse opioid pain medication often misuse medications from their own previous prescriptions (*39*), with an estimated 20% of adolescents with currently prescribed opioid medications reporting using them intentionally to get high or increase the effects of alcohol or other drugs (*40*). Use of prescribed opioid pain medication before high school graduation is associated with a 33% increase in the risk of later opioid misuse (*41*). Misuse of opioid pain medications in adolescence strongly predicts later onset of heroin use (*42*). Thus, risk of opioid medication use in pediatric populations is of great concern. Additional clinical trial and observational research is needed, and encouraged, to inform development of future guidelines for this critical population.

The recommendations are not intended to provide guidance on use of opioids as part of medication-assisted treatment for opioid use disorder. Some of the recommendations might be relevant for acute care settings or other specialists, such as emergency physicians or dentists, but use in these settings or by other specialists is not the focus of this guideline. Readers are referred to other sources for prescribing recommendations within acute care settings and in dental practice, such as the American College of Emergency Physicians' guideline for prescribing of opioids in the emergency department (*43*); the American Society of Anesthesiologists' guideline for acute pain management in the perioperative setting (*44*); the Washington Agency Medical Directors' Group Interagency Guideline on Prescribing Opioids for Pain, Part II: Prescribing Opioids in the Acute and Subacute Phase (*30*); and the Pennsylvania Guidelines on the Use of Opioids in Dental Practice (*45*). In addition, given the challenges of managing the painful complications of sickle cell disease, readers are referred to the NIH National Heart, Lung, and Blood Institute's Evidence Based Management of Sickle Cell Disease Expert Panel Report for management of sickle cell disease (*46*).

Guideline Development Methods

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Guideline Development Using the Grading of Recommendations Assessment, Development, and Evaluation Method

CDC developed this guideline using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) method (http://www.gradeworkinggroup.org (http://www.gradeworkinggroup.org)). This method specifies the systematic review of scientific evidence and offers a transparent approach to grading quality of evidence and strength of recommendations. The method has been adapted by the CDC Advisory Committee on Immunization Practices (ACIP) (*47*). CDC has applied the ACIP translation of the GRADE framework in this guideline. Within the ACIP GRADE framework, the body of evidence is categorized in a hierarchy. This hierarchy reflects degree of confidence in the effect of a clinical action on health outcomes. The categories include type 1 evidence (randomized clinical trials or overwhelming evidence from observational studies), type 2 evidence (randomized clinical trials with important limitations, or exceptionally strong evidence from observational studies), type 3 evidence (observational studies or randomized clinical trials with notable limitations), and type 4 evidence (clinical experience and observations, observational studies with important limitations, or randomized clinical trials with several major limitations). Type of evidence is categorized by study design as well as limitations in study design or implementation, imprecision of estimates, variability in findings, indirectness of evidence, publication bias, magnitude of treatment effects, dose-response gradient, and a constellation of plausible biases that could change observations of effects. Type 1 evidence indicates that one can be very confident that the true effect lies close to that of the estimate of the effect; type 2 evidence means that the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different; type 3 evidence means that confidence in the effect estimate is limited and the true effect might be substantially different from the estimate of the effect; and type 4 evidence indicates that one has very little confidence in the effect estimate, and the true effect is likely to be substantially different from the estimate of the effect (*47,48*). When no studies are present, evidence is considered to be insufficient. The ACIP GRADE framework places recommendations in two categories, Category A and Category B. Four major factors determine the category of the recommendation: the quality of evidence, the balance between desirable and undesirable effects, values and preferences, and resource allocation (cost). Category A recommendations apply to all persons in a specified group and indicate that most patients should receive the recommended course of action. Category B recommendations indicate that there should be individual decision making; different choices will be appropriate for different patients, so clinicians must help patients arrive at a decision consistent with patient values and preferences, and specific clinical situations (*47*). According to the GRADE methodology, a particular quality of evidence does not necessarily imply a particular strength of recommendation (*48–50*). Category A recommendations can be made based on type 3 or type 4 evidence when the advantages of a clinical action greatly outweigh the disadvantages based on a consideration of benefits and harms, values and preferences, and costs. Category B recommendations are made when the advantages and disadvantages of a clinical action are more balanced. GRADE methodology is discussed extensively elsewhere (*47,51*). The U.S. Preventive Services Task Force (USPSTF) follows different methods for developing and categorizing recommendations (http://www.uspreventiveservicestaskforce.org

(http://www.uspreventiveservicestaskforce.org)). USPSTF recommendations focus on preventive services and are categorized as A, B, C, D, and I. Under the Affordable Care Act, all "nongrandfathered" health plans (that is, those health plans not in existence prior to March 23, 2010 or those with significant changes to their coverage) and expanded Medicaid plans are required to cover preventive services recommended by USPSTF with a category A or B rating with no cost sharing. The coverage requirements went into effect September 23, 2010. Similar requirements are in place for vaccinations recommended by ACIP, but do not exist for other recommendations made by CDC, including recommendations within this guideline.

A previously published systematic review sponsored by the Agency for Healthcare Research and Quality (AHRQ) on the effectiveness and risks of long-term opioid treatment of chronic pain (*14*,*52*) initially served to directly inform the recommendation statements. This systematic clinical evidence review addressed the effectiveness of long-term opioid therapy for outcomes related to pain, function, and quality of life; the comparative effectiveness of different methods for initiating and titrating opioids; the harms and adverse events associated with opioids; and the accuracy of risk-prediction instruments and effectiveness of risk mitigation strategies on outcomes related to overdose, addiction, abuse, or misuse. For the current guideline development, CDC conducted additional literature searches to update the evidence review to include more recently available publications and to answer an additional clinical question about the effect of opioid therapy for acute pain on long-term use. More details about the literature search strategies and GRADE methods applied are provided in the Clinical Evidence Review (http://stacks.cdc.gov/view/cdc/38026 (http://stacks.cdc.gov/view/cdc/38026)). CDC developed GRADE evidence tables to illustrate the quality of the evidence for each clinical question.

As identified in the AHRQ-sponsored clinical evidence review, the overall evidence base for the effectiveness and risks of long-term opioid therapy is low in quality per the GRADE criteria. Thus, contextual evidence is needed to provide information about the benefits and harms of nonpharmacologic and nonopioid pharmacologic therapy and the epidemiology of opioid pain medication overdose and inform the recommendations. Further, as elucidated by the GRADE Working Group, supplemental information on clinician and patient values and preferences and resource allocation can inform judgments of benefits and harms and be helpful for translating the evidence into recommendations. CDC conducted a contextual evidence review to supplement the clinical evidence review based on systematic searches of the literature. The review focused on the following four areas: effectiveness of nonpharmacologic and nonopioid pharmacologic treatments; benefits and harms related to opioid therapy (including additional studies not included in the clinical evidence review such as studies that evaluated outcomes at any duration or used observational study designs related to specific opioid pain medications, high-dose opioid therapy, co-prescription of opioids with other controlled substances, duration of opioid use, special populations, risk stratification/mitigation approaches, and effectiveness of treatments for addressing potential harms of opioid therapy); clinician and patient values and preferences; and resource allocation. CDC constructed narrative summaries of this contextual evidence and used the information to support the clinical recommendations. More details on methods for the contextual evidence review are provided in the Contextual Evidence Review (http://stacks.cdc.gov/view/cdc/38027 (http://stacks.cdc.gov/view/cdc/38027)).

On the basis of a review of the clinical and contextual evidence (review methods are described in more detail in subsequent sections of this report), CDC drafted recommendation statements focused on determining when to initiate or continue opioids for chronic pain; opioid selection, dosage, duration, follow-up, and discontinuation; and assessing risk and addressing harms of opioid use. To help assure the draft guideline's integrity and credibility, CDC then began a multistep review process to obtain input from experts, stakeholders, and the public to help refine the recommendations.

Solicitation of Expert Opinion

CDC sought the input of experts to assist in reviewing the evidence and providing perspective on how CDC used the evidence to develop the draft recommendations. These experts, referred to as the "Core Expert Group" (CEG) included subject matter experts, representatives of primary care professional societies and state agencies, and an expert in guideline development methodology.* CDC identified subject matter experts with high scientific standing; appropriate academic and clinical training and relevant clinical experience; and proven scientific excellence in opioid prescribing, substance use disorder treatment, and pain management. CDC identified representatives from leading primary care professional organizations to represent the audience for this guideline. Finally, CDC identified state agency officials and representatives based on their experience with state guidelines for opioid prescribing that were developed with multiple agency stakeholders and informed by scientific literature and existing evidence-based guidelines.

Prior to their participation, CDC asked potential experts to reveal possible conflicts of interest such as financial relationships with industry, intellectual preconceptions, or previously stated public positions. Experts could not serve if they had conflicts that might have a direct and predictable effect on the recommendations. CDC excluded experts who had a financial or promotional relationship with a company that makes a product that might be affected by the guideline. CDC reviewed potential nonfinancial conflicts carefully (e.g., intellectual property, travel, public statements or positions such as congressional testimony) to determine if the activities would have a direct and predictable effect on the recommendations. CDC determined the risk of these types of activities to be minimal for the identified experts. All experts completed a statement certifying that there was no potential or actual conflict of interest. Activities that did not pose a conflict (e.g., participation in Food and Drug Administration [FDA] activities or other guideline efforts) are disclosed.

CDC provided to each expert written summaries of the scientific evidence (both the clinical and contextual evidence reviews conducted for this guideline) and CDC's draft recommendation statements. Experts provided individual ratings for each draft recommendation statement based on the balance of benefits and harms, evidence strength, certainty of values and preferences, cost, recommendation strength, rationale, importance, clarity, and ease of implementation. CDC hosted an in-person meeting of the experts that was held on June 23–24, 2015, in Atlanta, Georgia, to seek their views on the evidence and draft recommendations and to better understand their premeeting ratings. CDC sought the experts' individual opinions at the meeting. Although there was widespread agreement on some of the recommendations, there was disagreement on others. Experts did not vote on the recommendations or seek to come to a consensus. Decisions about recommendations to be included in the guideline, and their rationale, were made by CDC. After revising the guideline, CDC sent written copies of it to each of the experts for review and asked for any additional comments; CDC reviewed these written comments and considered them when making further revisions to the draft guideline. The experts have not reviewed the final version of the guideline.

Federal Partner Engagement

Given the scope of this guideline and the interest of agencies across the federal government in appropriate pain management, opioid prescribing, and related outcomes, CDC invited its National Institute of Occupational Safety and Health and CDC's federal partners to observe the expert meeting, provide written comments on the full draft guideline after the meeting, and review the guideline through an agency clearance process; CDC reviewed comments and incorporated changes. Interagency collaboration will be critical for translating these recommendations into clinical practice. Federal partners included representatives from the Substance Abuse and Mental Health Services Administration, the National Institute on Drug Abuse, FDA, the U.S. Department of Veterans Affairs, the U.S. Department of Defense, the Office of the National Coordinator for Health Information Technology, the Centers for Medicare and Medicaid Services, the Health Resources and Services Administration, AHRQ, and the Office of National Drug Control Policy.

Stakeholder Comment

Given the importance of the guideline for a wide variety of stakeholders, CDC also invited review from a Stakeholder Review Group (SRG) to provide comment so that CDC could consider modifications that would improve the recommendations' specificity, applicability, and ease of implementation. The SRG included representatives from professional organizations that represent specialties that commonly prescribe opioids (e.g., pain medicine, physical medicine and rehabilitation), delivery systems within which opioid prescribing occurs (e.g., hospitals), and representation from community organizations with interests in pain management and opioid prescribing.* Representatives from each of the SRG organizations were provided a copy of the guideline for comment. Each of these representatives provided written comments. Once input was received from the full SRG, CDC reviewed all comments and carefully considered them when revising the draft guideline.

Constituent Engagement

To obtain initial perspectives from constituents on the recommendation statements, including clinicians and prospective patients, CDC convened a constituent engagement webinar and circulated information about the webinar in advance through announcements to partners. CDC hosted the webinar on September 16 and 17, 2015, provided information about the methodology for developing the guideline, and presented the key recommendations. A fact sheet was posted on the CDC Injury Center website (http://www.cdc.gov/injury (http://www.cdc.gov/injury)) summarizing the guideline development process and clinical practice areas addressed in the guideline; instructions were included on how to submit comments via email. CDC received comments during and for 2 days following the first webinar. Over 1,200 constituent comments were received. Comments were reviewed and carefully considered when revising the draft guideline.

Peer Review

Per the final information quality bulletin for peer review (https://www.whitehouse.gov/sites/default/files/omb/memoranda/fy2005/m05-03.pdf (https://www.whitehouse.gov/sites/default/files/omb/memoranda/fy2005/m05-03.pdf)), peer review requirements applied to this guideline because it provides influential scientific information that could have a clear and substantial impact on public- and private-sector decisions. Three experts independently reviewed the guideline to determine the reasonableness and strength of recommendations; the clarity with which scientific uncertainties were clearly identified; and the rationale, importance, clarity, and ease of implementation of the recommendations.* CDC selected peer reviewers based on expertise, diversity of scientific viewpoints, and independence from the guideline development process. CDC assessed and managed potential conflicts of interest using a process similar to the one as described for solicitation of expert opinion. No financial interests were identified in the disclosure and review process, and nonfinancial activities were determined to be of minimal risk; thus, no significant conflict of interest concerns were identified. CDC placed the names of peer reviewers on the CDC and the National Center for Injury Prevention and Control Peer Review Agenda websites that are used to provide information about the peer review of influential documents. CDC reviewed peer review comments and revised the draft guideline accordingly.

Public Comment

To obtain comments from the public on the full guideline, CDC published a notice in the *Federal Register* (80 FR 77351) announcing the availability of the guideline and the supporting clinical and contextual evidence reviews for public comment. The comment period closed January 13, 2016. CDC received more than 4,350 comments from the general public, including patients with chronic pain, clinicians, families who have lost loved ones to overdose, medical associations, professional organizations, academic institutions, state and local governments, and industry. CDC reviewed each of the comments and carefully considered them when revising the draft guideline.

Federal Advisory Committee Review and Recommendation

The National Center for Injury Prevention and Control (NCIPC) Board of Scientific Counselors (BSC) is a federal advisory committee that advises and makes recommendations to the Secretary of the Department of Health and Human Services, the Director of CDC, and the Director of NCIPC.* The BSC makes recommendations regarding policies, strategies, objectives, and priorities, and reviews progress toward injury and violence prevention. CDC sought the BSC's advice on the draft guideline. BSC members are special government employees appointed as CDC advisory committee members; as such, all members completed an OGE Form 450 to disclose relevant interests. BSC members also reported on their disclosures during meetings. Disclosures for the BSC are reported in the guideline.

To assist in guideline review, on December 14, 2015, via Federal Register notice, CDC announced the intent to form an Opioid Guideline Workgroup (OGW) to provide observations on the draft guideline to the BSC. CDC provided the BSC with the draft guideline as well as summaries of comments provided to CDC by stakeholders, constituents, and peer reviewers, and edits made to the draft guideline in response. During an open meeting held on January 7, 2016, the BSC recommended the formation of the OGW. The OGW included a balance of perspectives from audiences directly affected by the guideline, audiences that would be directly involved with implementing the recommendations, and audiences qualified to provide representation. The OGW comprised clinicians, subject matter experts, and a patient representative, with the following perspectives represented: primary care, pain medicine, public health, behavioral health, substance abuse treatment, pharmacy, patients, and research.* Additional sought-after attributes were appropriate academic and clinical training and relevant clinical experience; high scientific standing; and knowledge of the patient, clinician, and caregiver perspectives. In accordance with CDC policy, two BSC committee members also served as OGW members, with one serving as the OGW Chair. The professional credentials and interests of OGW members were carefully reviewed to identify

possible conflicts of interest such as financial relationships with industry, intellectual preconceptions, or previously stated public positions. Only OGW members whose interests were determined to be minimal were selected. When an activity was perceived as having the potential to affect a specific aspect of the recommendations, the activity was disclosed, and the OGW member was recused from discussions related to that specific aspect of the recommendations (e.g., urine drug testing and abuse-deterrent formulations). Disclosures for the OGW are reported. CDC and the OGW identified ad-hoc consultants to supplement the workgroup expertise, when needed, in the areas of pediatrics, occupational medicine, obstetrics and gynecology, medical ethics, addiction psychiatry, physical medicine and rehabilitation, guideline development methodology, and the perspective of a family member who lost a loved one to opioid use disorder or overdose.

The BSC charged the OGW with reviewing the quality of the clinical and contextual evidence reviews and reviewing each of the recommendation statements and accompanying rationales. For each recommendation statement, the OGW considered the quality of the evidence, the balance of benefits and risks, the values and preferences of clinicians and patients, the cost feasibility, and the category designation of the recommendation (A or B). The OGW also reviewed supplementary documents, including input provided by the CEG, SRG, peer reviewers, and the public. OGW members discussed the guideline accordingly during virtual meetings and drafted a summary report of members' observations, including points of agreement and disagreement, and delivered the report to the BSC.

NCIPC announced an open meeting of the NCIPC BSC in the Federal Register on January 11, 2015. The BSC met on January 28, 2016, to discuss the OGW report and deliberate on the draft guideline itself. Members of the public provided comments at this meeting. After discussing the OGW report, deliberating on specific issues about the draft guideline identified at the meeting, and hearing public comment, the BSC voted unanimously: to support the observations made by the OGW; that CDC adopt the guideline recommendations that, according to the workgroup's report, had unanimous or majority support; and that CDC further consider the guideline recommendations for which the group had mixed opinions. CDC carefully considered the OGW observations, public comments, and BSC recommendations, and revised the guideline in response.

Summary of the Clinical Evidence Review

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Primary Clinical Questions

CDC conducted a clinical systematic review of the scientific evidence to identify the effectiveness, benefits, and harms of long-term opioid therapy for chronic pain, consistent with the GRADE approach (*47,48*). Long-term opioid therapy is defined as use of opioids on most days for >3 months. A previously published AHRQ-funded systematic review on the effectiveness and risks of long-term opioid therapy for chronic pain comprehensively addressed four clinical questions (*14,52*). CDC, with the assistance of a methodology expert, searched the literature to identify newly published studies on these four original questions. Because long-term opioid use might be affected by use of opioids for acute pain, CDC subsequently developed a fifth clinical question (last in the series below), and in collaboration with a methodologist conducted a systematic review of the scientific evidence to address it. In brief, five clinical questions were addressed:

- The effectiveness of long-term opioid therapy versus placebo, no opioid therapy, or nonopioid therapy for long term (≥1 year) outcomes related to pain, function, and quality of life, and how effectiveness varies according to the type/cause of pain, patient demographics, and patient comorbidities (Key Question [KQ] 1).
- The risks of opioids versus placebo or no opioids on abuse, addiction, overdose, and other harms, and how harms vary according to the type/cause of pain, patient demographics, patient comorbidities, and dose (KQ2).
- The comparative effectiveness of opioid dosing strategies (different methods for initiating and titrating opioids; immediate-release versus ER/LA opioids; different ER/LA opioids; immediate- release plus ER/LA opioids versus ER/LA opioids alone; scheduled, continuous versus as-needed dosing; dose escalation versus dose maintenance; opioid rotation versus maintenance; different strategies for treating acute exacerbations of chronic pain; decreasing opioid doses or tapering off versus continuation; and different tapering protocols and strategies) (KQ3).
- The accuracy of instruments for predicting risk for opioid overdose, addiction, abuse, or misuse; the effectiveness of risk mitigation strategies (use of risk prediction instruments); effectiveness of risk mitigation strategies including opioid management plans, patient education, urine drug testing, prescription drug monitoring program (PDMP) data, monitoring instruments, monitoring intervals, pill counts, and abuse-deterrent formulations for reducing risk for opioid overdose, addiction, abuse, or misuse; and the comparative effectiveness of treatment strategies for managing patients with addiction (KQ4).
- The effects of prescribing opioid therapy versus not prescribing opioid therapy for acute pain on long-term use (KQ5).

The review was focused on the effectiveness of long-term opioid therapy on long-term (>1 year) outcomes related to pain, function, and quality of life to ensure that findings are relevant to patients with chronic pain and long-term opioid prescribing. The effectiveness of short-term opioid therapy has already been established (*10*). However, opioids have unique effects such as tolerance and physical dependence that might influence assessments of benefit over time. These effects raise questions about whether findings on short-term effectiveness of opioid therapy can be extrapolated to estimate benefits of long-term therapy for chronic pain. Thus, it is important to consider studies that provide data on long-term benefit. For certain opioid-related harms (overdose, fractures, falls, motor vehicle crashes), observational studies were included with outcomes measured at shorter intervals because such outcomes can occur early during opioid therapy, and such harms are not captured well in short-term clinical trials. A detailed listing of the key questions is provided in the Clinical Evidence Review (http://stacks.cdc.gov/view/cdc/38026 (http://stacks.cdc.gov/view/cdc/38026)).

Clinical Evidence Systematic Review Methods

Complete methods and data for the 2014 AHRQ report, upon which this updated systematic review is based, have been published previously (*14,52*). Study authors developed the protocol using a standardized process (*53*) with input from experts and the public and registered the protocol in the PROSPERO database (*54*). For the 2014 AHRQ report, a research librarian searched MEDLINE, the Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews, PsycINFO, and CINAHL for English-language articles published January 2008 through August 2014, using search terms for opioid therapy, specific opioids, chronic pain, and comparative study designs. Also included were relevant studies from an earlier review (*10*) in which searches were conducted without a date restriction, reference lists were reviewed, and ClinicalTrials.gov was searched. CDC updated the AHRQ literature search using the same search strategies as in the original review including studies published before April, 2015. Seven additional studies met inclusion criteria and were added to the review. CDC used the GRADE approach outlined in the ACIP Handbook for Developing Evidence-Based Recommendations (*47*) to rate the quality of evidence for the full

body of evidence (evidence from the 2014 AHRQ review plus the update) for each clinical question. Evidence was categorized into the following types: type 1 (randomized clinical trials or overwhelming evidence from observational studies), type 2 (randomized clinical trials with important limitations, or exceptionally strong evidence from observational studies), type 3 (observational studies, or randomized clinical trials with notable limitations), or type 4 (clinical experience and observations, observational studies with important limitations, or randomized clinical trials with several major limitations). When no studies were present, evidence was considered to be insufficient. Per GRADE methods, type of evidence was categorized by study design as well as a function of limitations in study design or implementation, imprecision of estimates, variability in findings, indirectness of evidence, publication bias, magnitude of treatment effects, dose-response gradient, and constellation of plausible biases that could change effects. Results were synthesized qualitatively, highlighting new evidence identified during the update process. Meta-analysis was not attempted due to the small numbers of studies, variability in study designs and clinical heterogeneity, and methodological shortcomings of the studies. More detailed information about data sources and searches, study selection, data extraction and quality assessment, data synthesis, and update search yield and new evidence for the current review is provided in the Clinical Evidence Review (http://stacks.cdc.gov/view/cdc/38026 (http://stacks.cdc.gov/view/cdc/38026)).

Summary of Findings for Clinical Questions

The main findings of this updated review are consistent with the findings of the 2014 AHRQ report (*14*). In summary, evidence on long-term opioid therapy for chronic pain outside of end-of-life care remains limited, with insufficient evidence to determine long-term benefits versus no opioid therapy, though evidence suggests risk for serious harms that appears to be dose-dependent. These findings supplement findings from a previous review of the effectiveness of opioids for adults with chronic noncancer pain. In this previous review, based on randomized trials predominantly ≤12 weeks in duration, opioids were found to be moderately effective for pain relief, with small benefits for functional outcomes; although estimates vary, based on uncontrolled studies, a high percentage of patients discontinued long-term opioid use because of lack of efficacy and because of adverse events (*10*).

The GRADE evidence summary with type of evidence ratings for the five clinical questions for the current evidence review are outlined (Table 1). This summary is based on studies included in the AHRQ 2014 review (35 studies) plus additional studies identified in the updated search (seven studies). Additional details on findings from the original review are provided in the full 2014 AHRQ report (*14,52*). Full details on the clinical evidence review findings supporting this guideline are provided in the Clinical Evidence Review (http://stacks.cdc.gov/view/cdc/38026 (http://stacks.cdc.gov/view/cdc/38026)).

Effectiveness

For KQ1, no study of opioid therapy versus placebo, no opioid therapy, or nonopioid therapy for chronic pain evaluated long-term (≥1 year) outcomes related to pain, function, or quality of life. Most placebo-controlled randomized clinical trials were ≤6 weeks in duration. Thus, the body of evidence for KQ1 is rated as insufficient (0 studies contributing) (*14*).

Harms

For KQ2, the body of evidence is rated as type 3 (12 studies contributing; 11 from the original review plus one new study). One fair-quality cohort study found that long-term opioid therapy is associated with increased risk for an opioid abuse or dependence diagnosis (as defined by ICD-9-CM codes) versus no opioid prescription (*22*). Rates of opioid abuse or dependence diagnosis ranged from 0.7% with lower-dose (≤36 MME) chronic therapy to 6.1% with higher-dose (≥120 MME) chronic therapy, versus 0.004% with no opioids prescribed. Ten fair-quality uncontrolled studies reported estimates of opioid abuse, addiction, and related outcomes (*55–65*). In primary care settings, prevalence of opioid dependence (using DSM-IV criteria) ranged from 3% to 26% (*55,56,59*). In pain clinic settings, prevalence of addiction ranged from 2% to 14% (*57,58,60,61,63–65*).

Factors associated with increased risk for misuse included history of substance use disorder, younger age, major depression, and use of psychotropic medications (*55,62*). Two studies reported on the association between opioid use and risk for overdose (*66,67*). One large fair-quality retrospective cohort study found that recent opioid use was associated with increased risk for any overdose events and serious overdose events versus nonuse (*66*). It also found higher doses associated with increased risk. Relative to 1–19 MME/day, the adjusted hazard ratio (HR) for any overdose event (consisting of mostly nonfatal overdose) was 1.44 for 20 to 49 MME/day, 3.73 for 50–99 MME/day, and 8.87 for ≥100 MME/day. A similar pattern was observed for serious overdose. A good-quality population-based, nested case-control study also found a dose-dependent association with risk for overdose death (*67*). Relative to 1–19 MME/day, the adjusted odds ratio (OR) was 1.32 for 20–49 MME/day, 1.92 for 50–99 MME/day, 2.04 for 100–199 MME/day, and 2.88 for ≥200 MME/day.

Findings of increased fracture risk for current opioid use, versus nonuse, were mixed in two studies (*68,69*). Two studies found an association between opioid use and increased risk for cardiovascular events (*70,71*). Indirect evidence was found for endocrinologic harms (increased use of medications for erectile dysfunction or testosterone from one previously included study; laboratory-defined androgen deficiency from one newly reviewed study) (*72,73*). One study found that opioid dosages ≥20 MME/day were associated with increased odds of road trauma among drivers (*74*).

Opioid Dosing Strategies

For KQ3, the body of evidence is rated as type 4 (14 studies contributing; 12 from the original review plus two new studies). For initiation and titration of opioids, the 2014 AHRQ report found insufficient evidence from three fair-quality, open-label trials to determine comparative effectiveness of ER/LA versus immediate-release opioids for titrating patients to stable pain control (*75,76*). One new fair-quality cohort study of Veterans Affairs patients found initiation of therapy with an ER/LA opioid associated with greater risk for nonfatal overdose than initiation with an immediate-release opioid, with risk greatest in the first 2 weeks after initiation of treatment (*77*).

For comparative effectiveness and harms of ER/LA opioids, the 2014 AHRQ report included three randomized, head-to-head trials of various ER/LA opioids that found no clear differences in 1-year outcomes related to pain or function (*78–80*) but had methodological shortcomings. A fair-quality retrospective cohort study based on national Veterans Health Administration system pharmacy data found that methadone was associated with lower overall risk for all-cause mortality versus morphine (*81*), and a fair-quality retrospective cohort study based on Oregon Medicaid data found no statistically significant differences between methadone and long-acting morphine in risk for death or overdose symptoms (*82*). However, a new observational study (*83*) found methadone associated with

increased risk for overdose versus sustained-release morphine among Tennessee Medicaid patients. The observed inconsistency in study findings suggests that risks of methadone might vary in different settings as a function of different monitoring and management protocols, though more research is needed to understand factors associated with safer methadone prescribing.

For dose escalation, the 2014 AHRQ report included one fair-quality randomized trial that found no differences between more liberal dose escalation and maintenance of current doses after 12 months in pain, function, all-cause withdrawals, or withdrawals due to opioid misuse (*84*). However, the difference in opioid dosages prescribed at the end of the trial was relatively small (mean 52 MME/day with more liberal dosing versus 40 MME/day). Evidence on other comparisons related to opioid dosing strategies (ER/LA versus immediate-release opioids; immediate-release plus ER/LA opioids versus ER/LA opioids alone; scheduled continuous dosing versus as-needed dosing; or opioid rotation versus maintenance of current therapy; long-term effects of strategies for treating acute exacerbations of chronic pain) was not available or too limited to determine effects on long-term clinical outcomes. For example, evidence on the comparative effectiveness of opioid tapering or discontinuation versus maintenance, and of different opioid tapering strategies, was limited to small, poor-quality studies (*85–87*).

Risk Assessment and Mitigation

For KQ4, the body of evidence is rated as type 3 for the accuracy of risk assessment tools and insufficient for the effectiveness of use of risk assessment tools and mitigation strategies in reducing harms (six studies contributing; four from the original review plus two new studies). The 2014 AHRQ report included four studies (*88–91*) on the accuracy of risk assessment instruments, administered prior to opioid therapy initiation, for predicting opioid abuse or misuse. Results for the Opioid Risk Tool (ORT) (*89–91*) were extremely inconsistent; evidence for other risk assessment instruments was very sparse, and studies had serious methodological shortcomings. One additional fair-quality (*92*) and one poor-quality (*93*) study identified for this update compared the predictive accuracy of the ORT, the Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R), and the Brief Risk Interview. For the ORT, sensitivity was 0.58 and 0.75 and specificity 0.54 and 0.86; for the SOAPP-R, sensitivity was 0.53 and 0.25 and specificity 0.62 and 0.73; and for the Brief Risk Interview, sensitivity was 0.73 and 0.83 and specificity 0.43 and 0.88. For the ORT, positive likelihood ratios ranged from noninformative (positive likelihood ratio close to 1) to moderately useful (positive likelihood ratio >5). The SOAPP-R was associated with noninformative likelihood ratios (estimates close to 1) in both studies.

No study evaluated the effectiveness of risk mitigation strategies (use of risk assessment instruments, opioid management plans, patient education, urine drug testing, use of PDMP data, use of monitoring instruments, more frequent monitoring intervals, pill counts, or use of abuse-deterrent formulations) for improving outcomes related to overdose, addiction, abuse, or misuse.

Effects of Opioid Therapy for Acute Pain on Long-Term Use

For KQ5, the body of evidence is rated as type 3 (two new studies contributing). Two fair-quality retrospective cohort studies found opioid therapy prescribed for acute pain associated with greater likelihood of long-term use. One study evaluated opioid-naïve patients who had undergone low-risk surgery, such as cataract surgery and varicose vein stripping (*94*). Use of opioids within 7 days of surgery was associated with increased risk for use at 1 year. The other study found that among patients with a workers' compensation claim for acute low back pain, compared to patients who did not receive opioids early after injury (defined as use within 15 days following onset of pain), patients who did receive early opioids had an increased likelihood of receiving five or more opioid prescriptions 30–730 days following onset that increased with greater early exposure. Versus no early opioid use, the adjusted OR was 2.08 (95% CI = 1.55–2.78) for 1-140 MME/day and increased to 6.14 (95% confidence interval [CI] = 4.92–7.66) for ≥450 MME/day (*95*).

Summary of the Contextual Evidence Review

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Primary Areas of Focus

Contextual evidence is complementary information that assists in translating the clinical research findings into recommendations. CDC conducted contextual evidence reviews on four topics to supplement the clinical evidence review findings:

- Effectiveness of nonpharmacologic (e.g., cognitive behavioral therapy [CBT], exercise therapy, interventional treatments, and multimodal pain treatment) and nonopioid pharmacologic treatments (e.g., acetaminophen, nonsteroidal anti-inflammatory drugs [NSAIDs], antidepressants, and anticonvulsants), including studies of any duration.
- Benefits and harms of opioid therapy (including additional studies not included in the clinical evidence review, such as studies that were not restricted to patients with chronic pain, evaluated outcomes at any duration, performed ecological analyses, or used observational study designs other than cohort and case-cohort control studies) related to specific opioids, high-dose therapy, co-prescription with other controlled substances, duration of use, special populations, and potential usefulness of risk stratification/mitigation approaches, in addition to effectiveness of treatments associated with addressing potential harms of opioid therapy (opioid use disorder).
- Clinician and patient values and preferences related to opioids and medication risks, benefits, and use.
- Resource allocation including costs and economic efficiency of opioid therapy and risk mitigation strategies.

CDC also reviewed clinical guidelines that were relevant to opioid prescribing and could inform or complement the CDC recommendations under development (e.g., guidelines on nonpharmacologic and nonopioid pharmacologic treatments and guidelines with recommendations related to specific clinician actions such as urine drug testing or opioid tapering protocols).

Contextual Evidence Review Methods

CDC conducted a contextual evidence review to assist in developing the recommendations by providing an assessment of the balance of benefits and harms, values and preferences, and cost, consistent with the GRADE approach. Given the public health urgency for developing opioid prescribing recommendations, a rapid review was required for the contextual evidence review for the current guideline. Rapid reviews are used when there is a need to streamline the systematic

review process to obtain evidence quickly (*96*). Methods used to streamline the process include limiting searches by databases, years, and languages considered, and truncating quality assessment and data abstraction protocols. CDC conducted "rapid reviews" of the contextual evidence on nonpharmacologic and nonopioid pharmacologic treatments, benefits and harms, values and preferences, and resource allocation.

Detailed information about contextual evidence data sources and searches, inclusion criteria, study selection, and data extraction and synthesis are provided in the Contextual Evidence Review (http://stacks.cdc.gov/view/cdc/38027 (http://stacks.cdc.gov/view/cdc/38027)). In brief, CDC conducted systematic literature searches to identify original studies, systematic reviews, and clinical guidelines, depending on the topic being searched. CDC also solicited publication referrals from subject matter experts. Given the need for a rapid review process, grey literature (e.g., literature by academia, organizations, or government in the forms of reports, documents, or proceedings not published by commercial publishers) was not systematically searched. Database sources, including MEDLINE, PsycINFO, the Cochrane Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews, varied by topic. Multiple reviewers scanned study abstracts identified through the database searches and extracted relevant studies for review. CDC constructed narrative summaries and tables based on relevant articles that met inclusion criteria, which are provided in the Contextual Evidence Review (http://stacks.cdc.gov/view/cdc/38027 (http://stacks.cdc.gov/view/cdc/38027)).

Findings from the contextual reviews provide indirect evidence and should be interpreted accordingly. CDC did not formally rate the quality of evidence for the studies included in the contextual evidence review using the GRADE method. The studies that addressed benefits and harms, values and preferences, and resource allocation most often employed observational methods, used short follow-up periods, and evaluated selected samples. Therefore the strength of the evidence from these contextual review areas was considered to be low, comparable to type 3 or type 4 evidence. The quality of evidence for nonopioid pharmacologic and nonpharmacologic pain treatments was generally rated as moderate, comparable to type 2 evidence, in systematic reviews and clinical guidelines (e.g., for treatment of chronic neuropathic pain, low back pain, osteoarthritis, and fibromyalgia). Similarly, the quality of evidence on pharmacologic and psychosocial opioid use disorder treatment was generally rated as moderate, comparable to type 2 evidence, in systematic reviews and clinical guidelines.

Summary of Findings for Contextual Areas

Full narrative reviews and tables that summarize key findings from the contextual evidence review are provided in the Contextual Evidence Review (http://stacks.cdc.gov/view/cdc/38027 (http://stacks.cdc.gov/view/cdc/38027)).

Effectiveness of Nonpharmacologic and Nonopioid Pharmacologic Treatments

Several nonpharmacologic and nonopioid pharmacologic treatments have been shown to be effective in managing chronic pain in studies ranging in duration from 2 weeks to 6 months. For example, CBT that trains patients in behavioral techniques and helps patients modify situational factors and cognitive processes that exacerbate pain has small positive effects on disability and catastrophic thinking (*97*). Exercise therapy can help reduce pain and improve function in chronic low back pain (*98*), improve function and reduce pain in osteoarthritis of the knee (*99*) and hip (*100*), and improve well-being, fibromyalgia symptoms, and physical function in fibromyalgia (*101*). Multimodal and multidisciplinary therapies (e.g., therapies that combine exercise and related therapies with psychologically based approaches) can help reduce pain and improve function more effectively than single modalities (*102,103*). Nonopioid pharmacologic approaches used for pain include analgesics such as acetaminophen, NSAIDs, and cyclooxygenase 2 (COX-2) inhibitors; selected anticonvulsants; and selected antidepressants (particularly tricyclics and serotonin and norepinephrine reuptake inhibitors [SNRIs]). Multiple guidelines recommend acetaminophen as first-line pharmacotherapy for osteoarthritis (*104–109*) or for low back pain (*110*) but note that it should be avoided in liver failure and that dosage should be reduced in patients with hepatic insufficiency or a history of alcohol abuse (*109*). Although guidelines also recommend NSAIDs as first-line treatment for osteoarthritis or low back pain (*106,110*), NSAIDs and COX-2 inhibitors do have risks, including gastrointestinal bleeding or perforation as well as renal and cardiovascular risks (*111*). FDA has recently strengthened existing label warnings that NSAIDs increase risks for heart attack and stroke, including that these risks might increase with longer use or at higher doses (*112*). Several guidelines agree that first- and second-line drugs for neuropathic pain include anticonvulsants (gabapentin or pregabalin), tricyclic antidepressants, and SNRIs (*113–116*). Interventional approaches such as epidural injection for certain conditions (e.g., lumbar radiculopathy) can provide short-term improvement in pain (*117–119*). Epidural injection has been associated with rare but serious adverse events, including loss of vision, stroke, paralysis, and death (*120*).

Benefits and Harms of Opioid Therapy

Balance between benefits and harms is a critical factor influencing the strength of clinical recommendations. In particular, CDC considered what is known from the epidemiology research about benefits and harms related to specific opioids and formulations, high dose therapy, co-prescription with other controlled substances, duration of use, special populations, and risk stratification and mitigation approaches. Additional information on benefits and harms of long-term opioid therapy from studies meeting rigorous selection criteria is provided in the clinical evidence review (e.g., see KQ2). CDC also considered the number of persons experiencing chronic pain, numbers potentially benefiting from opioids, and numbers affected by opioid-related harms. A review of these data is presented in the background section of this document, with detailed information provided in the Contextual Evidence Review (http://stacks.cdc.gov/view/cdc/38027 (http://stacks.cdc.gov/view/cdc/38027)). Finally, CDC considered the effectiveness of treatments that addressed potential harms of opioid therapy (opioid use disorder).

Regarding specific opioids and formulations, as noted by FDA, there are serious risks of ER/LA opioids, and the indication for this class of medications is for management of pain severe enough to require daily, around-the-clock, long-term opioid treatment in patients for whom other treatment options (e.g., nonopioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain (*121*). Time-scheduled opioid use was associated with substantially higher average daily opioid dosage than as-needed opioid use in one study (*122*). Methadone has been associated with disproportionate numbers of overdose deaths relative to the frequency with which it is prescribed for pain. Methadone has been found to account for as much as a third of opioid-related overdose deaths involving single or multiple drugs in states that participated in the Drug Abuse Warning Network, which was more than any opioid other than oxycodone, despite representing <2% of opioid prescriptions outside of opioid treatment programs in the United States; further, methadone was involved in twice as many single-drug deaths as any other prescription opioid (*123*).

Regarding high-dose therapy, several epidemiologic studies that were excluded from the clinical evidence review because patient samples were not restricted to patients with chronic pain also examined the association between opioid dosage and overdose risk (*23,24,124–126*). Consistent with the clinical evidence review, the contextual review found that opioid-related overdose risk is dose-dependent, with higher opioid dosages associated with increased overdose risk. Two of these studies (*23,24*), as well as the two studies in the clinical evidence review (*66,67*), evaluated similar MME/day dose ranges for association with overdose risk. In these four studies, compared with opioids prescribed at <20 MME/day, the odds of overdose among patients prescribed opioids for chronic nonmalignant pain were between 1.3 (*67*) and 1.9 (*24*) for dosages of 20 to <50 MME/day, between 1.9 (*67*) and 4.6 (*24*) for dosages of 50 to <100 MME/day, and between 2.0 (*67*) and 8.9 (*66*) for dosages of ≥100 MME/day. Compared with dosages of 1-<20 MME/day, absolute risk difference approximation for 50-<100 MME/day was 0.15% for fatal overdose (*24*) and 1.40% for any overdose (*66*), and for ≥100 MME/day was 0.25% for fatal overdose (*24*) and 4.04% for any overdose (*66*). A recent study of Veterans Health Administration patients with chronic pain found that patients who died of overdoses related to opioids were prescribed higher opioid dosages (mean: 98 MME/day; median: 60 MME/day) than controls (mean: 48 MME/day, median: 25 MME/day) (*127*). Finally, another recent study of overdose deaths among state residents with and without opioid prescriptions revealed that prescription opioid-related overdose mortality rates rose rapidly up to prescribed doses of 200 MME/day, after which the mortality rates continued to increase but grew more gradually (*128*). A listing of common opioid medications and their MME equivalents is provided (Table 2).

Regarding coprescription of opioids with benzodiazepines, epidemiologic studies suggest that concurrent use of benzodiazepines and opioids might put patients at greater risk for potentially fatal overdose. Three studies of fatal overdose deaths found evidence of concurrent benzodiazepine use in 31%–61% of decedents (*67,128,129*). In one of these studies (*67*), among decedents who received an opioid prescription, those whose deaths were related to opioids were more likely to have obtained opioids from multiple physicians and pharmacies than decedents whose deaths were not related to opioids.

Regarding duration of use, patients can experience tolerance and loss of effectiveness of opioids over time (*130*). Patients who do not experience clinically meaningful pain relief early in treatment (i.e., within 1 month) are unlikely to experience pain relief with longer-term use (*131*).

Regarding populations potentially at greater risk for harm, risk is greater for patients with sleep apnea or other causes of sleep-disordered breathing, patients with renal or hepatic insufficiency, older adults, pregnant women, patients with depression or other mental health conditions, and patients with alcohol or other substance use disorders. Interpretation of clinical data on the effects of opioids on sleep-disordered breathing is difficult because of the types of study designs and methods employed, and there is no clear consensus regarding association with risk for developing obstructive sleep apnea syndrome (*132*). However, opioid therapy can decrease respiratory drive, a high percentage of patients on long-term opioid therapy have been reported to have an abnormal apnea-hypopnea index (*133*), opioid therapy can worsen central sleep apnea in obstructive sleep apnea patients, and it can cause further desaturation in obstructive sleep apnea patients not on continuous positive airway pressure (CPAP) (*31*). Reduced renal or hepatic function can result in greater peak effect and longer duration of action and reduce the dose at which respiratory depression and overdose occurs (*134*). Age-related changes in patients aged ≥65 years, such as reduced renal function and medication clearance, even in the absence of renal disease (*135*), result in a smaller therapeutic window between safe dosages and dosages associated with respiratory depression and overdose. Older adults might also be at increased risk for falls and fractures related to opioids (*136–138*). Opioids used in pregnancy can be associated with additional risks to both mother and fetus. Some studies have shown an association of opioid use in pregnancy with birth defects, including neural tube defects (*139,140*), congenital heart defects (*140*), and gastroschisis (*140*); preterm delivery (*141*), poor fetal growth (*141*), and stillbirth (*141*). Importantly, in some cases, opioid use during pregnancy leads to neonatal opioid withdrawal syndrome (*142*). Patients with mental health comorbidities and patients with histories of substance use disorders might be at higher risk than other patients for opioid use disorder (*62,143,144*). Recent analyses found that depressed patients were at higher risk for drug overdose than patients without depression, particularly at higher opioid dosages, although investigators were unable to distinguish unintentional overdose from suicide attempts (*145*). In case-control and case-cohort studies, substance abuse/dependence was more prevalent among patients experiencing overdose than among patients not experiencing overdose (12% versus 6% [*66*], 40% versus 10% [*24*], and 26% versus 9% [*23*]).

Regarding risk stratification approaches, limited evidence was found regarding benefits and harms. Potential benefits of PDMPs and urine drug testing include the ability to identify patients who might be at higher risk for opioid overdose or opioid use disorder, and help determine which patients will benefit from greater caution and increased monitoring or interventions when risk factors are present. For example, one study found that most fatal overdoses could be identified retrospectively on the basis of two pieces of information, multiple prescribers and high total daily opioid dosage, both important risk factors for overdose (*124,146*) that are available to prescribers in the PDMP (*124*). However, limited evaluation of PDMPs at the state level has revealed mixed effects on changes in prescribing and mortality outcomes (*28*). Potential harms of risk stratification include underestimation of risks of opioid therapy when screening tools are not adequately sensitive, as well as potential overestimation of risk, which could lead to inappropriate clinical decisions.

Regarding risk mitigation approaches, limited evidence was found regarding benefits and harms. Although no studies were found to examine prescribing of naloxone with opioid pain medication in primary care settings, naloxone distribution through community-based programs providing prevention services for substance users has been demonstrated to be associated with decreased risk for opioid overdose death at the community level (*147*).

Concerns have been raised that prescribing changes such as dose reduction might be associated with unintended negative consequences, such as patients seeking heroin or other illicitly obtained opioids (*148*) or interference with appropriate pain treatment (*149*). With the exception of a study noting an association between an abuse-deterrent formulation of OxyContin and heroin use, showing that some patients in qualitative interviews reported switching to another opioid, including heroin, for many reasons, including cost and availability as well as ease of use (*150*), CDC did not identify studies evaluating these potential outcomes.

Finally, regarding the effectiveness of opioid use disorder treatments, methadone and buprenorphine for opioid use disorder have been found to increase retention in treatment and to decrease illicit opioid use among patients with opioid use disorder involving heroin (*151–153*). Although findings are mixed, some studies suggest that effectiveness is enhanced when psychosocial treatments (e.g., contingency management, community reinforcement, psychotherapeutic counseling, and family therapy) are used in conjunction with medication-assisted therapy; for example, by reducing opioid misuse and increasing retention during maintenance therapy, and improving compliance after detoxification (*154,155*).

Clinician and Patient Values and Preferences

Clinician and patient values and preferences can inform how benefits and harms of long-term opioid therapy are weighted and estimate the effort and resources required to effectively provide implementation support. Many physicians lack confidence in their ability to prescribe opioids safely (*156*), to predict (*157*) or detect (*158*) prescription drug abuse, and to discuss abuse with their patients (*158*). Although clinicians have reported favorable beliefs and attitudes about improvements in pain and quality of life attributed to opioids (*159*), most consider prescription drug abuse to be a "moderate" or "big" problem in their community, and large proportions are "very" concerned about opioid addiction (55%) and death (48%) (*160*). Clinicians do not consistently use practices intended to decrease the risk for misuse, such as PDMPs (*161,162*), urine drug testing (*163*), and opioid treatment agreements (*164*). This is likely due in part to challenges related to registering for PDMP access and logging into the PDMP (which can interrupt normal clinical workflow if data are not integrated into electronic health record systems) (*165*), competing clinical demands, perceived inadequate time to discuss the rationale for urine drug testing and to order confirmatory testing, and feeling unprepared to interpret and address results (*166*).

Many patients do not have an opinion about "opioids" or know what this term means (*167*). Most are familiar with the term "narcotics." About a third associated "narcotics" with addiction or abuse, and about half feared "addiction" from long-term "narcotic" use (*168*). Most patients taking opioids experience side effects (73% of patients taking hydrocodone for noncancer pain [*11*], 96% of patients taking opioids for chronic pain [*12*]), and side effects, rather than pain relief, have been found to explain most of the variation in patients' preferences related to taking opioids (*12*). For example, patients taking hydrocodone for noncancer pain commonly reported side effects including dizziness, headache, fatigue, drowsiness, nausea, vomiting, and constipation (*11*). Patients with chronic pain in focus groups emphasized effectiveness of goal setting for increasing motivation and functioning (*168*). Patients taking high dosages report reliance on opioids despite ambivalence about their benefits (*169*) and regardless of pain reduction, reported problems, concerns, side effects, or perceived helpfulness (*13*).

Resource Allocation

Resource allocation (cost) is an important consideration in understanding the feasibility of clinical recommendations. CDC searched for evidence on opioid therapy compared with other treatments; costs of misuse, abuse, and overdose from prescription opioids; and costs of specific risk mitigation strategies (e.g., urine drug testing). Yearly direct and indirect costs related to prescription opioids have been estimated (based on studies published since 2010) to be $53.4 billion for nonmedical use of prescription opioids (*170*); $55.7 billion for abuse, dependence (i.e., opioid use disorder), and misuse of prescription opioids (*171*); and $20.4 billion for direct and indirect costs related to opioid-related overdose alone (*172*). In 2012, total expenses for outpatient prescription opioids were estimated at $9.0 billion, an increase of 120% from 2002 (*173*). Although there are perceptions that opioid therapy for chronic pain is less expensive than more time-intensive nonpharmacologic management approaches, many pain treatments, including acetaminophen, NSAIDs, tricyclic antidepressants, and massage therapy, are associated with lower mean and median annual costs compared with opioid therapy (*174*). COX-2 inhibitors, SNRIs, anticonvulsants, topical analgesics, physical therapy, and CBT are also associated with lower median annual costs compared with opioid therapy (*174*). Limited information was found on costs of strategies to decrease risks associated with opioid therapy; however, urine drug testing, including screening and confirmatory tests, has been estimated to cost $211–$363 per test (*175*).

Recommendations

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The recommendations are grouped into three areas for consideration:

- Determining when to initiate or continue opioids for chronic pain.
- Opioid selection, dosage, duration, follow-up, and discontinuation.
- Assessing risk and addressing harms of opioid use.

There are 12 recommendations (Box 1). Each recommendation is followed by a rationale for the recommendation, with considerations for implementation noted. In accordance with the ACIP GRADE process, CDC based the recommendations on consideration of the clinical evidence, contextual evidence (including benefits and harms, values and preferences, resource allocation), and expert opinion. For each recommendation statement, CDC notes the recommendation category (A or B) and the type of the evidence (1, 2, 3, or 4) supporting the statement (Box 2). Expert opinion is reflected within each of the recommendation rationales. While there was not an attempt to reach consensus among experts, experts from the Core Expert Group and from the Opioid Guideline Workgroup ("experts") expressed overall, general support for all recommendations. Where differences in expert opinion emerged for detailed actions within the clinical recommendations or for implementation considerations, CDC notes the differences of opinion in the supporting rationale statements.

Category A recommendations indicate that most patients should receive the recommended course of action; category B recommendations indicate that different choices will be appropriate for different patients, requiring clinicians to help patients arrive at a decision consistent with patient values and preferences and specific clinical situations. Consistent with the ACIP (*47*) and GRADE process (*48*), category A recommendations were made, even with type 3 and 4 evidence, when there was broad agreement that the advantages of a clinical action greatly outweighed the disadvantages based on a consideration of benefits and harms, values and preferences, and resource allocation. Category B recommendations were made when there was broad agreement that the advantages and disadvantages of a clinical action were more balanced, but advantages were significant enough to warrant a recommendation. All recommendations are category A recommendations, with the exception of recommendation 10, which is rated as category B. Recommendations were associated with a range of evidence types, from type 2 to type 4.

In summary, the categorization of recommendations was based on the following assessment:

- No evidence shows a long-term benefit of opioids in pain and function versus no opioids for chronic pain with outcomes examined at least 1 year later (with most placebo-controlled randomized trials ≤6 weeks in duration).
- Extensive evidence shows the possible harms of opioids (including opioid use disorder, overdose, and motor vehicle injury).
- Extensive evidence suggests some benefits of nonpharmacologic and nonopioid pharmacologic treatments compared with long-term opioid therapy, with less harm.

Determining When to Initiate or Continue Opioids for Chronic Pain

1. Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain. Clinicians should consider opioid therapy only if expected benefits for both pain and function are anticipated to outweigh risks to the patient. If opioids are used, they should be combined with nonpharmacologic therapy and nonopioid pharmacologic therapy, as appropriate (recommendation category: A, evidence type: 3).

Patients with pain should receive treatment that provides the greatest benefits relative to risks. The contextual evidence review found that many nonpharmacologic therapies, including physical therapy, weight loss for knee osteoarthritis, psychological therapies such as CBT, and certain interventional procedures can ameliorate chronic pain. There is high-quality evidence that exercise therapy (a prominent modality in physical therapy) for hip (*100*) or knee (*99*) osteoarthritis reduces pain and improves function immediately after treatment and that the improvements are sustained for at least 2–6 months. Previous guidelines have strongly recommended aerobic, aquatic, and/or resistance exercises for patients with osteoarthritis of the knee or hip (*176*). Exercise therapy also can help reduce pain and improve function in low back pain and can improve global well-being and physical function in fibromyalgia (*98,101*). Multimodal therapies and multidisciplinary biopsychosocial rehabilitation-combining approaches (e.g., psychological therapies with exercise) can reduce long-term pain and disability compared with usual care and compared with physical treatments (e.g., exercise) alone. Multimodal therapies are not always available or reimbursed by insurance and can be time-consuming and costly for patients. Interventional approaches such as arthrocentesis and intraarticular glucocorticoid injection for pain associated with rheumatoid arthritis (*117*) or osteoarthritis (*118*) and subacromial corticosteroid injection for rotator cuff disease (*119*) can provide short-term improvement in pain and function. Evidence is insufficient to determine the extent to which repeated glucocorticoid injection increases potential risks such as articular cartilage changes (in osteoarthritis) and sepsis (*118*). Serious adverse events are rare but have been reported with epidural injection (*120*).

Several nonopioid pharmacologic therapies (including acetaminophen, NSAIDs, and selected antidepressants and anticonvulsants) are effective for chronic pain. In particular, acetaminophen and NSAIDs can be useful for arthritis and low back pain. Selected anticonvulsants such as pregabalin and gabapentin can improve pain in diabetic neuropathy and post-herpetic neuralgia (contextual evidence review). Pregabalin, gabapentin, and carbamazepine are FDA-approved for treatment of certain neuropathic pain conditions, and pregabalin is FDA approved for fibromyalgia management. In patients with or without depression, tricyclic antidepressants and SNRIs provide effective analgesia for neuropathic pain conditions including diabetic neuropathy and post-herpetic neuralgia, often at lower dosages and with a shorter time to onset of effect than for treatment of depression (see contextual evidence review). Tricyclics and SNRIs can also relieve fibromyalgia symptoms. The SNRI duloxetine is FDA-approved for the treatment of diabetic neuropathy and fibromyalgia. Because patients with chronic pain often suffer from concurrent depression (*144*), and depression can exacerbate physical symptoms including pain (*177*), patients with co-occurring pain and depression are especially likely to benefit from antidepressant medication (see Recommendation 8). Nonopioid pharmacologic therapies are not generally associated with substance use disorder, and the numbers of fatal overdoses associated with nonopioid medications are a fraction of those associated with opioid medications (contextual evidence review). For example, acetaminophen, NSAIDs, and opioid pain medication were involved in 881, 228, and 16,651 pharmaceutical overdose deaths in the United States in 2010 (*178*). However, nonopioid pharmacologic therapies are associated with certain risks, particularly in older patients, pregnant patients, and patients with certain co-morbidities such as cardiovascular, renal, gastrointestinal, and liver disease (see contextual evidence review). For example, acetaminophen can be hepatotoxic at dosages of > 3-4 grams/day and at lower dosages in patients with chronic alcohol use or liver disease (*109*). NSAID use has been associated with gastritis, peptic ulcer disease, cardiovascular events (*111,112*), and fluid retention, and most NSAIDs (choline magnesium trilisate and selective COX-2 inhibitors are exceptions) interfere with platelet aggregation (*179*). Clinicians should review FDA-approved labeling including boxed warnings before initiating treatment with any pharmacologic therapy.

Although opioids can reduce pain during short-term use, the clinical evidence review found insufficient evidence to determine whether pain relief is sustained and whether function or quality of life improves with long-term opioid therapy (KQ1). While benefits for pain relief, function, and quality of life with long-term opioid use for chronic pain are uncertain, risks associated with long-term opioid use are clearer and significant. Based on the clinical evidence review, long-term opioid use for chronic pain is associated with serious risks including increased risk for opioid use disorder, overdose, myocardial infarction, and motor vehicle injury (KQ2). At a population level, more than 165,000 persons in the United States have died from opioid pain-medication-related overdoses since 1999 (see Contextual Evidence Review).

Integrated pain management requires coordination of medical, psychological, and social aspects of health care and includes primary care, mental health care, and specialist services when needed (*180*). Nonpharmacologic physical and psychological treatments such as exercise and CBT are approaches that encourage active patient participation in the care plan, address the effects of pain in the patient's life, and can result in sustained improvements in pain and function without apparent risks. Despite this, these therapies are not always or fully covered by insurance, and access and cost can be barriers for patients. For many patients, aspects of these approaches can be used even when there is limited access to specialty care. For example, previous guidelines have strongly recommended aerobic, aquatic, and/or resistance exercises for patients with osteoarthritis of the knee or hip (*176*) and maintenance of activity for patients with low back pain (*110*). A randomized trial found no difference in reduced chronic low back pain intensity, frequency or disability between patients assigned to relatively low-cost group aerobics and individual physiotherapy or muscle reconditioning sessions (*181*). Low-cost options to integrate exercise include brisk walking in public spaces or use of public recreation facilities for group exercise. CBT addresses psychosocial contributors to pain and improves function (*97*). Primary care clinicians can integrate elements of a cognitive behavioral approach into their practice by encouraging patients to take an active role in the care plan, by supporting patients in engaging in beneficial but potentially anxiety-provoking activities, such as exercise (*179*), or by providing education in relaxation techniques and coping strategies. In many locations, there are free or low-cost patient support, self-help, and educational community-based programs that can provide stress reduction and other mental health benefits. Patients with more entrenched anxiety or fear related to pain, or other significant psychological distress, can be referred for formal therapy with a mental health specialist (e.g., psychologist, psychiatrist, clinical social worker). Multimodal therapies should be considered for patients not responding to single-modality therapy, and combinations should be tailored depending on patient needs, cost, and convenience.

To guide patient-specific selection of therapy, clinicians should evaluate patients and establish or confirm the diagnosis. Detailed recommendations on diagnosis are provided in other guidelines (*110,179*), but evaluation should generally include a focused history, including history and characteristics of pain and potentially contributing factors (e.g., function, psychosocial stressors, sleep) and physical exam, with imaging or other diagnostic testing only if indicated (e.g., if severe or progressive neurologic deficits are present or if serious underlying conditions are suspected) (*110,179*). For complex pain syndromes, pain specialty consultation can be considered to assist with diagnosis as well as management. Diagnosis can help identify disease-specific interventions to reverse or ameliorate pain; for

example, improving glucose control to prevent progression of diabetic neuropathy; immune-modulating agents for rheumatoid arthritis; physical or occupational therapy to address posture, muscle weakness, or repetitive occupational motions that contribute to musculoskeletal pain; or surgical intervention to relieve mechanical/compressive pain (*179*). The underlying mechanism for most pain syndromes can be categorized as neuropathic (e.g., diabetic neuropathy, postherpetic neuralgia, fibromyalgia), or nociceptive (e.g., osteoarthritis, muscular back pain). The diagnosis and pathophysiologic mechanism of pain have implications for symptomatic pain treatment with medication. For example, evidence is limited or insufficient for improved pain or function with long-term use of opioids for several chronic pain conditions for which opioids are commonly prescribed, such as low back pain (*182*), headache (*183*), and fibromyalgia (*184*). Although NSAIDs can be used for exacerbations of nociceptive pain, other medications (e.g., tricyclics, selected anticonvulsants, or transdermal lidocaine) generally are recommended for neuropathic pain. In addition, improvement of neuropathic pain can begin weeks or longer after symptomatic treatment is initiated (*179*). Medications should be used only after assessment and determination that expected benefits outweigh risks given patient-specific factors. For example, clinicians should consider falls risk when selecting and dosing potentially sedating medications such as tricyclics, anticonvulsants, or opioids, and should weigh risks and benefits of use, dose, and duration of NSAIDs when treating older adults as well as patients with hypertension, renal insufficiency, or heart failure, or those with risk for peptic ulcer disease or cardiovascular disease. Some guidelines recommend topical NSAIDs for localized osteoarthritis (e.g., knee osteoarthritis) over oral NSAIDs in patients aged ≥ 75 years to minimize systemic effects (*176*).

Experts agreed that opioids should not be considered first-line or routine therapy for chronic pain (i.e., pain continuing or expected to continue >3 months or past the time of normal tissue healing) outside of active cancer, palliative, and end-of-life care, given small to moderate short-term benefits, uncertain long-term benefits, and potential for serious harms; although evidence on long-term benefits of nonopioid therapies is also limited, these therapies are also associated with short-term benefits, and risks are much lower. This does not mean that patients should be required to sequentially "fail" nonpharmacologic and nonopioid pharmacologic therapy before proceeding to opioid therapy. Rather, expected benefits specific to the clinical context should be weighed against risks before initiating therapy. In some clinical contexts (e.g., headache or fibromyalgia), expected benefits of initiating opioids are unlikely to outweigh risks regardless of previous nonpharmacologic and nonopioid pharmacologic therapies used. In other situations (e.g., serious illness in a patient with poor prognosis for return to previous level of function, contraindications to other therapies, and clinician and patient agreement that the overriding goal is patient comfort), opioids might be appropriate regardless of previous therapies used. In addition, when opioid pain medication is used, it is more likely to be effective if integrated with nonpharmacologic therapy. Nonpharmacologic approaches such as exercise and CBT should be used to reduce pain and improve function in patients with chronic pain. Nonopioid pharmacologic therapy should be used when benefits outweigh risks and should be combined with nonpharmacologic therapy to reduce pain and improve function. If opioids are used, they should be combined with nonpharmacologic therapy and nonopioid pharmacologic therapy, as appropriate, to provide greater benefits to patients in improving pain and function.

2. Before starting opioid therapy for chronic pain, clinicians should establish treatment goals with all patients, including realistic goals for pain and function, and should consider how opioid therapy will be discontinued if benefits do not outweigh risks. Clinicians should continue opioid therapy only if there is clinically meaningful improvement in pain and function that outweighs risks to patient safety (recommendation category: A, evidence type: 4).

The clinical evidence review found insufficient evidence to determine long-term benefits of opioid therapy for chronic pain and found an increased risk for serious harms related to long-term opioid therapy that appears to be dose-dependent. In addition, studies on currently available risk assessment instruments were sparse and showed inconsistent results (KQ4). The clinical evidence review for the current guideline considered studies with outcomes examined at ≥1 year that compared opioid use versus nonuse or placebo. Studies of opioid therapy for chronic pain that did not have a nonopioid control group have found that although many patients discontinue opioid therapy for chronic noncancer pain due to adverse effects or insufficient pain relief, there is weak evidence that patients who are able to continue opioid therapy for at least 6 months can experience clinically significant pain relief and insufficient evidence that function or quality of life improves (*185*). These findings suggest that it is very difficult for clinicians to predict whether benefits of opioids for chronic pain will outweigh risks of ongoing treatment for individual patients. Opioid therapy should not be initiated without consideration of an "exit strategy" to be used if the therapy is unsuccessful.

Experts agreed that before opioid therapy is initiated for chronic pain outside of active cancer, palliative, and end-of-life care, clinicians should determine how effectiveness will be evaluated and should establish treatment goals with patients. Because the line between acute pain and initial chronic pain is not always clear, it might be difficult for clinicians to determine when they are initiating opioids for chronic pain rather than treating acute pain. Pain lasting longer than 3 months or past the time of normal tissue healing (which could be substantially shorter than 3 months, depending on the condition) is generally no longer considered acute. However, establishing treatment goals with a patient who has already received opioid therapy for 3 months would defer this discussion well past the point of initiation of opioid therapy for chronic pain. Clinicians often write prescriptions for long-term use in 30-day increments, and opioid prescriptions written for ≥30 days are likely to represent initiation or continuation of long-term opioid therapy. Before writing an opioid prescription for ≥30 days, clinicians should establish treatment goals with patients. Clinicians seeing new patients already receiving opioids should establish treatment goals for continued opioid therapy. Although the clinical evidence review did not find studies evaluating the effectiveness of written agreements or treatment plans (KQ4), clinicians and patients who set a plan in advance will clarify expectations regarding how opioids will be prescribed and monitored, as well as situations in which opioids will be discontinued or doses tapered (e.g., if treatment goals are not met, opioids are no longer needed, or adverse events put the patient at risk) to improve patient safety.

Experts thought that goals should include improvement in both pain relief and function (and therefore in quality of life). However, there are some clinical circumstances under which reductions in pain without improvement in physical function might be a more realistic goal (e.g., diseases typically associated with progressive functional impairment or catastrophic injuries such as spinal cord trauma). Experts noted that function can include emotional and social as well as physical dimensions. In addition, experts emphasized that mood has important interactions with pain and function. Experts agreed that clinicians may use validated instruments such as the three-item "Pain average, interference with Enjoyment of life, and interference with General activity" (PEG) Assessment Scale (*186*) to track patient outcomes. Clinically meaningful improvement has been defined as a 30% improvement in scores for both pain and function (*187*). Monitoring progress toward patient-centered functional goals (e.g., walking the dog or walking around the block, returning to part-time work, attending family sports or recreational activities) can also contribute to the assessment of functional improvement. Clinicians should use these goals in assessing benefits of opioid therapy for individual patients and in weighing benefits against risks of continued opioid therapy (see Recommendation 7, including recommended intervals for follow-up). Because depression, anxiety, and other psychological co-morbidities often coexist with and can interfere with resolution of pain, clinicians should use

validated instruments to assess for these conditions (see Recommendation 8) and ensure that treatment for these conditions is optimized. If patients receiving opioid therapy for chronic pain do not experience meaningful improvements in both pain and function compared with prior to initiation of opioid therapy, clinicians should consider working with patients to taper and discontinue opioids (see Recommendation 7) and should use nonpharmacologic and nonopioid pharmacologic approaches to pain management (see Recommendation 1).

3. Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy (recommendation category: A, evidence type: 3).

The clinical evidence review did not find studies evaluating effectiveness of patient education or opioid treatment plans as risk-mitigation strategies (KQ4). However, the contextual evidence review found that many patients lack information about opioids and identified concerns that some clinicians miss opportunities to effectively communicate about safety. Given the substantial evidence gaps on opioids, uncertain benefits of long-term use, and potential for serious harms, patient education and discussion before starting opioid therapy are critical so that patient preferences and values can be understood and used to inform clinical decisions. Experts agreed that essential elements to communicate to patients before starting and periodically during opioid therapy include realistic expected benefits, common and serious harms, and expectations for clinician and patient responsibilities to mitigate risks of opioid therapy.

Clinicians should involve patients in decisions about whether to start or continue opioid therapy. Given potentially serious risks of long-term opioid therapy, clinicians should ensure that patients are aware of potential benefits of, harms of, and alternatives to opioids before starting or continuing opioid therapy. Clinicians are encouraged to have open and honest discussions with patients to inform mutual decisions about whether to start or continue opioid therapy. Important considerations include the following:

- Be explicit and realistic about expected benefits of opioids, explaining that while opioids can reduce pain during short-term use, there is no good evidence that opioids improve pain or function with long-term use, and that complete relief of pain is unlikely (clinical evidence review, KQ1).
- Emphasize improvement in function as a primary goal and that function can improve even when pain is still present.
- Advise patients about serious adverse effects of opioids, including potentially fatal respiratory depression and development of a potentially serious lifelong opioid use disorder that can cause distress and inability to fulfill major role obligations.
- Advise patients about common effects of opioids, such as constipation, dry mouth, nausea, vomiting, drowsiness, confusion, tolerance, physical dependence, and withdrawal symptoms when stopping opioids. To prevent constipation associated with opioid use, advise patients to increase hydration and fiber intake and to maintain or increase physical activity. Stool softeners or laxatives might be needed.
- Discuss effects that opioids might have on ability to safely operate a vehicle, particularly when opioids are initiated, when dosages are increased, or when other central nervous system depressants, such as benzodiazepines or alcohol, are used concurrently.
- Discuss increased risks for opioid use disorder, respiratory depression, and death at higher dosages, along with the importance of taking only the amount of opioids prescribed, i.e., not taking more opioids or taking them more often.
- Review increased risks for respiratory depression when opioids are taken with benzodiazepines, other sedatives, alcohol, illicit drugs such as heroin, or other opioids.
- Discuss risks to household members and other individuals if opioids are intentionally or unintentionally shared with others for whom they are not prescribed, including the possibility that others might experience overdose at the same or at lower dosage than prescribed for the patient, and that young children are susceptible to unintentional ingestion. Discuss storage of opioids in a secure, preferably locked location and options for safe disposal of unused opioids (*188*).
- Discuss the importance of periodic reassessment to ensure that opioids are helping to meet patient goals and to allow opportunities for opioid discontinuation and consideration of additional nonpharmacologic or nonopioid pharmacologic treatment options if opioids are not effective or are harmful.
- Discuss planned use of precautions to reduce risks, including use of prescription drug monitoring program information (see Recommendation 9) and urine drug testing (see Recommendation 10). Consider including discussion of naloxone use for overdose reversal (see Recommendation 8).
- Consider whether cognitive limitations might interfere with management of opioid therapy (for older adults in particular) and, if so, determine whether a caregiver can responsibly co-manage medication therapy. Discuss the importance of reassessing safer medication use with both the patient and caregiver.

Given the possibility that benefits of opioid therapy might diminish or that risks might become more prominent over time, it is important that clinicians review expected benefits and risks of continued opioid therapy with patients periodically, at least every 3 months (see Recommendation 7).

Opioid Selection, Dosage, Duration, Follow-Up, and Discontinuation

4. When starting opioid therapy for chronic pain, clinicians should prescribe immediate-release opioids instead of extended-release/long-acting (ER/LA) opioids (recommendation category: A, evidence type: 4).

ER/LA opioids include methadone, transdermal fentanyl, and extended-release versions of opioids such as oxycodone, oxymorphone, hydrocodone, and morphine. The clinical evidence review found a fair-quality study showing a higher risk for overdose among patients initiating treatment with ER/LA opioids than among those initiating treatment with immediate-release opioids (*77*). The clinical evidence review did not find evidence that continuous, time-scheduled use of ER/LA opioids is more effective or safer than intermittent use of immediate-release opioids or that time-scheduled use of ER/LA opioids reduces risks for opioid misuse or addiction (KQ3).

In 2014, the FDA modified the labeling for ER/LA opioid pain medications, noting serious risks and recommending that ER/LA opioids be reserved for "management of pain severe enough to require daily, around-the-clock, long-term opioid treatment" when "alternative treatment options (e.g., nonopioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain" and not used as "as needed" pain relievers (*121*). FDA has also noted that some ER/LA opioids are only appropriate for opioid-tolerant patients, defined as patients who have received certain dosages of opioids (e.g., 60 mg daily of oral morphine, 30 mg daily of oral oxycodone, or equianalgesic dosages of other opioids) for at least 1 week (*189*). Time-scheduled opioid use can be associated with greater total average daily opioid dosage compared with intermittent, as-needed opioid use (contextual

evidence review). In addition, experts indicated that there was not enough evidence to determine the safety of using immediate-release opioids for breakthrough pain when ER/LA opioids are used for chronic pain outside of active cancer pain, palliative care, or end-of-life care, and that this practice might be associated with dose escalation.

Abuse-deterrent technologies have been employed to prevent manipulation intended to defeat extended-release properties of ER/LA opioids and to prevent opioid use by unintended routes of administration, such as injection of oral opioids. As indicated in FDA guidance for industry on evaluation and labeling of abuse-deterrent opioids (*190*), although abuse-deterrent technologies are expected to make manipulation of opioids more difficult or less rewarding, they do not prevent opioid abuse through oral intake, the most common route of opioid abuse, and can still be abused by nonoral routes. The "abuse-deterrent" label does not indicate that there is no risk for abuse. No studies were found in the clinical evidence review assessing the effectiveness of abuse-deterrent technologies as a risk mitigation strategy for deterring or preventing abuse. In addition, abuse-deterrent technologies do not prevent unintentional overdose through oral intake. Experts agreed that recommendations could not be offered at this time related to use of abuse-deterrent formulations.

In comparing different ER/LA formulations, the clinical evidence review found inconsistent results for overdose risk with methadone versus other ER/LA opioids used for chronic pain (KQ3). The contextual evidence review found that methadone has been associated with disproportionate numbers of overdose deaths relative to the frequency with which it is prescribed for chronic pain. In addition, methadone is associated with cardiac arrhythmias along with QT prolongation on the electrocardiogram, and it has complicated pharmacokinetics and pharmacodynamics, including a long and variable half-life and peak respiratory depressant effect occurring later and lasting longer than peak analgesic effect. Experts noted that the pharmacodynamics of methadone are subject to more inter-individual variability than other opioids. In regard to other ER/LA opioid formulations, experts noted that the absorption and pharmacodynamics of transdermal fentanyl are complex, with gradually increasing serum concentration during the first part of the 72-hour dosing interval, as well as variable absorption based on factors such as external heat. In addition, the dosing of transdermal fentanyl in mcg/hour, which is not typical for a drug used by outpatients, can be confusing. Experts thought that these complexities might increase the risk for fatal overdose when methadone or transdermal fentanyl is prescribed to a patient who has not used it previously or by clinicians who are not familiar with its effects.

Experts agreed that for patients not already receiving opioids, clinicians should not initiate opioid treatment with ER/LA opioids and should not prescribe ER/LA opioids for intermittent use. ER/LA opioids should be reserved for severe, continuous pain and should be considered only for patients who have received immediate-release opioids daily for at least 1 week. When changing to an ER/LA opioid for a patient previously receiving a different immediate-release opioid, clinicians should consult product labeling and reduce total daily dosage to account for incomplete opioid cross-tolerance. Clinicians should use additional caution with ER/LA opioids and consider a longer dosing interval when prescribing to patients with renal or hepatic dysfunction because decreased clearance of drugs among these patients can lead to accumulation of drugs to toxic levels and persistence in the body for longer durations. Although there might be situations in which clinicians need to prescribe immediate-release and ER/LA opioids together (e.g., transitioning patients from ER/LA opioids to immediate-release opioids by temporarily using lower dosages of both), in general, avoiding the use of immediate-release opioids in combination with ER/LA opioids is preferable, given potentially increased risk and diminishing returns of such an approach for chronic pain.

When an ER/LA opioid is prescribed, using one with predictable pharmacokinetics and pharmacodynamics is preferred to minimize unintentional overdose risk. In particular, unusual characteristics of methadone and of transdermal fentanyl make safe prescribing of these medications for pain especially challenging.

- Methadone should not be the first choice for an ER/LA opioid. Only clinicians who are familiar with methadone's unique risk profile and who are prepared to educate and closely monitor their patients, including risk assessment for QT prolongation and consideration of electrocardiographic monitoring, should consider prescribing methadone for pain. A clinical practice guideline that contains further guidance regarding methadone prescribing for pain has been published previously (*191*).
- Because dosing effects of transdermal fentanyl are often misunderstood by both clinicians and patients, only clinicians who are familiar with the dosing and absorption properties of transdermal fentanyl and are prepared to educate their patients about its use should consider prescribing it.

5. When opioids are started, clinicians should prescribe the lowest effective dosage. Clinicians should use caution when prescribing opioids at any dosage, should carefully reassess evidence of individual benefits and risks when considering increasing dosage to ≥50 morphine milligram equivalents (MME)/day, and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day (recommendation category: A, evidence type: 3).

Benefits of high-dose opioids for chronic pain are not established. The clinical evidence review found only one study (*84*) addressing effectiveness of dose titration for outcomes related to pain control, function, and quality of life (KQ3). This randomized trial found no difference in pain or function between a more liberal opioid dose escalation strategy and maintenance of current dosage. (These groups were prescribed average dosages of 52 and 40 MME/day, respectively, at the end of the trial.) At the same time, risks for serious harms related to opioid therapy increase at higher opioid dosage. The clinical evidence review found that higher opioid dosages are associated with increased risks for motor vehicle injury, opioid use disorder, and overdose (KQ2). The clinical and contextual evidence reviews found that opioid overdose risk increases in a dose-response manner, that dosages of 50–<100 MME/day have been found to increase risks for opioid overdose by factors of 1.9 to 4.6 compared with dosages of 1–<20 MME/day, and that dosages ≥100 MME/day are associated with increased risks of overdose 2.0–8.9 times the risk at 1–<20 MME/day. In a national sample of Veterans Health Administration patients with chronic pain who were prescribed opioids, mean prescribed opioid dosage among patients who died from opioid overdose was 98 MME (median 60 MME) compared with mean prescribed opioid dosage of 48 MME (median 25 MME) among patients not experiencing fatal overdose (*127*).

The contextual evidence review found that although there is not a single dosage threshold below which overdose risk is eliminated, holding dosages <50 MME/day would likely reduce risk among a large proportion of patients who would experience fatal overdose at higher prescribed dosages. Experts agreed that lower dosages of opioids reduce the risk for overdose, but that a single dosage threshold for safe opioid use could not be identified. Experts noted that daily opioid dosages close to or greater than 100 MME/day are associated with significant risks, that dosages <50 MME/day are safer than dosages of 50–100 MME/day, and that dosages <20 MME/day are safer than dosages of 20–50 MME/day. One expert thought that a specific dosage at which the benefit/risk ratio of opioid therapy decreases could not be identified. Most experts agreed that, in general, increasing dosages to 50 or more MME/day increases overdose risk without necessarily

adding benefits for pain control or function and that clinicians should carefully reassess evidence of individual benefits and risks when considering increasing opioid dosages to ≥50 MME/day. Most experts also agreed that opioid dosages should not be increased to ≥90 MME/day without careful justification based on diagnosis and on individualized assessment of benefits and risks.

When opioids are used for chronic pain outside of active cancer, palliative, and end-of-life care, clinicians should start opioids at the lowest possible effective dosage (the lowest starting dosage on product labeling for patients not already taking opioids and according to product labeling guidance regarding tolerance for patients already taking opioids). Clinicians should use additional caution when initiating opioids for patients aged ≥65 years and for patients with renal or hepatic insufficiency because decreased clearance of drugs in these patients can result in accumulation of drugs to toxic levels. Clinicians should use caution when increasing opioid dosages and increase dosage by the smallest practical amount because overdose risk increases with increases in opioid dosage. Although there is limited evidence to recommend specific intervals for dosage titration, a previous guideline recommended waiting at least five half-lives before increasing dosage and waiting at least a week before increasing dosage of methadone to make sure that full effects of the previous dosage are evident (*31*). Clinicians should re-evaluate patients after increasing dosage for changes in pain, function, and risk for harm (see Recommendation 7). Before increasing total opioid dosage to ≥50 MME/day, clinicians should reassess whether opioid treatment is meeting the patient's treatment goals (see Recommendation 2). If a patient's opioid dosage for all sources of opioids combined reaches or exceeds 50 MME/day, clinicians should implement additional precautions, including increased frequency of follow-up (see Recommendation 7) and considering offering naloxone and overdose prevention education to both patients and the patients' household members (see Recommendation 8). Clinicians should avoid increasing opioid dosages to ≥90 MME/day or should carefully justify a decision to increase dosage to ≥90 MME/day based on individualized assessment of benefits and risks and weighing factors such as diagnosis, incremental benefits for pain and function relative to harms as dosages approach 90 MME/day, other treatments and effectiveness, and recommendations based on consultation with pain specialists. If patients do not experience improvement in pain and function at ≥90 MME/day, or if there are escalating dosage requirements, clinicians should discuss other approaches to pain management with the patient, consider working with patients to taper opioids to a lower dosage or to taper and discontinue opioids (see Recommendation 7), and consider consulting a pain specialist. Some states require clinicians to implement clinical protocols at specific dosage levels. For example, before increasing long-term opioid therapy dosage to >120 MME/day, clinicians in Washington state must obtain consultation from a pain specialist who agrees that this is indicated and appropriate (*30*). Clinicians should be aware of rules related to MME thresholds and associated clinical protocols established by their states.

Established patients already taking high dosages of opioids, as well as patients transferring from other clinicians, might consider the possibility of opioid dosage reduction to be anxiety-provoking, and tapering opioids can be especially challenging after years on high dosages because of physical and psychological dependence. However, these patients should be offered the opportunity to re-evaluate their continued use of opioids at high dosages in light of recent evidence regarding the association of opioid dosage and overdose risk. Clinicians should explain in a nonjudgmental manner to patients already taking high opioid dosages (≥90 MME/day) that there is now an established body of scientific evidence showing that overdose risk is increased at higher opioid dosages. Clinicians should empathically review benefits and risks of continued high-dosage opioid therapy and should offer to work with the patient to taper opioids to safer dosages. For patients who agree to taper opioids to lower dosages, clinicians should collaborate with the patient on a tapering plan (see Recommendation 7). Experts noted that patients tapering opioids after taking them for years might require very slow opioid tapers as well as pauses in the taper to allow gradual accommodation to lower opioid dosages. Clinicians should remain alert to signs of anxiety, depression, and opioid use disorder (see Recommendations 8 and 12) that might be unmasked by an opioid taper and arrange for management of these co-morbidities. For patients agreeing to taper to lower opioid dosages as well as for those remaining on high opioid dosages, clinicians should establish goals with the patient for continued opioid therapy (see Recommendation 2), maximize pain treatment with nonpharmacologic and nonopioid pharmacologic treatments as appropriate (see Recommendation 1), and consider consulting a pain specialist as needed to assist with pain management.

6. Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days will rarely be needed (recommendation category: A, evidence type: 4).

The clinical evidence review found that opioid use for acute pain (i.e., pain with abrupt onset and caused by an injury or other process that is not ongoing) is associated with long-term opioid use, and that a greater amount of early opioid exposure is associated with greater risk for long-term use (KQ5). Several guidelines on opioid prescribing for acute pain from emergency departments (*192–194*) and other settings (*195,196*) have recommended prescribing ≤3 days of opioids in most cases, whereas others have recommended ≤7 days (*197*) or <14 days (*30*). Because physical dependence on opioids is an expected physiologic response in patients exposed to opioids for more than a few days (contextual evidence review), limiting days of opioids prescribed also should minimize the need to taper opioids to prevent distressing or unpleasant withdrawal symptoms. Experts noted that more than a few days of exposure to opioids significantly increases hazards, that each day of unnecessary opioid use increases likelihood of physical dependence without adding benefit, and that prescriptions with fewer days' supply will minimize the number of pills available for unintentional or intentional diversion.

Experts agreed that when opioids are needed for acute pain, clinicians should prescribe opioids at the lowest effective dose and for no longer than the expected duration of pain severe enough to require opioids to minimize unintentional initiation of long-term opioid use. The lowest effective dose can be determined using product labeling as a starting point with calibration as needed based on the severity of pain and on other clinical factors such as renal or hepatic insufficiency (see Recommendation 8). Experts thought, based on clinical experience regarding anticipated duration of pain severe enough to require an opioid, that in most cases of acute pain not related to surgery or trauma, a ≤3 days' supply of opioids will be sufficient. For example, in one study of the course of acute low back pain (not associated with malignancies, infections, spondylarthropathies, fractures, or neurological signs) in a primary care setting, there was a large decrease in pain until the fourth day after treatment with paracetamol, with smaller decreases thereafter (*198*). Some experts thought that because some types of acute pain might require more than 3 days of opioid treatment, it would be appropriate to recommend a range of ≤3–5 days or ≤3–7 days when opioids are needed. Some experts thought that a range including 7 days was too long given the expected course of severe acute pain for most acute pain syndromes seen in primary care.

Acute pain can often be managed without opioids. It is important to evaluate the patient for reversible causes of pain, for underlying etiologies with potentially serious sequelae, and to determine appropriate treatment. When the diagnosis and severity of nontraumatic, nonsurgical acute pain are reasonably assumed to warrant the use of opioids, clinicians should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids, often 3

days or less, unless circumstances clearly warrant additional opioid therapy. More than 7 days will rarely be needed. Opioid treatment for post-surgical pain is outside the scope of this guideline but has been addressed elsewhere (*30*). Clinicians should not prescribe additional opioids to patients "just in case" pain continues longer than expected. Clinicians should re-evaluate the subset of patients who experience severe acute pain that continues longer than the expected duration to confirm or revise the initial diagnosis and to adjust management accordingly. Given longer half-lives and longer duration of effects (e.g., respiratory depression) with ER/LA opioids such as methadone, fentanyl patches, or extended release versions of opioids such as oxycodone, oxymorphone, or morphine, clinicians should not prescribe ER/LA opioids for the treatment of acute pain.

7. Clinicians should evaluate benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Clinicians should evaluate benefits and harms of continued therapy with patients every 3 months or more frequently. If benefits do not outweigh harms of continued opioid therapy, clinicians should optimize other therapies and work with patients to taper opioids to lower dosages or to taper and discontinue opioids (recommendation category: A, evidence type: 4).

Although the clinical evidence review did not find studies evaluating the effectiveness of more frequent monitoring intervals (KQ4), it did find that continuing opioid therapy for 3 months substantially increases risk for opioid use disorder (KQ2); therefore, follow-up earlier than 3 months might be necessary to provide the greatest opportunity to prevent the development of opioid use disorder. In addition, risk for overdose associated with ER/LA opioids might be particularly high during the first 2 weeks of treatment (KQ3). The contextual evidence review found that patients who do not have pain relief with opioids at 1 month are unlikely to experience pain relief with opioids at 6 months. Although evidence is insufficient to determine at what point within the first 3 months of opioid therapy the risks for opioid use disorder increase, reassessment of pain and function within 1 month of initiating opioids provides an opportunity to minimize risks of long-term opioid use by discontinuing opioids among patients not receiving a clear benefit from these medications. Experts noted that risks for opioid overdose are greatest during the first 3–7 days after opioid initiation or increase in dosage, particularly when methadone or transdermal fentanyl are prescribed; that follow-up within 3 days is appropriate when initiating or increasing the dosage of methadone; and that follow-up within 1 week might be appropriate when initiating or increasing the dosage of other ER/LA opioids.

Clinicians should evaluate patients to assess benefits and harms of opioids within 1 to 4 weeks of starting long-term opioid therapy or of dose escalation. Clinicians should consider follow-up intervals within the lower end of this range when ER/LA opioids are started or increased or when total daily opioid dosage is ≥50 MME/day. Shorter follow-up intervals (within 3 days) should be strongly considered when starting or increasing the dosage of methadone. At follow up, clinicians should assess benefits in function, pain control, and quality of life using tools such as the three-item "Pain average, interference with Enjoyment of life, and interference with General activity" (PEG) Assessment Scale (*186*) and/or asking patients about progress toward functional goals that have meaning for them (see Recommendation 2). Clinicians should also ask patients about common adverse effects such as constipation and drowsiness (see Recommendation 3), as well as asking about and assessing for effects that might be early warning signs for more serious problems such as overdose (e.g., sedation or slurred speech) or opioid use disorder (e.g., craving, wanting to take opioids in greater quantities or more frequently than prescribed, or difficulty controlling use). Clinicians should ask patients about their preferences for continuing opioids, given their effects on pain and function relative to any adverse effects experienced.

Because of potential changes in the balance of benefits and risks of opioid therapy over time, clinicians should regularly reassess all patients receiving long-term opioid therapy, including patients who are new to the clinician but on long-term opioid therapy, at least every 3 months. At reassessment, clinicians should determine whether opioids continue to meet treatment goals, including sustained improvement in pain and function, whether the patient has experienced common or serious adverse events or early warning signs of serious adverse events, signs of opioid use disorder (e.g., difficulty controlling use, work or family problems related to opioid use), whether benefits of opioids continue to outweigh risks, and whether opioid dosage can be reduced or opioids can be discontinued. Ideally, these reassessments would take place in person and be conducted by the prescribing clinician. In practice contexts where virtual visits are part of standard care (e.g., in remote areas where distance or other issues make follow-up visits challenging), follow-up assessments that allow the clinician to communicate with and observe the patient through video and audio could be conducted, with in-person visits occurring at least once per year. Clinicians should re-evaluate patients who are exposed to greater risk of opioid use disorder or overdose (e.g., patients with depression or other mental health conditions, a history of substance use disorder, a history of overdose, taking ≥50 MME/day, or taking other central nervous system depressants with opioids) more frequently than every 3 months. If clinically meaningful improvements in pain and function are not sustained, if patients are taking high-risk regimens (e.g., dosages ≥50 MME/day or opioids combined with benzodiazepines) without evidence of benefit, if patients believe benefits no longer outweigh risks or if they request dosage reduction or discontinuation, or if patients experience overdose or other serious adverse events (e.g., an event leading to hospitalization or disability) or warning signs of serious adverse events, clinicians should work with patients to reduce opioid dosage or to discontinue opioids when possible. Clinicians should maximize pain treatment with nonpharmacologic and nonopioid pharmacologic treatments as appropriate (see Recommendation 1) and consider consulting a pain specialist as needed to assist with pain management.

Considerations for Tapering Opioids

Although the clinical evidence review did not find high-quality studies comparing the effectiveness of different tapering protocols for use when opioid dosage is reduced or opioids are discontinued (KQ3), tapers reducing weekly dosage by 10%–50% of the original dosage have been recommended by other clinical guidelines (*199*), and a rapid taper over 2–3 weeks has been recommended in the case of a severe adverse event such as overdose (*30*). Experts noted that tapers slower than 10% per week (e.g., 10% per month) also might be appropriate and better tolerated than more rapid tapers, particularly when patients have been taking opioids for longer durations (e.g., for years). Opioid withdrawal during pregnancy has been associated with spontaneous abortion and premature labor.

When opioids are reduced or discontinued, a taper slow enough to minimize symptoms and signs of opioid withdrawal (e.g., drug craving, anxiety, insomnia, abdominal pain, vomiting, diarrhea, diaphoresis, mydriasis, tremor, tachycardia, or piloerection) should be used. A decrease of 10% of the original dose per week is a reasonable starting point; experts agreed that tapering plans may be individualized based on patient goals and concerns. Experts noted that at times, tapers might have to be paused and restarted again when the patient is ready and might have to be slowed once patients reach low dosages. Tapers may be considered successful as long as the patient is making progress. Once the smallest available dose is reached, the interval between doses can be extended. Opioids may be stopped when taken less frequently than once a day. More rapid tapers might be needed for patient safety under certain circumstances (e.g., for patients who

have experienced overdose on their current dosage). Ultrarapid detoxification under anesthesia is associated with substantial risks, including death, and should not be used (*200*). Clinicians should access appropriate expertise if considering tapering opioids during pregnancy because of possible risk to the pregnant patient and to the fetus if the patient goes into withdrawal. Patients who are not taking opioids (including patients who are diverting all opioids they obtain) do not require tapers. Clinicians should discuss with patients undergoing tapering the increased risk for overdose on abrupt return to a previously prescribed higher dose. Primary care clinicians should collaborate with mental health providers and with other specialists as needed to optimize nonopioid pain management (see Recommendation 1), as well as psychosocial support for anxiety related to the taper. More detailed guidance on tapering, including management of withdrawal symptoms has been published previously (*30*,*201*). If a patient exhibits signs of opioid use disorder, clinicians should offer or arrange for treatment of opioid use disorder (see Recommendation 12) and consider offering naloxone for overdose prevention (see Recommendation 8).

Assessing Risk and Addressing Harms of Opioid Use

8. Before starting and periodically during continuation of opioid therapy, clinicians should evaluate risk factors for opioid-related harms. Clinicians should incorporate into the management plan strategies to mitigate risk, including considering offering naloxone when factors that increase risk for opioid overdose, such as history of overdose, history of substance use disorder, higher opioid dosages (≥50 MME/day), or concurrent benzodiazepine use, are present (recommendation category: A, evidence type: 4).

The clinical evidence review found insufficient evidence to determine how harms of opioids differ depending on patient demographics or patient comorbidities (KQ2). However, based on the contextual evidence review and expert opinion, certain risk factors are likely to increase susceptibility to opioid-associated harms and warrant incorporation of additional strategies into the management plan to mitigate risk. Clinicians should assess these risk factors periodically, with frequency varying by risk factor and patient characteristics. For example, factors that vary more frequently over time, such as alcohol use, require more frequent follow up. In addition, clinicians should consider offering naloxone, re-evaluating patients more frequently (see Recommendation 7), and referring to pain and/or behavioral health specialists when factors that increase risk for harm, such as history of overdose, history of substance use disorder, higher dosages of opioids (≥50 MME/day), and concurrent use of benzodiazepines with opioids, are present.

Patients with Sleep-Disordered Breathing, Including Sleep Apnea

Risk factors for sleep-disordered breathing include congestive heart failure, and obesity. Experts noted that careful monitoring and cautious dose titration should be used if opioids are prescribed for patients with mild sleep-disordered breathing. Clinicians should avoid prescribing opioids to patients with moderate or severe sleep-disordered breathing whenever possible to minimize risks for opioid overdose (contextual evidence review).

Pregnant Women

Opioids used in pregnancy might be associated with additional risks to both mother and fetus. Some studies have shown an association of opioid use in pregnancy with stillbirth, poor fetal growth, pre-term delivery, and birth defects (contextual evidence review). Importantly, in some cases, opioid use during pregnancy leads to neonatal opioid withdrawal syndrome. Clinicians and patients together should carefully weigh risks and benefits when making decisions about whether to initiate opioid therapy for chronic pain during pregnancy. In addition, before initiating opioid therapy for chronic pain for reproductive-age women, clinicians should discuss family planning and how long-term opioid use might affect any future pregnancy. For pregnant women already receiving opioids, clinicians should access appropriate expertise if considering tapering opioids because of possible risk to the pregnant patient and to the fetus if the patient goes into withdrawal (see Recommendation 7). For pregnant women with opioid use disorder, medication-assisted therapy with buprenorphine or methadone has been associated with improved maternal outcomes and should be offered (*202*) (see Recommendation 12). Clinicians caring for pregnant women receiving opioids for pain or receiving buprenorphine or methadone for opioid use disorder should arrange for delivery at a facility prepared to monitor, evaluate for, and treat neonatal opioid withdrawal syndrome. In instances when travel to such a facility would present an undue burden on the pregnant woman, it is appropriate to deliver locally, monitor and evaluate the newborn for neonatal opioid withdrawal syndrome, and transfer the newborn for additional treatment if needed. Neonatal toxicity and death have been reported in breast-feeding infants whose mothers are taking codeine (contextual evidence review); previous guidelines have recommended that codeine be avoided whenever possible among mothers who are breast feeding and, if used, should be limited to the lowest possible dose and to a 4-day supply (*203*).

Patients with Renal or Hepatic Insufficiency

Clinicians should use additional caution and increased monitoring (see Recommendation 7) to minimize risks of opioids prescribed for patients with renal or hepatic insufficiency, given their decreased ability to process and excrete drugs, susceptibility to accumulation of opioids, and reduced therapeutic window between safe dosages and dosages associated with respiratory depression and overdose (contextual evidence review; see Recommendations 4, 5, and 7).

Patients Aged ≥65 Years

Inadequate pain treatment among persons aged ≥65 years has been documented (*204*). Pain management for older patients can be challenging given increased risks of both nonopioid pharmacologic therapies (see Recommendation 1) and opioid therapy in this population. Given reduced renal function and medication clearance even in the absence of renal disease, patients aged ≥65 years might have increased susceptibility to accumulation of opioids and a smaller therapeutic window between safe dosages and dosages associated with respiratory depression and overdose (contextual evidence review). Some older adults suffer from cognitive impairment, which can increase risk for medication errors and make opioid-related confusion more dangerous. In addition, older adults are more likely than younger adults to experience co-morbid medical conditions and more likely to receive multiple medications, some of which might interact with opioids (such as benzodiazepines). Clinicians should use additional caution and increased monitoring (see Recommendations 4, 5, and 7) to minimize risks of opioids prescribed for patients aged ≥65 years. Experts suggested that clinicians educate older adults receiving opioids to avoid risky medication-related behaviors such as obtaining controlled medications from multiple prescribers and saving unused medications. Clinicians should also implement interventions to mitigate common risks of opioid therapy among older adults, such as exercise or bowel regimens to prevent constipation, risk assessment for falls, and patient monitoring for cognitive impairment.

Patients with Mental Health Conditions

Because psychological distress frequently interferes with improvement of pain and function in patients with chronic pain, using validated instruments such as the Generalized Anxiety Disorder (GAD)-7 and the Patient Health Questionnaire (PHQ)-9 or the PHQ-4 to assess for anxiety, post-traumatic stress disorder, and/or depression (*205*), might help clinicians improve overall pain treatment outcomes. Experts noted that clinicians should use additional caution and increased monitoring (see Recommendation 7) to lessen the increased risk for opioid use disorder among patients with mental health conditions (including depression, anxiety disorders, and PTSD), as well as increased risk for drug overdose among patients with depression. Previous guidelines have noted that opioid therapy should not be initiated during acute psychiatric instability or uncontrolled suicide risk, and that clinicians should consider behavioral health specialist consultation for any patient with a history of suicide attempt or psychiatric disorder (*31*). In addition, patients with anxiety disorders and other mental health conditions are more likely to receive benzodiazepines, which can exacerbate opioid-induced respiratory depression and increase risk for overdose (see Recommendation 11). Clinicians should ensure that treatment for depression and other mental health conditions is optimized, consulting with behavioral health specialists when needed. Treatment for depression can improve pain symptoms as well as depression and might decrease overdose risk (contextual evidence review). For treatment of chronic pain in patients with depression, clinicians should strongly consider using tricyclic or SNRI antidepressants for analgesic as well as antidepressant effects if these medications are not otherwise contraindicated (see Recommendation 1).

Patients with Substance Use Disorder

Illicit drugs and alcohol are listed as contributory factors on a substantial proportion of death certificates for opioid-related overdose deaths (contextual evidence review). Previous guidelines have recommended screening or risk assessment tools to identify patients at higher risk for misuse or abuse of opioids. However, the clinical evidence review found that currently available risk-stratification tools (e.g., Opioid Risk Tool, Screener and Opioid Assessment for Patients with Pain Version 1, SOAPP-R, and Brief Risk Interview) show insufficient accuracy for classification of patients as at low or high risk for abuse or misuse (KQ4). Clinicians should always exercise caution when considering or prescribing opioids for any patient with chronic pain outside of active cancer, palliative, and end-of-life care and should not overestimate the ability of these tools to rule out risks from long-term opioid therapy.

Clinicians should ask patients about their drug and alcohol use. Single screening questions can be used (*206*). For example, the question "How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?" (with an answer of one or more considered positive) was found in a primary care setting to be 100% sensitive and 73.5% specific for the detection of a drug use disorder compared with a standardized diagnostic interview (*207*). Validated screening tools such as the Drug Abuse Screening Test (DAST) (*208*) and the Alcohol Use Disorders Identification Test (AUDIT) (*209*) can also be used. Clinicians should use PDMP data (see Recommendation 9) and drug testing (see Recommendation 10) as appropriate to assess for concurrent substance use that might place patients at higher risk for opioid use disorder and overdose. Clinicians should also provide specific counseling on increased risks for overdose when opioids are combined with other drugs or alcohol (see Recommendation 3) and ensure that patients receive effective treatment for substance use disorders when needed (see Recommendation 12).

The clinical evidence review found insufficient evidence to determine how harms of opioids differ depending on past or current substance use disorder (KQ2), although a history of substance use disorder was associated with misuse. Similarly, based on contextual evidence, patients with drug or alcohol use disorders are likely to experience greater risks for opioid use disorder and overdose than persons without these conditions. If clinicians consider opioid therapy for chronic pain outside of active cancer, palliative, and end-of-life care for patients with drug or alcohol use disorders, they should discuss increased risks for opioid use disorder and overdose with patients, carefully consider whether benefits of opioids outweigh increased risks, and incorporate strategies to mitigate risk into the management plan, such as considering offering naloxone (see Offering Naloxone to Patients When Factors That Increase Risk for Opioid-Related Harms Are Present) and increasing frequency of monitoring (see Recommendation 7) when opioids are prescribed. Because pain management in patients with substance use disorder can be complex, clinicians should consider consulting substance use disorder specialists and pain specialists regarding pain management for persons with active or recent past history of substance abuse. Experts also noted that clinicians should communicate with patients' substance use disorder treatment providers if opioids are prescribed.

Patients with Prior Nonfatal Overdose

Although studies were not identified that directly addressed the risk for overdose among patients with prior nonfatal overdose who are prescribed opioids, based on clinical experience, experts thought that prior nonfatal overdose would substantially increase risk for future nonfatal or fatal opioid overdose. If patients experience nonfatal opioid overdose, clinicians should work with them to reduce opioid dosage and to discontinue opioids when possible (see Recommendation 7). If clinicians continue opioid therapy for chronic pain outside of active cancer, palliative, and end-of-life care in patients with prior opioid overdose, they should discuss increased risks for overdose with patients, carefully consider whether benefits of opioids outweigh substantial risks, and incorporate strategies to mitigate risk into the management plan, such as considering offering naloxone (see Offering Naloxone to Patients When Factors That Increase Risk for Opioid-Related Harms Are Present) and increasing frequency of monitoring (see Recommendation 7) when opioids are prescribed.

Offering Naloxone to Patients When Factors That Increase Risk for Opioid-Related Harms Are Present

Naloxone is an opioid antagonist that can reverse severe respiratory depression; its administration by lay persons, such as friends and family of persons who experience opioid overdose, can save lives. Naloxone precipitates acute withdrawal among patients physically dependent on opioids. Serious adverse effects, such as pulmonary edema, cardiovascular instability, and seizures, have been reported but are rare at doses consistent with labeled use for opioid overdose (*210*). The contextual evidence review did not find any studies on effectiveness of prescribing naloxone for overdose prevention among patients prescribed opioids for chronic pain. However, there is evidence for effectiveness of naloxone provision in preventing opioid-related overdose death at the community level through community-based distribution (e.g., through overdose education and naloxone distribution programs in community service agencies) to persons at risk for overdose (mostly due to illicit opiate use), and it is plausible that effectiveness would be observed when naloxone is provided in the clinical setting as well. Experts agreed that it is preferable not to initiate opioid treatment when factors that increase risk for opioid-related harms are present. Opinions diverged about the likelihood of naloxone being useful to patients and the circumstances under which it should be offered. However, most experts agreed that clinicians should consider offering naloxone when prescribing opioids to patients at increased risk for overdose, including patients with a history of overdose, patients with a

history of substance use disorder, patients taking benzodiazepines with opioids (see Recommendation 11), patients at risk for returning to a high dose to which they are no longer tolerant (e.g., patients recently released from prison), and patients taking higher dosages of opioids (≥50 MME/day). Practices should provide education on overdose prevention and naloxone use to patients receiving naloxone prescriptions and to members of their households. Experts noted that naloxone co-prescribing can be facilitated by clinics or practices with resources to provide naloxone training and by collaborative practice models with pharmacists. Resources for prescribing naloxone in primary care settings can be found through Prescribe to Prevent at http://prescribetoprevent.org (http://prescribetoprevent.org) .

9. Clinicians should review the patient's history of controlled substance prescriptions using state prescription drug monitoring program (PDMP) data to determine whether the patient is receiving opioid dosages or dangerous combinations that put him or her at high risk for overdose. Clinicians should review PDMP data when starting opioid therapy for chronic pain and periodically during opioid therapy for chronic pain, ranging from every prescription to every 3 months (recommendation category: A, evidence type: 4).

PDMPs are state-based databases that collect information on controlled prescription drugs dispensed by pharmacies in most states and, in select states, by dispensing physicians as well. In addition, some clinicians employed by the federal government, including some clinicians in the Indian Health Care Delivery System, are not licensed in the states where they practice, and do not have access to PDMP data. Certain states require clinicians to review PDMP data prior to writing each opioid prescription (see state-level PDMP-related policies on the National Alliance for Model State Drug Laws website at http://www.namsdl.org/prescription-monitoring-programs.cfm (http://www.namsdl.org/prescription-monitoring-programs.cfm)). The clinical evidence review did not find studies evaluating the effectiveness of PDMPs on outcomes related to overdose, addiction, abuse, or misuse (KQ4). However, even though evidence is limited on the effectiveness of PDMP implementation at the state level on prescribing and mortality outcomes (*28*), the contextual evidence review found that most fatal overdoses were associated with patients receiving opioids from multiple prescribers and/or with patients receiving high total daily opioid dosages; information on both of these risk factors for overdose are available to prescribers in the PDMP. PDMP data also can be helpful when patient medication history is not otherwise available (e.g., for patients from other locales) and when patients transition care to a new clinician. The contextual evidence review also found that PDMP information could be used in a way that is harmful to patients. For example, it has been used to dismiss patients from clinician practices (*211*), which might adversely affect patient safety.

The contextual review found variation in state policies that affect timeliness of PDMP data (and therefore benefits of reviewing PDMP data) as well as time and workload for clinicians in accessing PDMP data. In states that permit delegating access to other members of the health care team, workload for prescribers can be reduced. These differences might result in a different balance of benefits to clinician workload in different states. Experts agreed that PDMPs are useful tools that should be consulted when starting a patient on opioid therapy and periodically during long-term opioid therapy. However, experts disagreed on how frequently clinicians should check the PDMP during long-term opioid therapy, given PDMP access issues and the lag time in reporting in some states. Most experts agreed that PDMP data should be reviewed every 3 months or more frequently during long-term opioid therapy. A minority of experts noted that, given the current burden of accessing PDMP data in some states and the lack of evidence surrounding the most effective interval for PDMP review to improve patient outcomes, annual review of PDMP data during long-term opioid therapy would be reasonable when factors that increase risk for opioid-related harms are not present.

Clinicians should review PDMP data for opioids and other controlled medications patients might have received from additional prescribers to determine whether a patient is receiving high total opioid dosages or dangerous combinations (e.g., opioids combined with benzodiazepines) that put him or her at high risk for overdose. Ideally, PDMP data should be reviewed before every opioid prescription. This is recommended in all states with well-functioning PDMPs and where PDMP access policies make this practicable (e.g., clinician and delegate access permitted), but it is not currently possible in states without functional PDMPs or in those that do not permit certain prescribers to access them. As vendors and practices facilitate integration of PDMP information into regular clinical workflow (e.g., data made available in electronic health records), clinicians' ease of access in reviewing PDMP data is expected to improve. In addition, improved timeliness of PDMP data will improve their value in identifying patient risks.

If patients are found to have high opioid dosages, dangerous combinations of medications, or multiple controlled substance prescriptions written by different clinicians, several actions can be taken to augment clinicians' abilities to improve patient safety:

- Clinicians should discuss information from the PDMP with their patient and confirm that the patient is aware of the additional prescriptions. Occasionally, PDMP information can be incorrect (e.g., if the wrong name or birthdate has been entered, the patient uses a nickname or maiden name, or another person has used the patient's identity to obtain prescriptions).
- Clinicians should discuss safety concerns, including increased risk for respiratory depression and overdose, with patients found to be receiving opioids from more than one prescriber or receiving medications that increase risk when combined with opioids (e.g., benzodiazepines) and consider offering naloxone (see Recommendation 8).
- Clinicians should avoid prescribing opioids and benzodiazepines concurrently whenever possible. Clinicians should communicate with others managing the patient to discuss the patient's needs, prioritize patient goals, weigh risks of concurrent benzodiazepine and opioid exposure, and coordinate care (see Recommendation 11).
- Clinicians should calculate the total MME/day for concurrent opioid prescriptions to help assess the patient's overdose risk (see Recommendation 5). If patients are found to be receiving high total daily dosages of opioids, clinicians should discuss their safety concerns with the patient, consider tapering to a safer dosage (see Recommendations 5 and 7), and consider offering naloxone (see Recommendation 8).
- Clinicians should discuss safety concerns with other clinicians who are prescribing controlled substances for their patient. Ideally clinicians should first discuss concerns with their patient and inform him or her that they plan to coordinate care with the patient's other prescribers to improve the patient's safety.
- Clinicians should consider the possibility of a substance use disorder and discuss concerns with their patient (see Recommendation 12).
- If clinicians suspect their patient might be sharing or selling opioids and not taking them, clinicians should consider urine drug testing to assist in determining whether opioids can be discontinued without causing withdrawal (see Recommendations 7 and 10). A negative drug test for prescribed opioids might indicate the patient is not taking prescribed opioids, although clinicians should consider other possible reasons for this test result (see Recommendation 10).

Experts agreed that clinicians should not dismiss patients from their practice on the basis of PDMP information. Doing so can adversely affect patient safety, could represent patient abandonment, and could result in missed opportunities to provide potentially lifesaving information (e.g., about risks of opioids and overdose prevention) and interventions (e.g., safer prescriptions, nonopioid pain treatment [see Recommendation 1], naloxone [see Recommendation 8], and effective treatment for substance use disorder [see Recommendation 12]).

10. When prescribing opioids for chronic pain, clinicians should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs (recommendation category: B, evidence type: 4).

Concurrent use of opioid pain medications with other opioid pain medications, benzodiazepines, or heroin can increase patients' risk for overdose. Urine drug tests can provide information about drug use that is not reported by the patient. In addition, urine drug tests can assist clinicians in identifying when patients are not taking opioids prescribed for them, which might in some cases indicate diversion or other clinically important issues such as difficulties with adverse effects. Urine drug tests do not provide accurate information about how much or what dose of opioids or other drugs a patient took. The clinical evidence review did not find studies evaluating the effectiveness of urine drug screening for risk mitigation during opioid prescribing for pain (KQ4). The contextual evidence review found that urine drug testing can provide useful information about patients assumed not to be using unreported drugs. Urine drug testing results can be subject to misinterpretation and might sometimes be associated with practices that might harm patients (e.g., stigmatization, inappropriate termination from care). Routine use of urine drug tests with standardized policies at the practice or clinic level might destigmatize their use. Although random drug testing also might destigmatize urine drug testing, experts thought that truly random testing was not feasible in clinical practice. Some clinics obtain a urine specimen at every visit, but only send it for testing on a random schedule. Experts noted that in addition to direct costs of urine drug testing, which often are not covered fully by insurance and can be a burden for patients, clinician time is needed to interpret, confirm, and communicate results.

Experts agreed that prior to starting opioids for chronic pain and periodically during opioid therapy, clinicians should use urine drug testing to assess for prescribed opioids as well as other controlled substances and illicit drugs that increase risk for overdose when combined with opioids, including nonprescribed opioids, benzodiazepines, and heroin. There was some difference of opinion among experts as to whether this recommendation should apply to all patients, or whether this recommendation should entail individual decision making with different choices for different patients based on values, preferences, and clinical situations. While experts agreed that clinicians should use urine drug testing before initiating opioid therapy for chronic pain, they disagreed on how frequently urine drug testing should be conducted during long-term opioid therapy. Most experts agreed that urine drug testing at least annually for all patients was reasonable. Some experts noted that this interval might be too long in some cases and too short in others, and that the follow-up interval should be left to the discretion of the clinician. Previous guidelines have recommended more frequent urine drug testing in patients thought to be at higher risk for substance use disorder (*30*). However, experts thought that predicting risk prior to urine drug testing is challenging and that currently available tools do not allow clinicians to reliably identify patients who are at low risk for substance use disorder.

In most situations, initial urine drug testing can be performed with a relatively inexpensive immunoassay panel for commonly prescribed opioids and illicit drugs. Patients prescribed less commonly used opioids might require specific testing for those agents. The use of confirmatory testing adds substantial costs and should be based on the need to detect specific opioids that cannot be identified on standard immunoassays or on the presence of unexpected urine drug test results. Clinicians should be familiar with the drugs included in urine drug testing panels used in their practice and should understand how to interpret results for these drugs. For example, a positive "opiates" immunoassay detects morphine, which might reflect patient use of morphine, codeine, or heroin, but this immunoassay does not detect synthetic opioids (e.g., fentanyl or methadone) and might not detect semisynthetic opioids (e.g., oxycodone). However, many laboratories use an oxycodone immunoassay that detects oxycodone and oxymorphone. In some cases, positive results for specific opioids might reflect metabolites from opioids the patient is taking and might not mean the patient is taking the specific opioid for which the test was positive. For example, hydromorphone is a metabolite of hydrocodone, and oxymorphone is a metabolite of oxycodone. Detailed guidance on interpretation of urine drug test results, including which tests to order and expected results, drug detection time in urine, drug metabolism, and other considerations has been published previously (*30*). Clinicians should not test for substances for which results would not affect patient management or for which implications for patient management are unclear. For example, experts noted that there might be uncertainty about the clinical implications of a positive urine drug test for tetrahyrdocannabinol (THC). In addition, restricting confirmatory testing to situations and substances for which results can reasonably be expected to affect patient management can reduce costs of urine drug testing, given the substantial costs associated with confirmatory testing methods. Before ordering urine drug testing, clinicians should have a plan for responding to unexpected results. Clinicians should explain to patients that urine drug testing is intended to improve their safety and should also explain expected results (e.g., presence of prescribed medication and absence of drugs, including illicit drugs, not reported by the patient). Clinicians should ask patients about use of prescribed and other drugs and ask whether there might be unexpected results. This will provide an opportunity for patients to provide information about changes in their use of prescribed opioids or other drugs. Clinicians should discuss unexpected results with the local laboratory or toxicologist and with the patient. Discussion with patients prior to specific confirmatory testing can sometimes yield a candid explanation of why a particular substance is present or absent and obviate the need for expensive confirmatory testing on that visit. For example, a patient might explain that the test is negative for prescribed opioids because she felt opioids were no longer helping and discontinued them. If unexpected results are not explained, a confirmatory test using a method selective enough to differentiate specific opioids and metabolites (e.g., gas or liquid chromatography/mass spectrometry) might be warranted to clarify the situation.

Clinicians should use unexpected results to improve patient safety (e.g., change in pain management strategy [see Recommendation 1], tapering or discontinuation of opioids [see Recommendation 7], more frequent re-evaluation [see Recommendation 7], offering naloxone [see Recommendation 8], or referral for treatment for substance use disorder [see Recommendation 12], all as appropriate). If tests for prescribed opioids are repeatedly negative, confirming that the patient is not taking the prescribed opioid, clinicians can discontinue the prescription without a taper. Clinicians should not dismiss patients from care based on a urine drug test result because this could constitute patient abandonment and could have adverse consequences for patient safety, potentially including the patient obtaining opioids from alternative sources and the clinician missing opportunities to facilitate treatment for substance use disorder.

11. Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible (recommendation category: A, evidence type: 3).

Benzodiazepines and opioids both cause central nervous system depression and can decrease respiratory drive. Concurrent use is likely to put patients at greater risk for potentially fatal overdose. The clinical evidence review did not address risks of benzodiazepine co-prescription among patients prescribed opioids. However, the contextual evidence review found evidence in epidemiologic series of concurrent benzodiazepine use in large proportions of opioid-related overdose deaths, and a case-cohort study found concurrent benzodiazepine prescription with opioid prescription to be associated with a near quadrupling of risk for overdose death compared with opioid prescription alone (*212*). Experts agreed that although there are circumstances when it might be appropriate to prescribe opioids to a patient receiving benzodiazepines (e.g., severe acute pain in a patient taking long-term, stable low-dose benzodiazepine therapy), clinicians should avoid prescribing opioids and benzodiazepines concurrently whenever possible. In addition, given that other central nervous system depressants (e.g., muscle relaxants, hypnotics) can potentiate central nervous system depression associated with opioids, clinicians should consider whether benefits outweigh risks of concurrent use of these drugs. Clinicians should check the PDMP for concurrent controlled medications prescribed by other clinicians (see Recommendation 9) and should consider involving pharmacists and pain specialists as part of the management team when opioids are co-prescribed with other central nervous system depressants. Because of greater risks of benzodiazepine withdrawal relative to opioid withdrawal, and because tapering opioids can be associated with anxiety, when patients receiving both benzodiazepines and opioids require tapering to reduce risk for fatal respiratory depression, it might be safer and more practical to taper opioids first (see Recommendation 7). Clinicians should taper benzodiazepines gradually if discontinued because abrupt withdrawal can be associated with rebound anxiety, hallucinations, seizures, delirium tremens, and, in rare cases, death (contextual evidence review). A commonly used tapering schedule that has been used safely and with moderate success is a reduction of the benzodiazepine dose by 25% every 1–2 weeks (*213,214*). CBT increases tapering success rates and might be particularly helpful for patients struggling with a benzodiazepine taper (*213*). If benzodiazepines prescribed for anxiety are tapered or discontinued, or if patients receiving opioids require treatment for anxiety, evidence-based psychotherapies (e.g., CBT) and/or specific anti-depressants or other nonbenzodiazepine medications approved for anxiety should be offered. Experts emphasized that clinicians should communicate with mental health professionals managing the patient to discuss the patient's needs, prioritize patient goals, weigh risks of concurrent benzodiazepine and opioid exposure, and coordinate care.

12. Clinicians should offer or arrange evidence-based treatment (usually medication-assisted treatment with buprenorphine or methadone in combination with behavioral therapies) for patients with opioid use disorder (recommendation category: A, evidence type: 2).

Opioid use disorder (previously classified as opioid abuse or opioid dependence) is defined in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) as a problematic pattern of opioid use leading to clinically significant impairment or distress, manifested by at least two defined criteria occurring within a year (http://pcssmat.org/wp-content/uploads/2014/02/5B-DSM-5-Opioid-Use-Disorder-Diagnostic-Criteria.pdf (http://pcssmat.org/wp-content/uploads/2014/02/5B-DSM-5-Opioid-Use-Disorder-Diagnostic-Criteria.pdf)) (*20*).

The clinical evidence review found prevalence of opioid dependence (using DSM-IV diagnosis criteria) in primary care settings among patients with chronic pain on opioid therapy to be 3%–26% (KQ2). As found in the contextual evidence review and supported by moderate quality evidence, opioid agonist or partial agonist treatment with methadone maintenance therapy or buprenorphine has been shown to be more effective in preventing relapse among patients with opioid use disorder (*151–153*). Some studies suggest that using behavioral therapies in combination with these treatments can reduce opioid misuse and increase retention during maintenance therapy and improve compliance after detoxification (*154,155*); behavioral therapies are also recommended by clinical practice guidelines (*215*). The cited studies primarily evaluated patients with a history of illicit opioid use, rather than prescription opioid use for chronic pain. Recent studies among patients with prescription opioid dependence (based on DSM-IV criteria) have found maintenance therapy with buprenorphine and buprenorphine-naloxone effective in preventing relapse (*216,217*). Treatment need in a community is often not met by capacity to provide buprenorphine or methadone maintenance therapy (*218*), and patient cost can be a barrier to buprenorphine treatment because insurance coverage of buprenorphine for opioid use disorder is often limited (*219*). Oral or long-acting injectable formulations of naltrexone can also be used as medication-assisted treatment for opioid use disorder in nonpregnant adults, particularly for highly motivated persons (*220,221*). Experts agreed that clinicians prescribing opioids should identify treatment resources for opioid use disorder in the community and should work together to ensure sufficient treatment capacity for opioid use disorder at the practice level.

If clinicians suspect opioid use disorder based on patient concerns or behaviors or on findings in prescription drug monitoring program data (see Recommendation 9) or from urine drug testing (see Recommendation 10), they should discuss their concern with their patient and provide an opportunity for the patient to disclose related concerns or problems. Clinicians should assess for the presence of opioid use disorder using DSM-5 criteria (*20*). Alternatively, clinicians can arrange for a substance use disorder treatment specialist to assess for the presence of opioid use disorder. For patients meeting criteria for opioid use disorder, clinicians should offer or arrange for patients to receive evidence-based treatment, usually medication-assisted treatment with buprenorphine or methadone maintenance therapy in combination with behavioral therapies. Oral or long-acting injectable naltrexone, a long-acting opioid antagonist, can also be used in non-pregnant adults. Naltrexone blocks the effects of opioids if they are used but requires adherence to daily oral therapy or monthly injections. For pregnant women with opioid use disorder, medication-assisted therapy with buprenorphine (without naloxone) or methadone has been associated with improved maternal outcomes and should be offered (see Recommendation 8). Clinicians should also consider offering naloxone for overdose prevention to patients with opioid use disorder (see Recommendation 8). For patients with problematic opioid use that does not meet criteria for opioid use disorder, experts noted that clinicians can offer to taper and discontinue opioids (see Recommendation 7). For patients who choose to but are unable to taper, clinicians may reassess for opioid use disorder and offer opioid agonist therapy if criteria are met.

Physicians not already certified to provide buprenorphine in an office-based setting can undergo training to receive a waiver from the Substance Abuse and Mental Health Services Administration (SAMHSA) that allows them to prescribe buprenorphine to treat patients with opioid use disorder. Physicians prescribing opioids in communities without sufficient treatment capacity for opioid use disorder should strongly consider obtaining this waiver. Information about qualifications and the process to obtain a waiver are available from SAMHSA (*222*). Clinicians do not need a waiver to offer naltrexone for opioid use disorder as part of their practice.

Additional guidance has been published previously (*215*) on induction, use, and monitoring of buprenorphine treatment (see Part 5) and naltrexone treatment (see Part 6) for opioid use disorder and on goals, components of, and types of effective psychosocial treatment that are recommended in conjunction with pharmacological treatment of opioid use disorder (see Part 7). Clinicians unable to provide treatment themselves should arrange for patients with opioid use

disorder to receive care from a substance use disorder treatment specialist, such as an office-based buprenorphine or naltrexone treatment provider, or from an opioid treatment program certified by SAMHSA to provide supervised medication-assisted treatment for patients with opioid use disorder. Clinicians should assist patients in finding qualified treatment providers and should arrange for patients to follow up with these providers, as well as arranging for ongoing coordination of care. Clinicians should not dismiss patients from their practice because of a substance use disorder because this can adversely affect patient safety and could represent patient abandonment. Identification of substance use disorder represents an opportunity for a clinician to initiate potentially life-saving interventions, and it is important for the clinician to collaborate with the patient regarding their safety to increase the likelihood of successful treatment. In addition, although identification of an opioid use disorder can alter the expected benefits and risks of opioid therapy for pain, patients with co-occurring pain and substance use disorder require ongoing pain management that maximizes benefits relative to risks. Clinicians should continue to use nonpharmacologic and nonopioid pharmacologic pain treatments as appropriate (see Recommendation 1) and consider consulting a pain specialist as needed to provide optimal pain management.

Resources to help with arranging for treatment include SAMHSA's buprenorphine physician locator (http://buprenorphine.samhsa.gov/bwns_locator (http://buprenorphine.samhsa.gov/bwns_locator)); SAMHSA's Opioid Treatment Program Directory (http://dpt2.samhsa.gov/treatment/directory.aspx (http://dpt2.samhsa.gov/treatment/directory.aspx)); SAMHSA's Provider Clinical Support System for Opioid Therapies (http://pcss-o.org (http://pcss-o.org)), which offers extensive experience in the treatment of substance use disorders and specifically of opioid use disorder, as well as expertise on the interface of pain and opioid misuse; and SAMHSA's Provider's Clinical Support System for Medication-Assisted Treatment (http://pcssmat.org (http://pcssmat.org)), which offers expert physician mentors to answer questions about assessment for and treatment of substance use disorders.

Conclusions and Future Directions

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Clinical guidelines represent one strategy for improving prescribing practices and health outcomes. Efforts are required to disseminate the guideline and achieve widespread adoption and implementation of the recommendations in clinical settings. CDC will translate this guideline into user-friendly materials for distribution and use by health systems, medical professional societies, insurers, public health departments, health information technology developers, and clinicians and engage in dissemination efforts. CDC has provided a checklist for prescribing opioids for chronic pain (http://stacks.cdc.gov/view/cdc/38025 (http://stacks.cdc.gov/view/cdc/38025)), additional resources such as fact sheets (http://www.cdc.gov/drugoverdose/prescribing/resources.html (http://www.cdc.gov/drugoverdose/prescribing/resources.html)), and will provide a mobile application to guide clinicians in implementing the recommendations. CDC will also work with partners to support clinician education on pain management options, opioid therapy, and risk mitigation strategies (e.g., urine drug testing). Activities such as development of clinical decision support in electronic health records to assist clinicians' treatment decisions at the point of care; identification of mechanisms that insurers and pharmacy benefit plan managers can use to promote safer prescribing within plans; and development of clinical quality improvement measures and initiatives to improve prescribing and patient care within health systems have promise for increasing guideline adoption and improving practice. In addition, policy initiatives that address barriers to implementation of the guidelines, such as increasing accessibility of PDMP data within and across states, e-prescribing, and availability of clinicians who can offer medication-assisted treatment for opioid use disorder, are strategies to consider to enhance implementation of the recommended practices. CDC will work with federal partners and payers to evaluate strategies such as payment reform and health care delivery models that could improve patient health and safety. For example, strategies might include strengthened coverage for nonpharmacologic treatments, appropriate urine drug testing, and medication-assisted treatment; reimbursable time for patient counseling; and payment models that improve access to interdisciplinary, coordinated care.

As highlighted in the forthcoming report on the National Pain Strategy, an overarching federal effort that outlines a comprehensive population-level health strategy for addressing pain as a public health problem, clinical guidelines complement other strategies aimed at preventing illnesses and injuries that lead to pain. A draft of the National Pain Strategy has been published previously (*180*). These strategies include strengthening the evidence base for pain prevention and treatment strategies, reducing disparities in pain treatment, improving service delivery and reimbursement, supporting professional education and training, and providing public education. It is important that overall improvements be made in developing the workforce to address pain management in general, in addition to opioid prescribing specifically. This guideline also complements other federal efforts focused on addressing the opioid overdose epidemic including prescriber training and education, improving access to treatment for opioid use disorder, safe storage and disposal programs, utilization management mechanisms, naloxone distribution programs, law enforcement and supply reduction efforts, prescription drug monitoring program improvements, and support for community coalitions and state prevention programs.

This guideline provides recommendations that are based on the best available evidence that was interpreted and informed by expert opinion. The clinical scientific evidence informing the recommendations is low in quality. To inform future guideline development, more research is necessary to fill in critical evidence gaps. The evidence reviews forming the basis of this guideline clearly illustrate that there is much yet to be learned about the effectiveness, safety, and economic efficiency of long-term opioid therapy. As highlighted by an expert panel in a recent workshop sponsored by the National Institutes of Health on the role of opioid pain medications in the treatment of chronic pain, "evidence is insufficient for every clinical decision that a provider needs to make about the use of opioids for chronic pain" (*223*). The National Institutes of Health panel recommended that research is needed to improve our understanding of which types of pain, specific diseases, and patients are most likely to be associated with benefit and harm from opioid pain medications; evaluate multidisciplinary pain interventions; estimate cost-benefit; develop and validate tools for identification of patient risk and outcomes; assess the effectiveness and harms of opioid pain medications with alternative study designs; and investigate risk identification and mitigation strategies and their effects on patient and public health outcomes. It is also important to obtain data to inform the cost feasibility and cost-effectiveness of recommended actions, such as use of nonpharmacologic therapy and urine drug testing. Research that contributes to safer and more effective pain treatment can be implemented across public health entities and federal agencies (*4*). Additional research can inform the development of future guidelines for special populations that could not be adequately addressed in this guideline, such as children and adolescents, where evidence and guidance is needed but currently lacking. CDC is committed to working with partners to identify the highest priority research areas to build the evidence base. Yet, given that chronic pain is recognized as a significant public health problem, the risks associated with long-term opioid therapy, the availability of effective nonpharmacological and nonopioid pharmacologic treatment options for pain, and the potential for improvement in the

quality of health care with the implementation of recommended practices, a guideline for prescribing is warranted with the evidence that is currently available. The balance between the benefits and the risks of long-term opioid therapy for chronic pain based on both clinical and contextual evidence is strong enough to support the issuance of category A recommendations in most cases.

CDC will revisit this guideline as new evidence becomes available to determine when evidence gaps have been sufficiently closed to warrant an update of the guideline. Until this research is conducted, clinical practice guidelines will have to be based on the best available evidence and expert opinion. This guideline is intended to improve communication between clinicians and patients about the risks and benefits of opioid therapy for chronic pain, improve the safety and effectiveness of pain treatment, and reduce the risks associated with long-term opioid therapy, including opioid use disorder, overdose, and death. CDC is committed to evaluating the guideline to identify the impact of the recommendations on clinician and patient outcomes, both intended and unintended, and revising the recommendations in future updates when warranted.

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* A list of the members appears at the end of this report. The recommendations and all statements included in this guideline are those of CDC and do not necessarily represent the official position of any persons or organizations providing comments on the draft guideline. Top

TABLE 1. Grading of Recommendations Assessment, Development and Evaluation (GRADE) clinical evidence review ratings of the evidence for the key clinical questions regarding effectiveness and risks of long-term opioid therapy for chronic pain Top

Outcome	Studies	Limitations	Inconsistency	Imprecision	Type of evidence	Other factors	Estimates of effect/findings
Effectiveness and comparative effectiveness (KQ1)							
Effectiveness of long-term opioid therapy versus placebo or no opioid therapy for long-term (≥1 year) outcomes							
Pain, function, and quality of life	None	—*	—	—	Insufficient	—	No evidence
Harms and adverse events (KQ2)							
Risks of opioids versus placebo or no opioids on opioid abuse, addiction, and related outcomes; overdose; and other harms							
Abuse or addiction	1 cohort study (n = 568,640)	Serious limitations	Unknown (1 study)	No imprecision	3	None identified	One retrospective cohort study found long-term use of prescribed opioids associated with an increased risk of abuse or dependence diagnosis versus no opioid use (adjusted OR ranged from 14.9 to 122.5, depending on dose).
Abuse or addiction	10 uncontrolled studies (n = 3,780)	Very serious limitations	Very serious inconsistency	No imprecision	4	None identified	In primary care settings, prevalence of opioid abuse ranged from 0.6% to 8% and prevalence of dependence from 3% to 26%. In pain clinic settings, prevalence of misuse ranged from 8% to 16% and addiction from 2% to 14%. Prevalence of aberrant drug-related behaviors ranged from 6% to 37%.
Overdose	1 cohort study (n = 9,940)	Serious limitations	Unknown (1 study)	Serious imprecision	3	None identified	Current opioid use associated with increased risk of any overdose events (adjusted HR 5.2, 95% CI = 2.1–12) and serious overdose events (adjusted HR 8.4, 95% CI = 2.5–28) versus current nonuse.
Fractures	1 cohort study (n = 2,341) and 1 case–control study (n = 21,739 case patients)	Serious limitations	No inconsistency	No imprecision	3	None identified	Opioid use associated with increased risk of fracture in 1 cohort study (adjusted HR 1.28, 95% CI = 0.99–1.64) and 1 case-control study (adjusted OR 1.27, 95% CI = 1.21–1.33).
Myocardial infarction	1 cohort study (n = 426,124) and 1 case–control study (n = 11,693 case patients)	No limitations	No inconsistency	No imprecision	3	None identified	Current opioid use associated with increased risk of myocardial infarction versus nonuse (adjusted OR 1.28, 95% CI = 1.19–1.37 and incidence rate ratio 2.66, 95% CI = 2.30–3.08).

Outcome	Studies	Limitations	Inconsistency	Imprecision	Type of evidence	Other factors	Estimates of effect/findings
Endocrinologic harms	1 cross-sectional study (n = 11,327)	Serious limitations	Unknown (1 study)	No imprecision	3	None identified	Long-term opioid use associated with increased risk for use of medications for erectile dysfunction or testosterone replacement versus nonuse (adjusted OR 1.5, 95% CI = 1.1 –1.9).
How do harms vary depending on the opioid dose used?							
Abuse or addiction	1 cohort study (n = 568,640)	Serious limitations	Unknown (1 study)	No imprecision	3	None identified	One retrospective cohort study found higher doses of long-term opioid therapy associated with increased risk of opioid abuse or dependence than lower doses. Compared to no opioid prescription, the adjusted odds ratios were 15 (95% CI = 10–21) for 1 to 36 MME/day, 29 (95 % CI = 20–41) for 36 to120 MME/day, and 122 (95 % CI = 73–205) for ≥120 MME/day.
Overdose	1 cohort study (n = 9,940) and 1 case –control study (n = 593 case patients in primary analysis)	Serious limitations	No inconsistency	No imprecision	3	Magnitude of effect, dose response relationship	Versus 1 to <20 MME/day, one cohort study found an adjusted HR for an overdose event of 1.44 (95% CI = 0.57–3.62) for 20 to <50 MME/day that increased to 8.87 (95% CI = 3.99–19.72) at ≥100 MME/day; one case-control study found an adjusted OR for an opioid-related death of 1.32 (95% CI = 0.94–1.84) for 20 to 49 MME/day that increased to 2.88 (95% CI = 1.79 –4.63) at ≥200 MME/day.
Fractures	1 cohort study (n = 2,341)	Serious limitations	Unknown (1 study)	Serious imprecision	3	None identified	Risk of fracture increased from an adjusted HR of 1.20 (95% CI = 0.92–1.56) at 1 to <20 MME/day to 2.00 (95% CI = 1.24–3.24) at ≥50 MME/day; the trend was of borderline statistical significance.
Myocardial infarction	1 cohort study (n = 426,124)	Serious limitations	Unknown (1 study)	No imprecision	3	None identified	Relative to a cumulative dose of 0 to 1,350 MME during a 90-day period, the incidence rate ratio for myocardial infarction for 1350 to <2700 MME was 1.21 (95% CI = 1.02–1.45), for 2,700 to <8,100 MME was 1.42 (95% CI = 1.21–1.67), for 8,100 to <18,000 MME was 1.89 (95% CI = 1.54–2.33), and for ≥8,000 MME was 1.73 (95% CI = 1.32 –2.26).
Motor vehicle crash injuries	1 case–control study (n = 5,300 case patients)	No limitations	Unknown (1 study)	No imprecision	3	None identified	No association between opioid dose and risk of motor vehicle crash injuries even though opioid dosages ≥20 MME/day were associated with increased odds of road trauma among drivers.

Outcome	Studies	Limitations	Inconsistency	Imprecision	Type of evidence	Other factors	Estimates of effect/findings
Endocrinologic harms	1 cross-sectional study (n = 11,327) New for update: 1 additional cross-sectional study (n=1,585)	Serious limitations	Consistent	No imprecision	3	None identified	Relative to 0 to <20 MME/day, the adjusted OR for ≥120 MME/day for use of medications for erectile dysfunction or testosterone replacement was 1.6 (95% CI = 1.0–2.4). One new cross-sectional study found higher-dose long-term opioid therapy associated with increased risk of androgen deficiency among men receiving immediate-release opioids (adjusted OR per 10 MME/day 1.16, 95% CI = 1.09–1.23), but the dose response was very weak among men receiving ER/LA opioids.
Dosing strategies (KQ3)							
Comparative effectiveness of different methods for initiating opioid therapy and titrating doses							
Pain	3 randomized trials (n = 93)	Serious limitations	Serious inconsistency	Very serious imprecision	4	None identified	Trials on effects of titration with immediate-release versus ER/LA opioids reported inconsistent results and had additional differences between treatment arms in dosing protocols (titrated versus fixed dosing) and doses of opioids used.
Overdose	New for update: 1 cohort study (n = 840,606)	Serious limitations	Unknown (1 study)	No imprecision	4	None identified	One new cross-sectional study found initiation of therapy with an ER/LA opioid associated with increased risk of overdose versus initiation with an immediate-release opioid (adjusted HR 2.33, 95% CI = 1.26–4.32).
Comparative effectiveness of different ER/LA opioids							
Pain and function	3 randomized trials (n = 1,850)	Serious limitations	No inconsistency	No imprecision	3	None identified	No differences
All-cause mortality	1 cohort study (n = 108,492) New for update: 1 cohort study (n = 38,756)	Serious limitations	Serious inconsistency	No imprecision	4	None identified	One cohort study found methadone to be associated with lower all-cause mortality risk than sustained-release morphine in a propensity-adjusted analysis (adjusted HR 0.56, 95% CI = 0.51–0.62) and one cohort study among Tennessee Medicaid patients found methadone to be associated with higher risk of all-cause mortality than sustained-release morphine (adjusted HR 1.46, 95% CI = 1.17 –1.73).
Abuse and related outcomes	1 cohort study (n = 5,684)	Serious limitations	Unknown (1 study)	Serious imprecision	4	None identified	One cohort study found some differences between ER/LA opioids in rates of adverse outcomes related to abuse, but outcomes were nonspecific for opioid-related adverse events, precluding reliable conclusions.
ER/LA versus immediate-release opioids							

Outcome	Studies	Limitations	Inconsistency	Imprecision	Type of evidence	Other factors	Estimates of effect/findings
Endocrinologic harms	New for update: 1 cross-sectional study (n = 1,585)	Serious limitations	Unknown (1 study)	No imprecision	4	None identified	One cross-sectional study found ER/LA opioids associated with increased risk of androgen deficiency versus immediate-release opioids (adjusted OR 3.39, 95% CI = 2.39–4.77).
Dose escalation versus dose maintenance or use of dose thresholds							
Pain, function, or withdrawal due to opioid misuse	1 randomized trial (n = 140)	Serious limitations	Unknown (1 study)	Very serious imprecision	3	None identified	No difference between more liberal dose escalation versus maintenance of current doses in pain, function, or risk of withdrawal due to opioid misuse, but there was limited separation in opioid doses between groups (52 versus 40 MME/day at the end of the trial).
Immediate-release versus ER/LA opioids; immediate-release plus ER/LA opioids versus ER/LA opioids alone; scheduled and continuous versus as-needed dosing of opioids; or opioid rotation versus maintenance of current therapy							
Pain, function, quality of life, and outcomes related to abuse	None	—	—	—	Insufficient	—	No evidence
Effects of decreasing or tapering opioid doses versus continuation of opioid therapy							
Pain and function	1 randomized trial (n = 10)	Very serious limitations	Unknown (1 study)	Very serious imprecision	4	None identified	Abrupt cessation of morphine was associated with increased pain and decreased function compared with continuation of morphine.
Comparative effectiveness of different tapering protocols and strategies							
Opioid abstinence	2 nonrandomized trials (n = 150)	Very serious limitations	No inconsistency	Very serious imprecision	4	None identified	No clear differences between different methods for opioid discontinuation or tapering in likelihood of opioid abstinence after 3–6 months
Risk assessment and risk mitigation strategies (KQ4)							
Diagnostic accuracy of instruments for predicting risk for opioid overdose, addiction, abuse, or misuse among patients with chronic pain being considered for long-term opioid therapy							
Opioid risk tool	3 studies of diagnostic accuracy (n = 496) New for update:2 studies of diagnostic accuracy (n = 320)	Serious limitations	Very serious inconsistency	Serious imprecision	4	None identified	Based on a cutoff score of ≥4 (or unspecified), five studies (two fair-quality, three poor-quality) reported sensitivity that ranged from 0.20 to 0.99 and specificity that ranged from 0.16 to 0.88.
Screener and Opioid Assessment for Patients with Pain, Version 1	2 studies of diagnostic accuracy (n = 203)	Very serious limitations	No inconsistency	Serious imprecision	3	None identified	Based on a cutoff score of ≥8, sensitivity was 0.68 and specificity was 0.38 in one study, for a positive likelihood ratio of 1.11 and a negative likelihood ratio of 0.83. Based on a cutoff score of >6, sensitivity was 0.73 in one study.
Screener and Opioid Assessment for Patients with Pain-Revised	New for update: 2 studies of diagnostic accuracy (n = 320)	Very serious limitations	No inconsistency	Serious imprecision	3	None identified	Based on a cutoff score of >3 or unspecified, sensitivity was 0.25 and 0.53 and specificity was 0.62 and 0.73 in two studies, for likelihood ratios close to 1.

Outcome	Studies	Limitations	Inconsistency	Imprecision	Type of evidence	Other factors	Estimates of effect/findings
Brief Risk Interview	New for update: 2 studies of diagnostic accuracy (n = 320)	Very serious limitations	No inconsistency	Serious imprecision	3	None identified	Based on a "high risk" assessment, sensitivity was 0.73 and 0.83 and specificity was 0.43 and 0.88 in two studies, for positive likelihood ratios of 1.28 and 7.18 and negative likelihood ratios of 0.63 and 0.19.
Effectiveness of risk prediction instruments on outcomes related to overdose, addiction, abuse, or misuse in patients with chronic pain							
Outcomes related to abuse	None	—	—	—	Insufficient	—	No evidence
Effectiveness of risk mitigation strategies, including opioid management plans, patient education, urine drug screening, use of prescription drug monitoring program data, use of monitoring instruments, more frequent monitoring intervals, pill counts, and use of abuse-deterrent formulations, on outcomes related to overdose, addiction, abuse, or misuse							
Outcomes related to abuse	None	—	—	—	Insufficient	—	No evidence
Effectiveness of risk prediction instruments on outcomes related to overdose, addiction, abuse, or misuse in patients with chronic pain							
Outcomes related to abuse	None	–	–	–	Insufficient	–	No evidence
Effectiveness of risk mitigation strategies, including opioid management plans, patient education, urine drug screening, use of prescription drug monitoring program data, use of monitoring instruments, more frequent monitoring intervals, pill counts, and use of abuse-deterrent formulations, on outcomes related to overdose, addiction, abuse, or misuse							
Outcomes related to abuse	None	–	–	–	Insufficient	–	No evidence
Comparative effectiveness of treatment strategies for managing patients with addiction to prescription opioids							
Outcomes related to abuse	None	–	–	–	Insufficient	–	No evidence
Effects of opioid therapy for acute pain on long-term use (KQ5)							
Long-term opioid use	New for update: 2 cohort studies (n = 399,852)	Serious limitations	No inconsistency	No imprecision	3	None identified	One study found use of opioids within 7 days of low-risk surgery associated with increased likelihood of opioid use at 1 year (adjusted OR 1.44, 95% CI = 1.39–1.50), and one study found use of opioids within 15 days of onset of low back pain among workers with a compensation claim associated with increased risk of late opioid use (adjusted OR 2.08, 95% CI = 1.55–2.78 for 1 to 140 MME/day and OR 6.14, 95% CI = 4.92–7.66 for ≥450 MME/day).

Abbreviations: CI = confidence interval; ER/LA = extended release/long-acting; HR = hazard ratio; MME = morphine milligram equivalents; OR = odds ratio.

*Ratings were made per GRADE quality assessment criteria; "no limitations" indicates that limitations assessed through the GRADE method were not identified.

†Not applicable as no evidence was available for rating.

TABLE 2. Morphine milligram equivalent (MME) doses for commonly prescribed opioids

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Opioid	Conversion factor*
Codeine	0.15
Fentanyl transdermal (in mcg/hr)	2.4
Hydrocodone	1
Hydromorphone	4
Methadone	
1–20 mg/day	4

Opioid	Conversion factor*
21–40 mg/day	8
41–60 mg/day	10
≥61–80 mg/day	12
Morphine	1
Oxycodone	1.5
Oxymorphone	3
Tapentadol†	0.4

Source: Adapted from Von Korff M, Saunders K, Ray GT, et al. Clin J Pain 2008;24:521–7 and Washington State Interagency Guideline on Prescribing Opioids for Pain (http://www.agencymeddirectors.wa.gov/Files/2015AMDGOpioidGuideline.pdf).

*Multiply the dose for each opioid by the conversion factor to determine the dose in MMEs. For example, tablets containing hydrocodone 5 mg and acetaminophen 300 mg taken four times a day would contain a total of 20 mg of hydrocodone daily, equivalent to 20 MME daily; extended-release tablets containing oxycodone 10mg and taken twice a day would contain a total of 20mg of oxycodone daily, equivalent to 30 MME daily. The following cautions should be noted: 1) All doses are in mg/day except for fentanyl, which is mcg/hr. 2) Equianalgesic dose conversions are only estimates and cannot account for individual variability in genetics and pharmacokinetics. 3) Do not use the calculated dose in MMEs to determine the doses to use when converting opioid to another; when converting opioids the new opioid is typically dosed at substantially lower than the calculated MME dose to avoid accidental overdose due to incomplete cross-tolerance and individual variability in opioid pharmacokinetics. 4) Use particular caution with methadone dose conversions because the conversion factor increases at higher doses. 5) Use particular caution with fentanyl since it is dosed in mcg/hr instead of mg/day, and its absorption is affected by heat and other factors.

†Tapentadol is a mu receptor agonist and norepinephrine reuptake inhibitor. MMEs are based on degree of mu-receptor agonist activity, but it is unknown if this drug is associated with overdose in the same dose-dependent manner as observed with medications that are solely mu receptor agonists.

BOX 1. CDC recommendations for prescribing opioids for chronic pain outside of active cancer, palliative, and end-of-life care Return to Top

Determining When to Initiate or Continue Opioids for Chronic Pain

1. Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain. Clinicians should consider opioid therapy only if expected benefits for both pain and function are anticipated to outweigh risks to the patient. If opioids are used, they should be combined with nonpharmacologic therapy and nonopioid pharmacologic therapy, as appropriate.
2. Before starting opioid therapy for chronic pain, clinicians should establish treatment goals with all patients, including realistic goals for pain and function, and should consider how therapy will be discontinued if benefits do not outweigh risks. Clinicians should continue opioid therapy only if there is clinically meaningful improvement in pain and function that outweighs risks to patient safety.
3. Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy.

Opioid Selection, Dosage, Duration, Follow-Up, and Discontinuation

4. When starting opioid therapy for chronic pain, clinicians should prescribe immediate-release opioids instead of extended-release/long-acting (ER/LA) opioids.
5. When opioids are started, clinicians should prescribe the lowest effective dosage. Clinicians should use caution when prescribing opioids at any dosage, should carefully reassess evidence of individual benefits and risks when increasing dosage to ≥50 morphine milligram equivalents (MME)/day, and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day.
6. Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days will rarely be needed.
7. Clinicians should evaluate benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Clinicians should evaluate benefits and harms of continued therapy with patients every 3 months or more frequently. If benefits do not outweigh harms of continued opioid therapy, clinicians should optimize other therapies and work with patients to taper opioids to lower dosages or to taper and discontinue opioids.

Assessing Risk and Addressing Harms of Opioid Use

8. Before starting and periodically during continuation of opioid therapy, clinicians should evaluate risk factors for opioid-related harms. Clinicians should incorporate into the management plan strategies to mitigate risk, including considering offering naloxone when factors that increase risk for opioid overdose, such as history of overdose, history of substance use disorder, higher opioid dosages (≥50 MME/day), or concurrent benzodiazepine use, are present.
9. Clinicians should review the patient's history of controlled substance prescriptions using state prescription drug monitoring program (PDMP) data to determine whether the patient is receiving opioid dosages or dangerous combinations that put him or her at high risk for overdose. Clinicians should

review PDMP data when starting opioid therapy for chronic pain and periodically during opioid therapy for chronic pain, ranging from every prescription to every 3 months.

10. When prescribing opioids for chronic pain, clinicians should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs.
11. Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible.
12. Clinicians should offer or arrange evidence-based treatment (usually medication-assisted treatment with buprenorphine or methadone in combination with behavioral therapies) for patients with opioid use disorder.

* All recommendations are category A (apply to all patients outside of active cancer treatment, palliative care, and end-of-life care) except recommendation 10 (designated category B, with individual decision making required); see full guideline for evidence ratings.

BOX 2. Interpretation of recommendation categories and evidence type

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Recommendation Categories

Based on evidence type, balance between desirable and undesirable effects, values and preferences, and resource allocation (cost).

Category A recommendation: Applies to all persons; most patients should receive the recommended course of action.

Category B recommendation: Individual decision making needed; different choices will be appropriate for different patients. Clinicians help patients arrive at a decision consistent with patient values and preferences and specific clinical situations.

Evidence Type

Based on study design as well as a function of limitations in study design or implementation, imprecision of estimates, variability in findings, indirectness of evidence, publication bias, magnitude of treatment effects, dose-response gradient, and constellation of plausible biases that could change effects.

Type 1 evidence: Randomized clinical trials or overwhelming evidence from observational studies.

Type 2 evidence: Randomized clinical trials with important limitations, or exceptionally strong evidence from observational studies.

Type 3 evidence: Observational studies or randomized clinical trials with notable limitations.

Type 4 evidence: Clinical experience and observations, observational studies with important limitations, or randomized clinical trials with several major limitations.

Steering Committee and Core Expert Group Members

Top

Steering Committee: Deborah Dowell, MD, Tamara M. Haegerich, PhD; Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, CDC; Roger Chou, MD; on detail to CDC under contract

Core Expert Group Members: Pam Archer, MPH, Oklahoma State Department of Health; Jane Ballantyne, MD; University of Washington (retired); Amy Bohnert, PhD; University of Michigan; Bonnie Burman, ScD; Ohio Department on Aging; Roger Chou, MD; on detail to CDC under contract; Phillip Coffin, MD, San Francisco Department of Public Health; Gary Franklin, MD, MPH; Washington State Department of Labor and Industries/University of Washington; Erin Krebs, MDH; Minneapolis VA Health Care System/University of Minnesota; Mitchel Mutter, MD, Tennessee Department of Health; Lewis Nelson, MD; New York University School of Medicine; Trupti Patel, MD, Arizona Department of Health Services; Christina A. Porucznik, PhD, University of Utah; Robert "Chuck" Rich, MD, FAAFP, American Academy of Family Physicians; Joanna Starrels, MD, Albert Einstein College of Medicine of Yeshiva University; Michael Steinman, MD, Society of General Internal Medicine; Thomas Tape, MD, American College of Physicians; Judith Turner, PhD, University of Washington.

Stakeholder Review Group

John Markman, MD, American Academy of Neurology; Bob Twillman, PhD, American Academy of Pain Management; Edward C. Covington, MD, American Academy of Pain Medicine; Roger F. Suchyta, MD, FAAP, American Academy of Pediatrics; Kavitha V. Neerukonda, JD, American Academy of Physical Medicine and Rehabilitation; Mark Fleury, PhD, American Cancer Society Cancer Action Network; Penney Cowan, American Chronic Pain Association; David Juurlink, BPharm, MD, PhD, American College of Medical Toxicology; Gerald "Jerry" F. Joseph, Jr, MD, American College of Obstetrics and Gynecology; Bruce Ferrell, MD, AGSF, M. Carrington Reid, MD, PhD, American Geriatrics Society; Ashley Thompson, American Hospital Association; Barry D. Dickinson, PhD, American Medical Association; Gregory Terman MD, PhD, American Pain Society; Beth Haynes, MPPA, American Society of Addiction Medicine; Asokumar Buvanendran, MD, American Society of Anesthesiologists; Robert M. Plovnick; MD, American Society of Hematology; Sanford M. Silverman, MD, American Society of Interventional Pain Physicians; Andrew Kolodny, MD, Physicians for Responsible Opioid Prescribing.

Opioid Guideline Workgroup

Chair: Christina Porucznik, PhD, MSPH

Workgroup Members: Anne Burns, RPh; Penney Cowan; Chinazo Cunningham, MD, MS; Katherine Galluzzi, DO; Traci Green, PhD, MSC; Mitchell Katz, MD; Erin Krebs, MD, MPH; Gregory Terman, MD, PhD; Mark Wallace, MD. Workgroup Consultants: Roger Chou, MD; Edward Covington, MD; Diana Eppolito; Michael Greene, MD; Steven Stanos, DO.

Peer Reviewers

Jeanmarie Perrone, MD, University of Pennsylvania; Matthew Bair, MD, Indiana University School of Medicine;, David Tauben, MD, University of Washington

NCIPC Board of Scientific Counselors

Chair: Stephen Hargarten, MD, MPH; Members: John Allegrante, PhD; Joan Marie Duwve, MD, Samuel Forjuoh, MD, MPH, DrPH, FGCP; Gerard Gioia, PhD; Deborah Gorman-Smith, PhD; Traci Green, PhD; Sherry Lynne Hamby, PhD; Robert Johnson, MD; Angela Mickalide, PhD, MCHES; Sherry Molock, PhD; Christina Porucznik, PhD, MSPH; Jay Silverman, PhD; Maria Testa, PhD; Shelly Timmons, MD, PhD, FACS, FAANS; Ex Officio Members: Melissa Brodowski, PhD; Dawn Castillo, MPH; Wilson Compton, MD, MPE; Elizabeth Edgerton, MD, MPH; Thomas Feucht, PhD; Meredith Fox, PhD; Holly Hedegaard, MD, MSPH; John Howard, MD; Lyndon Joseph, PhD; Jinhee Lee, PharmD; Iris Mabry-Hernandez, MD, MPH; Valeri Maholmes, PhD; Angela Moore Parmley, PhD; Thomas Schroeder, MS.

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Appendix G

INTERGOVERNMENTAL AGREEMENT
BETWEEN
THE ILLINOIS DEPARTMENT OF HUMAN SERVICES
AND
THE ILLINOIS DEPARTMENT OF HEALTHCARE AND FAMILY SERVICES
2016-166-IGA-OCAPS
2016-15-018

The Illinois Department of Human Services (DHS) for the Prescription Monitoring Program (PMP) and the Illinois Department of Healthcare and Family Services (HFS) for its Office of Inspector General (OIG) pursuant to the Intergovernmental Cooperation Act, 5 ILCS 220/1 *et seq.*, hereby enter into this Intergovernmental Agreement (Agreement) regarding an electronic system for sharing prescription and related health information on controlled substances dispensed to Medicaid recipients, along with related healthcare services and costs. DHS and HFS are collectively referred to herein as "Parties" or individually as a "Party."

ARTICLE I
INTRODUCTION

1.1 HFS Background. The single State agency for administration of Medicaid programs is HFS. As such, it maintains and operates a data warehouse containing medical claims for HFS Medical Programs. HFS has a Medical Director who is charged with insurance of evidence-based clinical practices in general and with a secondary focus on appropriate utilization of controlled substances.

1.2 DHS Background. DHS is a state agency providing public health benefits in the State of Illinois. As a part of DHS, PMP maintains and operates a data warehouse containing prescription information for all controlled substances dispensed in the State of Illinois, including all prescriptions that are paid for by Medicaid. PMP is also charged with the responsibility for detecting fraud and the illegal diversion of controlled substances, along with the establishment of a Peer-Review Committee as set forth within Public Act 99-0480.

1.3 Purpose. HFS and DHS's ability to identify fraud and the diversion of controlled substances will be improved by the mutual sharing of the information relative to Medicaid recipients. To this end, DHS and HFS will collaborate on the development of protocols and an electronic system that links PMP data with HFS data bi-directionally, and once the data is linked, reporting functionality will be developed to identify possible issues of fraud or the diversion of controlled substances (System). The System will also lend itself to identifying prevalence's of neonatal abstinence syndrome, secondary to opioid misuse and over prescribing. This Agreement *inter alia* specifies roles and responsibilities for DHS and HFS for collaboration on the System.

ARTICLE II
DUTIES AND OBLIGATIONS OF DHS

2.1 Collaborative Work. DHS shall work collaboratively with the HFS and its OIG on the development of the System. The System shall Include, but not be limited to:

a) Capturing the incidence of Neonatal Abstinence Syndrome secondary to opioid usage by the mother and all related services and costs;
b) Capturing prescriber profiles on practitioners prescribing opioids that resulted in Neonatal Abstinence Syndrome;
c) Matching all billable services regarding patients, prescribers, and dispensers associated with 5-5-3 profiles statewide and regionally.

2.2 Consultations. DHS shall provide to HFS clinical consultations regarding medication reporting and practitioner identification, as vetted within the PMP Peer-Review Committee, as set forth within Public Act (P.A.) 99-0480.

2.3 Pilot Identity Resolution Project. As part of System development, DHS shall collaborate with HFS on a pilot project addressing identity resolution within PMP.

2.4 Outcome Evaluations. DHS and HFS shall prepare outcome evaluations for budget proposals, peer-reviewed publications, as required by the Centers for Disease Control (CDC) grant, P.A. 99-0480, rule, regulation, or upon request of the Governor or Illinois General Assembly.

2.5 Formal Tests. As part of System development, DHS shall assist in the development of formal, routine data tests which confirm Medicaid administrative data and PMP data accuracy and validity.

ARTICLE III
DUTIES AND OBLIGATIONS OF HFS

3.1 Collaborative Work. HFS shall work collaboratively with the DHS PMP on the development of the System, as described above.

3.2 Accounting. HFS shall provide guidance regarding procedures DHS should use to track quality, optimal utilization and cost avoidance to Medicaid claims as needed under this Agreement, relative to the impact of enhanced clinical oversight of opioid prescribing activities.

3.3 Outcome Evaluations. HFS and DHS PMP shall prepare outcome evaluations for budget proposals, peer-reviewed publications, as required by CDC grant, P.A. 99-0480, rule, regulation, or upon request of the Illinois Governor or Illinois General Assembly.

3.4 Pilot Identity Resolution Project. As part of System development, HFS shall collaborate with the DHS PMP on a pilot project addressing identity resolution in PMP. HFS shall support as permitted by applicable regulations, and subject to available resources, the development of an identity resolution solution applicable to the larger PMP data warehouse.

3.5 Formal Tests. As part of System development, HFS shall assist in the development of formal, routine data tests which confirm Medicaid administrative data and PMP data accuracy and validity, regarding use of data matching as an element of assessing drug-seeking or receiving prescriptions from multiple prescribers and dispensers.

ARTICLE IV
DUTIES AND OBLIGATIONS OF BOTH PARTIES

4.1 Project Governance. Both Parties shall meet at least quarterly to review the project, set goals, and assign responsibilities.

ARTICLE V
TERM

5.1 Term. This Agreement shall commence upon full execution by the Parties, and, unless otherwise terminated by the Parties, shall continue through August 31, 2019.

ARTICLE VI
TERMINATION

6.1 Termination on Notice. This Agreement may be terminated by either Party for any or no reason upon thirty (30) days prior written notice to the other Party.

6.2 Termination for Breach. If either Party breaches this Agreement, the non-breaching Party may terminate the Agreement with a ten (10) day, written notice.

ARTICLE VII
MISCELLANEOUS

7.1 Renewal. This Agreement may be renewed for additional periods by mutual consent of the Parties, expressed in writing and signed by the Parties.

7.2 Amendments. This Agreement may be modified or amended at any time during its term by mutual consent of the Parties, expressed in writing and signed by the Parties.

7.3 Applicable Law and Severability. This Agreement shall be governed in all respects by the laws of the State of Illinois. If any provision of this Agreement shall be held or deemed to be or shall in fact be inoperative or unenforceable as applied in any particular case in any

jurisdiction or jurisdictions or in all cases because it conflicts with any other provision or provisions hereof or any constitution, statute, ordinance, rule of law or public policy, or for any reason, such circumstance shall not have the effect of rendering any other provision or provisions contained herein invalid, inoperative or unenforceable to any extent whatsoever. The invalidity of any one or more phrases, sentences, clauses, or sections contained in this Agreement shall not affect the remaining portions of this Agreement or any part thereof. In the event that this Agreement is determined to be invalid by a court of competent jurisdiction, it shall be terminated immediately.

7.4 Records Retention. In accordance with the Illinois Records Act the Parties shall retain adequate books, records and supporting documents to comply with 89 Ill. Adm. Code 509 for a minimum of six (6) years from the later of the final payment date or the expiration of this Agreement. If an audit, litigation or other action involving the records occurs, the records shall be retained for five years after all issues arising out of the action are resolved.

7.5 No Personal Liability. No member, official, director, employee or agent of either Party shall be individually or personally liable in connection with this Agreement.

7.6 Assignment; Binding Effect. This Agreement, or any portion thereof, shall not be assigned by either of the Parties without the prior written consent of the other Party. This Agreement shall inure to the benefit of and shall be binding upon the Parties and their respective successors and permitted assignees.

7.7 Precedence. If there is a conflict between this Agreement and any of the attachments hereto, this Agreement shall control. If there is a conflict between this Agreement and relevant statute(s) or Administrative Rule(s), the statute(s) or rule(s) shall control.

7.8 Entire Agreement. This Agreement constitutes the entire agreement between the Parties; no promises, terms, or conditions not recited, incorporated or referenced herein, including prior agreements or oral discussions, shall be binding upon either Party.

7.9 Notices. All written notices, requests and communications may be made by written mail or by electronic mail to the addresses set forth below.

To DHS:

James T. Dimas
Secretary-Designate
Illinois Department of Human Services
100 South Grand Avenue East, 3rd Floor
Springfield, IL 62762
James.Dimas@Illinois.gov

To HFS:

Felicia F. Norwood
Director

Illinois Department of Healthcare and Family Services
201 South Grand Avenue East
Springfield, IL 62762
Felicia.Norwood@Illinios.gov

7.10 Headings. Section and other headings contained in this Agreement are for reference purposes only and are not intended to describe, interpret, define or limit the scope, extent or intent of this Agreement or any provision hereof.

7.11 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be considered to be one and the same agreement, binding on all Parties hereto, notwithstanding that all Parties are not signatories to the same counterpart. Duplicated signatures, signatures transmitted via facsimile, or signatures contained in a Portable Document Format (PDF) document shall be deemed original for all purposes.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives.

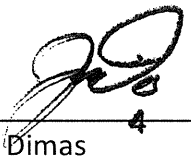
ILLINOIS DEPARTMENT OF HEALTHCARE AND FAMILY SERVICES	**ILLINOIS DEPARTMENT OF HUMAN SERVICES**
Felicia F. Norwood	James T. Dimas
Director	Secretary-Designate
Designee Signature	Designee Signature
Printed Designee Name	Printed Designee Name
Designee Title	Designee Title
4-22-16	
Date	Date

Illinois Department of Healthcare and Family Services
201 South Grand Avenue East
Springfield, IL 62762
Felicia.Norwood@Illinios.gov

7.10 Headings. Section and other headings contained in this Agreement are for reference purposes only and are not intended to describe, interpret, define or limit the scope, extent or intent of this Agreement or any provision hereof.

7.11 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be considered to be one and the same agreement, binding on all Parties hereto, notwithstanding that all Parties are not signatories to the same counterpart. Duplicated signatures, signatures transmitted via facsimile, or signatures contained in a Portable Document Format (PDF) document shall be deemed original for all purposes.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives.

ILLINOIS DEPARTMENT OF HEALTHCARE AND FAMILY SERVICES	**ILLINOIS DEPARTMENT OF HUMAN SERVICES**
	
Felicia F. Norwood	James T. Dimas
Director	Secretary-Designate
	LAStouffe
Designee Signature	Designee Signature
	Lori A. Stouffe
Printed Designee Name	Printed Designee Name
	Executive Assistant
Designee Title	Designee Title
	3/31/16
Date	Date

Appendix H

INTERAGENCY AGREEMENT
BETWEEN
THE DEPARTMENT OF PUBLIC HEALTH
AND
THE DEPARTMENT OF HUMAN SERVICES
2016-198-IGA-OCAPS

The Illinois Department of Public Health (DPH) and the Illinois Department of Human Services (DHS), pursuant to the Intergovernmental Cooperation Act, 5 ILCS 220/1 *et seq.*, hereby enter into this Interagency Agreement (Agreement) in connection with the Centers for Disease Control and Prevention (CDC) grant CDC-RFA-CE15-1501 which was awarded to DHS's Prescription Monitoring Program (PMP). DPH and DHS are collectively referred to herein as "Parties" or individually as a "Party." To fulfill the terms of this Agreement the Parties agree to the following:

ARTICLE I
INTRODUCTION

1.1 Background. DPH has named DHS as its Bona Fide agent for the purpose of carrying out activities approved in the CDC-RFA-CD15-1501 "Prescription Drug Overdose Prevention for States" through August 31, 2019. DHS, as the bona fide agent of DPH, will advance and evaluate comprehensive interventions for preventing prescription drug overuse, misuse, abuse and overdose. DHS will address the prescription drug and heroin abuse epidemic by implementing strategies related to enhancing and maximizing the PMP and by focusing on implementing community or insurer/health system interventions in high-burden communities.

DHS houses the Illinois PMP which collects information on controlled substances prescriptions dispensed in Illinois. The PMP monitors all controlled substances and retail prescriptions dispensed in Illinois. The PMP is also authorized to create a medical website to allow prescribers and dispensers the ability to review a patient's medication history. The PMP's duties have recently been expanded to include duties and responsibilities related to the current heroin and opioid crisis.

DPH collects data regarding hospital discharges and inpatient and outpatient surgery performed at hospitals and ambulatory surgical centers in Illinois and vital records death data. DPH is authorized to enlist the cooperation of entities for the promotion and improvement of health in the State. 20 ILCS 2310/2310-50.

DHS and DPH are focused on enhancing and maximizing the use of public health and PMP data. The Parties desire to establish and improve the flow of medical information to

health providers. The Parties wish to link the DPH and PMP data and conduct trend analysis to heroin and opioid hot spots. Data-related activities, including, but not limited to, collection, sharing and evaluation of data, are central to accomplishing the goals of the partnership and improve the flow of data between the Parties.

1.2 Purpose. DHS, as the bona fide agent of DPH, will be responsible for conducting certain activities as specified in its CDC PMP grant award. DPH will provide a DHS framework for providing DHS access to DPH data sources. This document, inter alia, specifies details regarding funding, financial reporting, data sharing, multi-variate analysis, and other PMP related activities.

ARTICLE II
DUTIES AND OBLIGATIONS OF THE DPH

2.1 DPH Data Reports. DPH will provide DHS PMP with aggregate DPH data reports from hospital discharge data and vital records death data as outlined in Appendix I, *CDC Prescription Drug Overdose Prevention for States, Required Morbidity and Mortality Indicators with guidance on ICD code, March 2016,* as may be amended from time to time by the CDC, for activities related to the purpose of this Agreement. The DPH data reports will provided to DHS through a secure email or SFTP transfer. DPH will share statistical summary data with DHS PMP on a monthly, quarterly and annual basis.

2.2 Specialized Registry. DPH will collaborate with DHS in the registration and maintenance of the PMP as a "Specialized Registry" as defined by the federal Office of the National Coordinator for Health Information Technology (ONC).

2.3 Information Campaign. DPH will collaborate with DHS on the development and implementation of an opioid and heroin overdose information campaign.

ARTICLE III
DUTIES AND OBLIGATIONS OF THE DHS PMP

3.1. DHS PMP Program Activities. As described in the DHS PMP proposal (Appendix II, DHS, through its PMP will:

A. Enhance and Maximize the Illinois PMP by:
   i. Establishing universal PMP prescriber and dispenser access registration by automating individual prescriber or dispense registration via the Illinois Department of Financial and Professional Regulation (IDFPR);
   ii. Disseminating access information directly to prescribers and dispensers;

iii. Increasing the ease of use and access to the PMP by creating automated connections utilizing hospital electronic health records (EHR) systems and health information exchanges;
iv. Improving and expanding unsolicited reporting to the prescribers and dispensers when patients exceed prescribing or substance thresholds; and
v. Using county, community and zip code level PMP data to conduct public health surveillance and publicly disseminating analyses on a quarterly basis.

B. Implement Community or Insurer/Health System Interventions by:
i. Identifying and providing technical assistance to high-burden communities by disseminating problematic prescribing trends, building capacity of the high-burdened Illinois counties of the federally designated Mississippi Delta Region;
ii. Providing additional diagnostic tools to local health departments;
iii. Implementing opioid prescribing interventions by creating opioid prescribing guidelines;
iv. Identifying outlier opioid prescribers;
v. Developing and implementing a coordinated care program;
vi. Creating guidelines for non-opioid therapies;
vii. Providing treatment centers with PMP and DPH aggregate report data; and
viii. Assisting the Illinois Department of Healthcare and Family Services (HFS) with the restriction program for Medicaid.

C. Register and maintain the PMP as a Specialized Registry as defined by the federal Office of the National Coordinator for Health Information Technology (ONC).

D. Coordinate and collaborate with DPH in the development and implementation of an opioid and heroin overdose information campaign.

3.2. Data Analysis. In order to support the activities of this Agreement, DHS PMP will conduct analysis of DPH data. Any DPH data shared under this Agreement shall be used for the purposes of this Agreement only and shall not be used for any independent research purpose.

3.3 PMP Data Access. In order to enhance DPH's public health activities and DPH's ability to support the PMP as a Specialized Registry, DHS PMP will grant DPH access to the PMP or provide DPH with aggregate reports as needed by DPH to support DPH public health analysis and targeted prevention activities. DHS PMP will share statistical summary data with DPH on a monthly, quarterly and annual basis.

3.5 Final Report. DHS PMP will provide a final report to CDC and DPH documenting the work carried out under the CDC PDMP grant. The final report shall be submitted at the end of the term of this Agreement, and shall summarize work in progress

and work completed. DHS will also provide DPH with copies of any interim reports DHS PMP submits to the CDC.

3.6. Confidentiality. DHS acknowledges the confidential nature of the DPH data and shall conform to the requirements of applicable state and federal statutes regarding the confidentiality of information and data obtained from DPH regarding persons receiving services from the programs covered under this Agreement. DHS PMP shall transport, access and store any DPH data accessed, obtained or used in accordance with this Agreement in a manner consistent with DPH information security policies and procedures. DHS PMP shall destroy any DPH data that is removed from the DPH premises or control upon request by DPH.

DHS PMP agrees that DPH data that identified or which may lead to the identification of a physician, other person or reporting facility is strictly privileged and confidential. DHS PMP agrees to keep all such data strictly confidential at all times. DHS PMP will report DPH data in such a way as to maintain the confidentiality of individual records. DHS PMP will not report the DPH data in a way that will enable identification of individual patients or individual facilities. Therefore, DHS PMP agrees not to publish, disseminate, or otherwise release any information acquired or produced pursuant to this Agreement with cell size less than 10 and/or numerator less than 10, due to the statistically high probability patient identification. DHS PMP further agrees not to publish, disseminate, or otherwise release any raw DPH data provided pursuant to this Agreement. All obligations regarding confidentiality survive the termination of this Agreement. Information DHS PMP obtains independently of the DPH data is not bound by this provision.

ARTICLE IV
MUTUAL DUTIES AND OBLIGATIONS

4.1 Confidentiality. The Parties shall conform to the requirements of applicable state and federal statutes and regulations regarding the confidentiality of information and data accessed and used under this Agreement.

4.3. Mutual Cooperation. The Parties will collaborate, cooperate and otherwise share information on an ongoing basis throughout the term of this Agreement to ensure ~~the~~ that all federal reporting requirements are met.

ARTICLE V
EXPENDITURE OF FUNDS

5.1 Expenditures. DHS will financially support DPH's data gathering and sharing activities at a maximum four year total of $433,264 contingent upon DHS's budget approval by the CDC. Funds are payable to DPH as follows:

(a) Upon execution of this Agreement, DHS will authorize an initial disbursement to DPH in the amount of $89,566 to DPH Division of Patient Safety and Quality (DSPQ).
(b) In FY17, DHS will authorize the disbursement of $114,566 on or about September 1, 2016 with $89,556 allocated to DPH DSPQ and $25,000 to the DPH Office of Health Promotion (OHPm).
(c) In FY18, DHS will authorize the disbursement of $114,566 on or about September 1, 2017 with $89,556 allocated to DPH DSPQ and $25,000 to DPH OHPm.
(d) In FY19, DHS will authorize the disbursement of $114, 566 on or about September 1, 2018 with $89,556 allocated to DPH DSPQ and $25,000 to DPH OHPm.

5.2 Reporting. DPH will provide quarterly expenditure and activity reports to DHS PMP. If quarterly reports are more than 30 days late, DHS PMP may delay payment until the reports are submitted.

ARTICLE VI
TERM AND TERMINATION

6.1. Term. This agreement shall be effective upon execution, and unless otherwise terminated by the Parties, shall continue through August 31, 2019. In no event will the total term of this Agreement, including the initial terms and any renewal terms and any extensions exceed ten years.

6.2. Termination on Notice. This Agreement may be terminated by either Party for any or no reason upon thirty (30) days' prior written notice to the other Party.

6.3. Termination for Breach. In the event either Party breaches this Agreement and fails to cure such breach within ten (10) days' written notice thereof from the non-breaching Party, the non-breaching Party may terminate this Agreement upon written notice to the breaching Party.

ARTICLE VII
MISCELLANEOUS

7.1 Renewal. This Agreement may be renewed for a total of seven years by mutual consent of the Parties, expressed in writing and signed by the Parties. Renewals may be in the any of the following manners: (i) one renewal covering the entire renewal allowance; (ii) individual one-year renewals up to and including the entire renewal allowance; or (iii) any combination of full or partial year renewals up to and including the entire renewal allowance.

Any renewal is subject to the same terms and conditions as the original Agreement unless otherwise amended by the Parties. The Agreement shall not renew automatically or renew solely at the option of either Party.

7.2 Amendments. This Agreement may be modified or amended at any time during its term by mutual consent of the Parties, expressed in writing and signed by the Parties.

7.3 Applicable Law and Severability. This Agreement shall be governed in all respects by the laws of the State of Illinois. If any provision of this Agreement shall be held or deemed to be or shall in fact be inoperative or unenforceable as applied in any particular case in any jurisdiction or jurisdictions or in all cases because it conflicts with any other provision or provisions hereof or any constitution, statute, ordinance, rule of law or public policy, or for any reason, such circumstance shall not have the effect of rendering any other provision or provisions contained herein invalid, inoperative or unenforceable to any extent whatsoever. The invalidity of any one or more phrases, sentences, clauses, or sections contained in this Agreement shall not affect the remaining portions of this Agreement or any part thereof. In the event that this Agreement is determined to be invalid by a court of competent jurisdiction, it shall be terminated immediately.

7.4 Records Retention. The Parties shall maintain for a minimum of five (5) years from the expiration of this Agreement, adequate books, records and supporting documents. If an audit, litigation or other action involving the records is begun before the end of the five-year period, the records shall be retained until all issues arising out of the action are resolved.

7.5 No Personal Liability. No member, official, director, employee or agent of DPH or DHS shall be individually or personally liable in connection with this Agreement.

7.6 Assignment; Binding Effect. This Agreement, or any portion thereof, shall not be assigned by any of the Parties without the prior written consent of the other Parties. This Agreement shall inure to the benefit of and shall be binding upon the Parties and their respective successors and permitted assigns.

7.7 Precedence. In the event there is a conflict between this Agreement and any of the exhibits hereto, this Agreement shall control. In the event there is a conflict between this Agreement and relevant statute(s) or Administrative Rule(s), the relevant statute(s) or rule(s) shall control.

7.8 Entire Agreement. This Agreement constitutes the entire agreement between the Parties; no promises, terms, or conditions not recited, incorporated or referenced herein, including prior agreements or oral discussions, shall be binding upon either Party.

7.9 Notices. All written notices, requests and communications may be made by electronic mail to the e-mail addresses set forth below.

7.10 Availability of Appropriations. The Parties' respective obligations hereunder shall cease immediately, without penalty, if: (a) the Illinois General Assembly fails to make an appropriation sufficient to pay such obligations; (b) adequate funds are not appropriated or granted to the respective Parties by the Illinois General Assembly to allow the respective Parties to fulfill their obligations under this Agreement; or (c) funds appropriated are de-appropriated or not allocated.

7.11 Headings. Section and other headings contained in this Agreement are for reference purposes only and are not intended to describe, interpret, define or limit the scope, extent or intent of this Agreement or any provision hereof.

7.12 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be considered to be one and the same agreement, binding on all Parties hereto, notwithstanding that all Parties are not signatories to the same counterpart. Further, duplicated signatures, signatures transmitted via facsimile, or signatures contained in a Portable Document Format (PDF) document shall be deemed original for all purposes.

DPH: Dejan Jovanov
Discharge Data Manager /System Architect
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DHS: James T. Dimas
Secretary
Illinois Department
of Human Services
Harris – 3rd Floor
Springfield, IL.
217-557-1602

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives.

ILLINOIS DEPARTMENT OF HUMAN SERVICES

James T. Dimas by [signature]

James T. Dimas
Secretary

Date: 8-1-16

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

[signature]

Nirav D. Shah, M.D., J.D.
Director

Date: July 9, 2016

Appendix I

Discussion of DHFS, PMP, DPH, DASA Data Elements

(CDC Grant & PA99-0480 Activities)

HFS Medical Director:

1. Based upon patients selected from the PMP data warehouse, HFS Fraud unit to report by patient those individuals who have been restricted to assigned prescribers and dispensers.
2. For those individuals who have been restricted, estimate of cost avoidance associated with said restriction.
3. By month, the number of patients reviewed by OIG staff and the number for which action was taken.

HFS Data for PMP Peer-Review Functions:

1. Collaboratively, to analyze those Medicaid beneficiaries who have been treated for drug overdose any site.
2. Collaboratively, to analyze those cases where there was a death of a Medicaid beneficiary secondary to drug toxicity as reported to DPH Vital Statistics Section.
3. Relative to the above, pull patient specific information from the PMP to evaluate historic use of medication and to review prescribing and dispensing trends of the those professional entities that provided care to the individual. Additionally, data elements that will be required from HFS includes, but is not limited to the following:
   a. All office visits with corresponding ICD 9/10 codes,
   b. Any lab orders,
   c. All pharmacy service coverages,
   d. Any site or Emergency Department visits with matching ICD 9/10 codes,
4. Patient data to be trended with similar patients to attempt to identify geographic variances or similarities. Results are to be jointly evaluated by the HFS Medical Director and the PMP Clinical Director. Findings may be used to develop focused training interventions with corresponding CME activities. The HFS Medical Director may also use the data in accordance with HFS authority to review participation in HFS programs
5. For all patients identified by the PMP who are on a daily opioid dosage of 50 MME or higher and receive Medicaid benefits, a one year pharmacotherapy claims history from HFS to determine if non-opioid therapies had been undertaken prior to initiation of opioid therapy. Additionally, on those patients receiving a daily dosage of 50 MME or greater, had they been referred for physical therapy in addition to non-opioid pharmacotherapy.
6. Of those Medicaid beneficiaries, receiving opioid therapies for lower back pain what percentage are receiving long acting medication.
7. Of those Medicaid beneficiaries receiving opioid therapies for lower back pain, which ones are receiving muscle relaxants along with the opioid therapy and a benzodiazepine for anxiety?
8. On those patients receiving either a benzodiazepine and an opioid or a muscle relaxant, patient information relative to use of emergency departments or hospitalizations secondary to drug intoxication. Additionally, the information on all prescribers.
9. Percentage of beneficiaries receiving opioid therapy at or higher than 90 MME per day.

DASA Portions of Both CDC Grant and HB # 1 Interactions with the PMP:

a. DASA will supervise the Drug Overdose Response Policy (similar to HB #1)
b. DASA will advise local governments involved in public safety to train in the administration of opioid antidotes and to advise on control, acquirement, storage, transportation and administration of antidotes by first responders.
c. Collaboratively, DASA will work with DPH/PMP/IDFPR in the development of continuing education for pharmacist dispensing of Naloxone under standardized procedures. (Already completed: currently there are 1761 trained pharmacists.)
d. DASA will collaborate with the PMP in assisting in the encouragement of its Community substance abuse treatment centers to integrate their EHRs seamlessly into the PMP (for clinicians to check difficult patient's histories in less than a second.)
e. DASA to work with the PMP in supplying information on first responder's utilization of Naloxone in opioid recovery by geographic area. This data will be used to develop hot-spot reports of high-burden communities.
f. DASA to provide the PMP with schedules for all community training activities planned within specific geographic regions. This allows for cuts of data for said region both prior to the training and post training to evaluate for any perceived alteration in utilization.

DPH Data Needs for PMP CDC Grant and PMP Peer-Review Committee Activities:

a. Develop a Declaration of Medical Study between IDPH & DHS PMP for Peer-Review patient specific data.
b. DPH surveillance data within Public Health Regions, to be used as a guide for program activities.
c. Collaboratively, disseminate regional data analysis to the public on a quarterly basis.
d. Collaboratively, identify and provide technical assistance to high-burden communities relative to epidemiologic studies reflecting trended problematic prescribing and adverse public health trends.
e. Based upon the trended analysis of Public Health Discharge Diagnosis Data, EMT reporting Data, Coroner's reports, and Public Health Vital Statistical Data develop opioid prescribing guidelines and educational guidelines around treating both acute and chronic pain.
f. Collectively, work with the HFS Medical Director, the DASA Clinical Director, the DPH Senior Medical Advisor, and the PMP Clinical Director or their designees to implement a coordinated care program for patients on chronic care opioid therapy. Jointly to evaluate the effectiveness of opioid therapy, non-opioid therapy, and access to substance abuse interventions.
g. Collaboratively, focus on enhancing and maximizing the use of public health and prescription data with respect to increasing drug abuse prevention and management of opioid overdoses and deaths.
h. Data related activities, including, but not limited to collection, sharing and evaluation of data, are essential in improving the application of data by the agencies in understanding and addressing the opioid epidemic.

i. Collectively, analyze non-violent deaths attributed to drug overdoses with the patient specific PMP profile to evaluate for historic use of medications and to review prescribing and dispensing trends of those professional entities that provided care to the individual.
j. Jointly reviewing data on individuals seen in emergency departments, prompt-care type facilities, or who were admitted to hospitals for treatment of suspected drug overdoses. As part of this review, identify those individuals who received Medicaid benefits for their care and to work with HFS in pulling their profiles for review.
k. As part of the review process, concentrate on, but not limited to, individuals 18 years of age or younger, adverse pregnancy outcomes, combination therapies, use of long acting opioids as opposed to immediate acting products.

PMP DATA Relative to CDC Grant & Compliance with PA 99-0480 Functions

PMP Reports to CDC:

1. All Drug Overdose Deaths by year.
2. Drug Overdose Deaths Involving Opioids.
3. Drug Overdose Deaths Involving Natural and Semi-Synthetic Opioids.
4. Drug Overdose Deaths Involving Synthetic Opioids Other than Methadone.
5. Drug Overdose Deaths Involving Methadone.
6. Drug Overdose Deaths Involving Heroin.
7. All drug overdose emergency department visits
8. Emergency department visits involving opioid analgesic overdose
9. Emergency department visits involving heroin overdose.
10. All drug overdose hospitalizations.
11. Hospitalizations involving opioid analgesic overdose.
12. Hospitalizations involving heroin overdose.
13. Percentage of prescribers registered with the PMP.
14. Percentage of dispensers registered with the PMP.
15. PMP consulting requirements: Prescribers/dispensers not required to use.
16. Rate of unsolicited reports every 6 months.
17. PMP links to EHRs.
18. Number and rate of opioid analgesics per 100 state residents.
19. Percentage of patients receiving more than an average daily dose of >90 MME across all opioid analgesics.
20. Rate of multiple provider episodes for prescription opioids.
21. Among opioid-naïve patients (no opioid analgesics in 60 days), percent of patients prescribed long-acting/extended-release opioids.
22. Percentage of patients prescribed days overlap between opioid analgesics.
23. Percentage of patients prescribed opioid days that overlap with benzodiazepine prescriptions.
24. Percent of patients prescribed opioid days that overlap with muscle relaxants.

PMP Peer-Review Functions:

1. All overdose deaths involving opioids. Sorted within Public Health Region and type of payer, with 12 months' worth of patient specific data.
2. Within Public Health Region trend prescribers and dispensers associated with patients identified as overdose deaths secondary to opioid toxicity.
3. All drug overdose emergency department visits. Sorted within Public Health Region and type of payer, with 12 months' worth of patient specific data.
4. Within Public Health Region, trend prescribers and dispensers associated with patients identified as being treated in an emergency department for drug overdose.
5. All hospitalizations involving opioid overdose. Sorted within Public Health Region and type of payer, with 12 months' worth of patient specific data.
6. Within Public Health Region, trend prescribers and dispensers associated with patients identified as being admitted for opioid overdose.
7. Rate of unsolicited reports every 6 months relative to Peer-Review evaluations within Public Health Region, type of prescriber, dispenser.
8. Percentage of patients receiving more than an average daily dose of > 90 MME across all opioid analgesics. Sorted within Public Health Region and type of payer, with 12 months' worth of patient specific data.
9. Within Public Health Region, trend prescribers and dispensers associated with patients identified as receiving more than an average daily dose of >90 MME across all opioid analgesics.
10. Rate of multiple provider episodes for prescriptions of opioids. Sorted within Public Health Region, type of prescriber, type of payer, with 12 months' worth of patient specific data.
11. For all mid-level prescribers identified as having provided opioids to a patient identified has qualifying for unsolicited reports, is there a completed collaborative practice agreement or collaborative practice supervision document within the PMP as set forth within 77 Illinois Administrative Code Part 3100, 77 Illinois Administrative Code Section 2080.240, and as established within 720 ILCS 570 / Section 303.5,
12. Within Public Health Region, identify patients considered opioid-naïve (no opioid analgesics in 60 days), within this group, identify the percent of patients prescribed long-acting/extend-release opioids. Sorted by type of prescriber, type of payer, with 12 months' worth of patient specific data.
13. Within Public Health Region, identify those patients who were prescribed $\geq$ 3 days overlap between opioid analgesics. Sorted by type of prescriber, type of payer, with 12 months' worth of patient specific data.
14. Within Public Health Region, identify those patients who were prescribed opioid therapies that overlapped with benzodiazepine prescriptions. Sorted by type of prescriber, type of payer, with 12 months' worth of patient specific data.
15. Within Public Health Region, identify those patients who were prescribed opioid therapies that overlapped with prescriptions for muscle relaxants.

PMP Peer-Review Annual Report to Legislature:

1. Number of unsolicited reports sent to prescribers and dispensers.
2. Number of prescribers and dispensers referred to the Illinois Department of Financial and Professional Regulations.
3. Annual Total of Controlled Substance Prescriptions Dispensed.
4. Percentage of Controlled Substance Prescriptions for Opioid Prescriptions.
5. Summary of interventions taken based upon Peer-Review process.

Appendix J

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	363607.5	3941	92.26275057	230	257	52	1
Nurse Practitioner	APN	17850	155	115.1612903	6	7	1	1
Physician's Assistant	PA	560	5	112	1	1	1	1
Nurse Practitioner	APN	1400	14	100	2	2	1	1
Physician's Assistant	PA	12702.5	137	92.7189781	13	14	1	1
Physician's Assistant	PA	4030	46	87.60869565	3	3	1	1
Anesthesiology / Pain Management	MD and DO	522319	6885	75.86332607	196	261	33	1
Nurse Practitioner	APN	95535	1248	76.55048077	39	46	1	1
Nurse Practitioner	APN	3000	40	75	3	4	1	1
Nurse Practitioner	APN	3150	43	73.25581395	3	3	1	1
Dentistry	DDS	200	3	66.66666667	1	1	1	1
Anesthesiology / Pain Management	MD and DO	634249.5	7894	80.34576894	206	264	25	1
Psychiatry	#N/A	76793	620	123.8596774	24	24	2	1
Palliative Care / Hospice	MD and DO	27985	341	82.06744868	25	37	20	1
Pain Medicine	MD and DO	597131.5	7352	81.2202802	215	257	20	1
Dentistry	DDS	3865	55	70.27272727	3	5	2	1
Physician's Assistant	PA	22800	270	84.44444444	22	23	3	1
Family Medicine	#N/A	23922.5	349	68.54584527	18	19	4	1
Family Medicine	MD and DO	164762.5	2464	66.86789773	69	89	15	1
Family Medicine	MD and DO	31324.8	439	71.35489749	28	35	14	1
Nurse Practitioner	APN	152195	2325	65.46021505	61	79	5	1
Nurse Practitioner	APN	24847	383	64.87467363	28	31	6	1
Anesthesiology / Pain Management	APN	126105	1525	82.69180328	55	71	10	1
Internal Medicine	MD and DO	118268	1571	75.281986	58	71	11	1
Nurse Practitioner	APN	600	5	120	1	1	0	1
Family Medicine	MD and DO	81983	999	82.06506507	43	54	9	1
Dentistry	DDS	100	1	100	1	1	0	1
Podiatric Surgeon	DPM	1140	13	87.69230769	2	2	0	1
Podiatric Surgeon	DPM	3300	39	84.61538462	6	6	0	1
Dentistry	DDS	75	1	75	1	1	0	1
Veterinary Medicine	VET	2250	30	75	1	2	0	1
Dentistry	DDS	72	1	72	1	1	0	1
Anesthesiology / Pain Management	MD and DO	24639	245	100.5673469	14	21	7	1
Anesthesiology / Pain Management	MD and DO	180032	2801	64.27418779	80	95	7	1
Physician's Assistant	PA	6480	97	66.80412371	5	7	0	1
Orthopedic Surgery	MD and DO	11250	129	87.20930233	27	27	5	1
Family Medicine	MD and DO	64302.5	872	73.74139908	37	38	5	1
Psychiatry	MD and DO	43200	250	172.8	9	9	4	1
Family Medicine	MD and DO	44025	471	93.47133758	24	31	4	1
Family Medicine	MD and DO	45930	547	83.96709324	17	21	4	1
Internal Medicine	MD and DO	29200	367	79.5640327	16	21	4	1
Family Medicine	MD and DO	98672.5	1398	70.58118741	66	73	4	1
Family Medicine	MD and DO	45045	647	69.62132921	27	33	4	1
Family Medicine	MD and DO	21542.5	324	66.48919753	15	18	4	1
Internal Medicine	MD and DO	12642	81	156.0740741	8	12	3	1
Family Medicine	MD and DO	31215	309	101.0194175	17	22	3	1
Palliative Care / Hospice	MD and DO	6570	66	99.54545455	6	7	3	1
Oncology / Internal Medicine	MD and DO	21370	269	79.44237918	11	15	3	1
Orthopedic Surgery	MD and DO	32410	494	65.60728745	44	49	3	1
Neurological Surgery	MD and DO	5000	77	64.93506494	10	12	3	1
Psychiatry	MD and DO	32300	186	173.655914	9	9	2	1
Pain Medicine/Family Medicine	MD and DO	112835	697	161.8866571	17	24	2	1
Psychiatry	MD and DO	14520	93	156.1290323	4	4	2	1
Hematology	MD and DO	38995	282	138.2801418	13	15	2	1
Internal Medicine	MD and DO	1800	19	94.73684211	3	3	2	1
Oncology	MD and DO	29560	335	88.23880597	17	22	2	1
Family Medicine	MD and DO	63675	736	86.51494565	25	29	2	1
Orthopedic Surgery	MD and DO	29447.5	344	85.60319767	28	37	2	1
Rehab Medicine / Addictionology	MD and DO	81995	986	83.15922921	37	38	2	1
Oncology/Internal Medicine	MD and DO	23270	307	75.7980456	15	17	2	1
Internal Medicine	MD and DO	6030	37	162.972973	2	3	1	1
Oncology	MD and DO	16590	109	152.2018349	6	8	1	1
Family Medicine	MD and DO	171700	1315	130.5703422	51	54	1	1
Oncology/Hematology	MD and DO	25005	248	100.8266129	8	13	1	1
Oncology/Hematology	MD and DO	24624	259	95.07335907	9	12	1	1
General Surgery	MD and DO	3650	46	79.34782609	8	9	1	1
Family Medicine	MD and DO	44075	620	71.08870968	24	25	1	1
Psychiatry	MD and DO	8800	128	68.75	5	6	1	1
Gastroenterology	MD and DO	5495	81	67.83950617	6	6	1	1
Gastroenterology	MD and DO	8760	132	66.36363636	4	5	1	1
Internal Medicine	MD and DO	300	2	150	1	1	0	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Ophthalmology	MD and DO	300	2	150	1	1	0	1
Occupational Medicine / Urgent Care	MD and DO	135	1	135	1	1	0	1
Internal Medicine	MD and DO	21012.5	161	130.5124224	7	9	0	1
Oncology / Hematology	MD and DO	3600	30	120	1	1	0	1
Family Medicine	MD and DO	9045	80	113.0625	3	4	0	1
Internal Medicine / Geriatrics	MD and DO	3240	30	108	2	3	0	1
Family Medicine	MD and DO	9600	90	106.6666667	1	3	0	1
Psychiatry / Family Medicine	MD and DO	10600	104	101.9230769	3	5	0	1
Family Medicine	MD and DO	1120	11	101.8181818	3	5	0	1
Plastic Surgeon	MD and DO	500	5	100	1	1	0	1
Oncology / Hematology	MD and DO	10250	103	99.51456311	2	5	0	1
Internal Medicine / Geriatrics	MD and DO	12555	130	96.57692308	6	6	0	1
Oncology / Hematology	MD and DO	15785	165	95.66666667	12	12	0	1
Emergency Medicine	MD and DO	600	7	85.71428571	3	3	0	1
Psychiatry & Addiction Medicine	MD and DO	9770	118	82.79661017	5	7	0	1
Colon & Rectal Surgery	MD and DO	3125	41	76.2195122	8	8	0	1
Internal & Geriatric Medicine	MD and DO	11400	150	76	3	3	0	1
Internal Medicine	MD and DO	10335	137	75.4379562	15	16	0	1
Neurology	MD and DO	10650	149	71.47651007	5	6	0	1
General Surgery	MD and DO	4451.2	63	70.65396825	3	5	0	1
Cardiology & Internal Medicine	MD and DO	700	10	70	2	2	0	1
Family Medicine	MD and DO	280	4	70	2	2	0	1
Orthopedic Surgery	MD and DO	5245	79	66.39240506	16	16	0	1
Family Medicine	MD and DO	16950	258	65.69767442	9	11	0	1
Obstetrics / Gynecology	MD and DO	525	8	65.625	3	3	0	1
Orthopedic Surgery	MD and DO	525	8	65.625	2	2	0	1
Oncology /Hematology	MD and DO	7660	119	64.3697479	5	6	0	1
Orthopedic Surgery	MD and DO	2380	37	64.32432432	6	6	0	1
Orthopedic Surgery	MD and DO	6940	108	64.25925926	18	19	0	1
Internal Medicine	MD and DO	138927.5	3648	38.08319627	124	130	24	2
Family Medicine	MD and DO	124312.5	3275	37.95801527	102	123	23	2
Family Medicine	MD and DO	101376	2209	45.89225894	89	98	20	2
Rheumatology	MD and DO	110506	2405	45.94844075	90	97	19	2
Family Medicine	MD and DO	44773	1097	40.81403829	72	80	16	2
Family Medicine	MD and DO	87560	1914	45.74712644	80	95	16	2
Family Medicine	MD and DO	81512	1532	53.20626632	82	91	14	2
Family Medicine	MD and DO	61579.5	1515	40.64653465	76	88	13	2
Internal Medicine	MD and DO	50124	1008	49.72619048	42	47	10	2
Family Medicine	MD and DO	36010	716	50.29329609	31	33	9	2
Family Medicine	MD and DO	29942.5	533	56.17729831	21	22	9	2
Family Medicine	MD and DO	94099.5	1613	58.33818971	48	59	8	2
Family Medicine	MD and DO	14370	508	28.28740157	27	32	7	2
Family Medicine	MD and DO	22050	947	23.28405491	46	48	7	2
Family Medicine	MD and DO	24907	478	52.10669456	31	33	7	2
Internal / Geriatric Medicine	MD and DO	33765	1675	20.15820896	63	66	6	2
Family Medicine	MD and DO	10595	737	14.37584803	31	32	6	2
Dentistry	DDS	425	14	30.35714286	4	4	1	2
Oncology / Internal Medicine	MD and DO	63740	450	141.6444444	20	26	6	2
Dentistry	DDS	240	6	40	4	4	1	2
Podiatric Surgeon	DPM	805	26	30.96153846	10	11	1	2
Pulmonology / Internal Medicine	MD and DO	34860	980	35.57142857	37	40	5	2
Dentistry	DDS	72	5	14.4	1	1	1	2
Institutional	Institution	6300	144	43.75	7	7	2	2
Dentistry	DDS	300	8	37.5	3	3	2	2
Internal Medicine	MD and DO	90289.5	1554	58.10135135	50	54	4	2
Internal Medicine	MD and DO	13677.5	379	36.0883905	21	25	4	2
Family Medicine	MD and DO	44444	957	46.44096134	43	45	4	2
Family Medicine	MD and DO	33340	776	42.96391753	34	38	4	2
Podiatry / Podiatric Surgery	DPM	1015	47	21.59574468	5	5	0	2
Dentistry	DDS	80	4	20	1	1	0	2
Dentistry	DDS	90	3	30	1	1	0	2
Internal Medicine	MD and DO	14170	480	29.52083333	17	18	3	2
Obstetrics / Gynecology	MD and DO	1650	86	19.18604651	9	9	3	2
Family Medicine	MD and DO	8700	220	39.54545455	11	13	3	2
Internal / Geriatric Medicine	MD and DO	14190	578	24.55017301	32	36	3	2
Dentistry	DDS	390	12	32.5	3	3	0	2
Dentistry	DDS	190	10	19	2	2	0	2
Podiatric Surgeon	DPM	1800	56	32.14285714	5	6	0	2
Dentistry	DDS	1290	38	33.94736842	7	8	0	2
Dentistry	DDS	60	2	30	1	1	0	2
Podiatric Surgeon	DPM	150	3	50	1	1	0	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Dentistry	DDS	690	15	46	5	5	0	2
Family / Ambulatory Medicine	MD and DO	3675	179	20.53072626	11	11	2	2
Family / Geriatric Medicine	MD and DO	15300	179	85.47486034	6	7	2	2
Colon & Rectal Surgery	MD and DO	3117.5	135	23.09259259	15	16	2	2
Internal Medicine	MD and DO	16825	330	50.98484848	11	14	2	2
Family Medicine	MD and DO	3600	110	32.72727273	4	4	2	2
Emergency Medicine	MD and DO	1096.4	60	18.27333333	17	17	2	2
Family Medicine	MD and DO	5100	505	10.0990099	13	16	2	2
Obstetrics / Gynecology	MD and DO	1017.5	37	27.5	8	8	2	2
Ophthalmology	MD and DO	15	1	15	1	1	1	2
Family Medicine	MD and DO	1275	79	16.13924051	5	5	1	2
Anesthesiology / Pain Management	MD and DO	920	33	27.87878788	3	3	1	2
Psychiatric Medicine	MD and DO	75	2	37.5	1	1	1	2
Family Medicine	MD and DO	1500	20	75	2	2	1	2
Emergency Medicine	MD and DO	40	1	40	1	1	1	2
Pain Management / Physical & Rehabilitation Me	MD and DO	3225	185	17.43243243	7	7	1	2
Neurology	MD and DO	2040	135	15.11111111	5	5	1	2
Urology	MD and DO	225	6	37.5	3	3	1	2
Family Medicine	MD and DO	2005	148	13.5472973	8	8	1	2
Oncology / Hematology	MD and DO	4200	37	113.5135135	1	2	1	2
Nephrology / Internal Medicine	MD and DO	5100	170	30	7	7	1	2
Family Medicine	MD and DO	10512	333	31.56756757	14	15	1	2
Neurology	MD and DO	3000	54	55.55555556	3	3	1	2
Thoracic / General Surgery	MD and DO	2312.5	78	29.6474359	19	23	1	2
Neurology	MD and DO	3345	180	18.58333333	6	6	1	2
Family / GeriatricMedicine	MD and DO	10271	397	25.87153652	24	26	1	2
Internal Medicine	MD and DO	7550	132	57.1969697	8	9	0	2
Allergy / Pediatric Pulmonology	MD and DO	150	7	21.42857143	1	1	0	2
Orthopedic Surgery	MD and DO	1100	39	28.20512821	5	5	0	2
Emergency Medicine	MD and DO	350	12	29.16666667	3	3	0	2
Urology	MD and DO	4200	116	36.20689655	23	23	0	2
Gastroenterology / Internal Medicine	MD and DO	440	30	14.66666667	2	2	0	2
Family Medicine	MD and DO	2700	183	14.75409836	9	10	0	2
Cardiology	MD and DO	325	27	12.03703704	2	2	0	2
Otolaryngology	MD and DO	544.5	25	21.78	5	6	0	2
General Surgery	MD and DO	1350	50	27	10	10	0	2
Family Medicine	MD and DO	5375	203	26.47783251	9	9	0	2
Obstetrics / Gynecology	MD and DO	1745	96	18.17708333	11	12	0	2
Gastroenterology	MD and DO	540	30	18	1	1	0	2
General Surgery	MD and DO	150	7	21.42857143	1	1	0	2
Orthopedic Surgery	MD and DO	6100	248	24.59677419	14	16	0	2
Emergency Medicine	MD and DO	1035	30	34.5	6	6	0	2
Obstetrics / Gynecology	MD and DO	430	15	28.66666667	2	2	0	2
Family Medicine	MD and DO	2470	29	85.17241379	4	6	0	2
Pediatrics	MD and DO	59	4	14.75	1	1	0	2
Obstetrics / Gynecology	MD and DO	45	3	15	1	1	0	2
Internal Medicine	MD and DO	4050	60	67.5	1	2	0	2
Emergency Medicine	MD and DO	875	42	20.83333333	5	6	0	2
Gastroenterology	MD and DO	300	30	10	1	1	0	2
Family Medicine	MD and DO	2385	42	56.78571429	2	3	0	2
Internal Medicine	MD and DO	1150	64	17.96875	3	3	0	2
Emergency Medicine	MD and DO	595	17	35	6	6	0	2
Family Medicine	MD and DO	1847.5	46	40.16304348	15	15	0	2
Pediatrics	MD and DO	300	15	20	1	1	0	2
Internal Medicine	MD and DO	405	30	13.5	1	1	0	2
Otolaryngology	MD and DO	180	6	30	1	1	0	2
Emergency Medicine	MD and DO	225	6	37.5	3	3	0	2
Obstetrics / Gynecology	MD and DO	1539	60	25.65	6	6	0	2
Internal / Geriatric Medicine	MD and DO	187426.5	3452	54.29504635	160	186	30	3
Internal Medicine	MD and DO	134412.5	2153	62.43032977	95	109	25	3
Internal Medicine	MD and DO	89362	2423	36.88072637	97	102	17	3
Family Medicine	MD and DO	75815	1449	52.32229124	66	75	16	3
Internal Medicine	MD and DO	82890	1395	59.41935484	45	51	13	3
Family Medicine	MD and DO	35650	730	48.83561644	51	58	13	3
Family Medicine	MD and DO	25850	693	37.3015873	39	42	11	3
Neurology	MD and DO	55325	1248	44.33092949	46	48	10	3
Family Medicine	MD and DO	39837.5	1319	30.20280516	47	50	10	3
Family Medicine	MD and DO	20152.5	968	20.81869835	37	38	10	3
Family Medicine	MD and DO	74878	1284	58.31619938	38	44	10	3
Family Medicine	MD and DO	11005	446	24.67488789	18	18	9	3
Internal Medicine	MD and DO	30346.5	945	32.11269841	53	56	9	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	68758	978	70.30470348	39	45	7	3
Family Medicine	MD and DO	69992	1761	39.74559909	67	72	6	3
Family Medicine	MD and DO	28474.5	973	29.26464543	37	41	6	3
Family Medicine	MD and DO	12225	592	20.65033784	18	19	5	3
Internal Medicine	MD and DO	12525	860	14.56395349	26	27	5	3
Family Medicine	MD and DO	6285	388	16.19845361	16	17	5	3
Family Medicine	MD and DO	18695	655	28.54198473	30	30	5	3
Internal Medicine	MD and DO	27695	648	42.73919753	43	49	5	3
Anesthesiology / Pain Management	MD and DO	95509	1652	57.81416465	51	58	4	3
Family Medicine	MD and DO	46493	778	59.7596401	30	33	4	3
Obstetrics / Gynecology	MD and DO	11184	845	13.23550296	42	44	4	3
Internal Medicine	MD and DO	31827	871	36.54075775	37	37	4	3
Oncology / Hematology	MD and DO	71085	583	121.9296741	24	29	4	3
Family Medicine	MD and DO	914	44	20.77272727	14	14	3	3
Oncology / Hematology	MD and DO	4269	83	51.43373494	5	5	3	3
Dentistry	DDS	492	20	24.6	7	9	1	3
Dentistry	DDS	270	8	33.75	3	3	1	3
Dentistry	DDS	114	6	19	2	2	1	3
Veterinarian	VET	630	28	22.5	4	4	1	3
Dentistry	DDS	517.5	17	30.44117647	8	8	1	3
Dentistry	DDS	3037.5	78	38.94230769	24	24	1	3
Internal Medicine	MD and DO	4455	238	18.71848739	9	9	2	3
Family Medicine	MD and DO	6177	448	13.78794643	15	15	2	3
Internal Medicine	MD and DO	19310	559	34.54382826	20	21	2	3
Internal Medicine	MD and DO	44645	1117	39.96866607	39	39	2	3
Internal Medicine	MD and DO	25205	955	26.39267016	28	30	2	3
Family Medicine	MD and DO	13914	265	52.50566038	10	10	2	3
Family Medicine	MD and DO	8000	394	20.30456853	15	16	2	3
Dentistry	DDS	6499	197	32.98984772	32	35	10	3
Dentistry	DDS	135	6	22.5	1	2	0	3
Dentistry	DDS	90	3	30	1	1	0	3
Dentistry	DDS	480	12	40	3	4	0	3
Dentistry	DDS	90	3	30	1	1	0	3
Podiatry	DPM	600	30	20	1	1	0	3
Dentistry	DDS	110	5	22	2	2	0	3
Dentistry	DDS	52.5	2	26.25	1	1	0	3
Podiatry	DPM	135	2	67.5	1	1	0	3
Dentistry	DDS	225	8	28.125	2	2	0	3
Dentistry	DDS	72	2	36	1	1	0	3
Dentistry	DDS	456	17	26.82352941	8	8	0	3
Dentistry	DDS	80	3	26.66666667	1	1	0	3
Dentistry	DDS	90	2	45	1	1	0	3
Dentistry	DDS	410	13	31.53846154	5	5	0	3
Dentistry	DDS	100	3	33.33333333	2	2	0	3
Dentistry	DDS	510	23	22.17391304	7	7	0	3
Dentistry	DDS	594	24	24.75	9	9	0	3
Dentistry	DDS	45	3	15	1	1	0	3
Dentistry	DDS	300	7	42.85714286	2	2	0	3
Family Medicine	MD and DO	325	19	17.10526316	2	2	1	3
Surgery	MD and DO	1575	35	45	5	5	1	3
Family Medicine	MD and DO	6245	242	25.80578512	10	10	1	3
Dentistry	DDS	126	4	31.5	1	1	0	3
Pulmonology	MD and DO	1800	30	60	1	1	1	3
Family Medicine	MD and DO	34725	1140	30.46052632	35	39	1	3
Dentistry	DDS	27	1	27	1	1	0	3
Dentistry	DDS	100	5	20	1	1	0	3
Dentistry	DDS	108	4	27	2	2	0	3
Hyperbaric Medicine	MD and DO	2625	95	27.63157895	5	6	0	3
General Surgery	MD and DO	500	18	27.77777778	5	5	0	3
Plastic Surgery	MD and DO	285	12	23.75	2	2	0	3
Obstetrics / Gynecology	MD and DO	360	12	30	2	2	0	3
Family Medicine	MD and DO	280	14	20	3	3	0	3
Orthopedic Surgery	MD and DO	1882.5	44	42.78409091	11	12	0	3
Internal Medicine	MD and DO	900	30	30	1	1	0	3
Plastic Surgery	MD and DO	875	23	38.04347826	8	8	0	3
Family Medicine	MD and DO	1927.5	118	16.33474576	5	6	0	3
Otolaryngology	MD and DO	750	21	35.71428571	3	3	0	3
General Surgery	MD and DO	762.5	49	15.56122449	5	5	0	3
Internal Medicine	MD and DO	150	30	5	1	1	0	3
Obstertrics / Gynecology	MD and DO	180	3	60	1	1	0	3
Neurosurgery	MD and DO	300	8	37.5	1	1	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	844.8	40	21.12	6	6	0	3
Otolaryngology	MD and DO	1205	52	23.17307692	7	7	0	3
Otolaryngology	MD and DO	254	10	25.4	2	2	0	3
Otolaryngology	MD and DO	4190	143	29.3006993	19	19	0	3
Gastroenterology	MD and DO	450	30	15	1	1	0	3
Otolaryngology	MD and DO	1918.8	81	23.68888889	15	17	0	3
Obstetrics / Gynecology	MD and DO	225	5	45	1	1	0	3
Urology	MD and DO	750	21	35.71428571	5	5	0	3
Family Medicine	MD and DO	8000	331	24.16918429	15	15	0	3
Family Medicine	MD and DO	5610	187	30	7	7	0	3
Emergency Medicine	MD and DO	270	14	19.28571429	5	5	0	3
Anesthesiology / Pain Management	MD and DO	4000	170	23.52941176	4	4	0	3
Epidemiology	MD and DO	100	6	16.66666667	1	1	0	3
Oncology / Hematology	MD and DO	900	40	22.5	2	2	0	3
Pulmonology	MD and DO	450	30	15	1	1	0	3
Emergency Medicine	MD and DO	450	10	45	4	4	0	3
Family Medicine	MD and DO	337341.5	5295	63.70944287	163	189	40	4
Family Medicine	MD and DO	249810	4062	61.49926145	160	170	38	4
Family Medicine	MD and DO	112755	3163	35.64811887	104	117	35	4
Family Medicine	MD and DO	143755	3223	44.60285448	103	106	33	4
Family Medicine	MD and DO	110885	2255	49.172949	73	77	32	4
Family Medicine	MD and DO	136801.5	2674	51.15987285	96	110	27	4
Internal Medicine	MD and DO	72639	1317	55.15489749	74	87	24	4
Family Medicine	MD and DO	77785	1731	44.93645292	78	90	21	4
Family Medicine	MD and DO	199760	1989	100.4323781	67	79	21	4
Family Medicine	MD and DO	76210	1530	49.81045752	58	65	18	4
Family Medicine	MD and DO	95755	1529	62.62589928	53	62	18	4
Internal Medicine	MD and DO	15837.5	943	16.79480382	27	30	16	4
Family Medicine	MD and DO	57062.5	1291	44.20023238	55	62	16	4
Internal Medicine	MD and DO	73134	1447	50.54181064	58	61	14	4
Family Medicine	MD and DO	76275	1669	45.70101857	63	69	13	4
Family Medicine	MD and DO	57480	1510	38.06622517	55	60	13	4
Family Medicine	MD and DO	32931.5	1077	30.57706592	46	47	10	4
Family Medicine	MD and DO	40605	1815	22.37190083	64	69	10	4
Internal Medicine	MD and DO	21381	938	22.79424307	49	52	9	4
Internal Medicine	MD and DO	114334.5	1067	107.1551078	49	54	8	4
Orthopedic Surgery	MD and DO	17280	544	31.76470588	39	43	8	4
Family Medicine	MD and DO	67240	667	100.8095952	36	46	8	4
Anesthesiology / Pain Management	MD and DO	74445	1773	41.98815567	59	60	8	4
Family Medicine	MD and DO	13998	203	68.95566502	11	12	8	4
Emergency Medicine	MD and DO	36825	736	50.03396739	24	27	7	4
Family Medicine	MD and DO	15705	705	22.27659574	25	25	7	4
Family Medicine	MD and DO	13930	652	21.36503067	20	20	6	4
Internal Medicine	MD and DO	12675	607	20.88138386	26	28	6	4
Family Medicine	MD and DO	32260	942	34.2462845	40	41	5	4
Internal Medicine	MD and DO	34990	947	36.94825766	35	37	5	4
Internal Medicine	MD and DO	10279	473	21.73150106	18	18	4	4
Family Medicine	MD and DO	4955	349	14.19770774	12	13	4	4
Orthopedic Surgery	MD and DO	4760	189	25.18518519	17	17	3	4
Anesthesiology / Pain Management	MD and DO	8925	443	20.14672686	17	17	3	4
Internal Medicine	MD and DO	9332	444	21.01801802	25	25	2	4
Internal Medicine	MD and DO	12120	328	36.95121951	14	15	2	4
Emergency Medicine	MD and DO	3537.5	100	35.375	27	27	2	4
Internal Medicine	MD and DO	2385	125	19.08	5	5	2	4
Family Medicine	MD and DO	1800	83	21.68674699	5	5	2	4
Orthopedic Surgery	MD and DO	2427.5	62	39.15322581	18	20	2	4
General Surgery	MD and DO	19662.5	526	37.38117871	19	20	2	4
General Surgery	MD and DO	1315	46	28.58695652	10	12	1	4
Otolaryngologist	MD and DO	221.4	8	27.675	2	2	1	4
Internal Medicine	MD and DO	252.5	10	25.25	3	3	1	4
Dentistry	DDS	67.5	3	22.5	1	1	0	4
General Surgery	MD and DO	1300	45	28.88888889	7	7	1	4
Dentistry	DDS	320	14	22.85714286	4	4	0	4
Emergency Medicine	MD and DO	625	32	19.53125	8	8	1	4
Internal Medicine	MD and DO	37765	901	41.9145394	32	34	1	4
Family Medicine	MD and DO	250	11	22.72727273	2	2	1	4
Surgery	MD and DO	600	30	20	1	1	1	4
Family Medicine	MD and DO	4164	190	21.91578947	11	11	1	4
Dentistry	DDS	742.5	30	24.75	11	11	0	4
Veterinary Medicine	VET	720	7	102.8571429	1	1	0	4
Veterinary Medicine	VET	900	20	45	1	1	0	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Urology	MD and DO	1340	65	20.61538462	13	13	1	4
Oncology / Hematology	MD and DO	8300.5	89	93.26404494	4	5	1	4
Dentistry	DDS	72	2	36	1	1	0	4
Family Medicine	MD and DO	16827.5	535	31.45327103	28	28	1	4
Dentistry	DDS	100	4	25	1	1	0	4
Family Medicine	MD and DO	8700	295	29.49152542	11	11	1	4
Urology	MD and DO	4875	149	32.71812081	17	19	1	4
Dentistry	DDS	1230	28	43.92857143	5	6	0	4
Dentistry	DDS	40	2	20	1	1	0	4
Dentistry	DDS	117	6	19.5	3	3	0	4
Dentistry	DDS	75	4	18.75	1	1	0	4
Dentistry	DDS	134	5	26.8	2	2	0	4
Dentistry	DDS	135	3	45	1	1	0	4
Dentistry	DDS	171	7	24.42857143	3	3	0	4
Dentistry	DDS	250	11	22.72727273	3	3	0	4
Dentistry	DDS	11691.5	299	39.10200669	64	64	6	4
Dentistry	DDS	1867.5	52	35.91346154	24	25	5	4
Dentistry	DDS	804	40	20.1	10	12	2	4
Dentistry	DDS	847.5	25	33.9	22	22	1	4
Podiatry	DPM	5900	47	125.5319149	5	5	1	4
Dentistry	DDS	521	15	34.73333333	7	7	1	4
Dentistry	DDS	100	5	20	1	1	1	4
Urology	MD and DO	544	21	25.9047619	5	5	0	4
Family Medicine	MD and DO	150	30	5	1	1	0	4
Emergency Medicine	MD and DO	90	2	45	1	1	0	4
General Surgery	MD and DO	772.5	19	40.65789474	7	8	0	4
Internal Medicine	MD and DO	9954	373	26.68632708	15	16	0	4
Family Medicine	MD and DO	540	30	18	1	1	0	4
Family Medicine	MD and DO	100	5	20	1	1	0	4
General Surgery	MD and DO	2275	38	59.86842105	9	9	0	4
Pediatrics	MD and DO	675	30	22.5	1	1	0	4
Internal Medicine	MD and DO	1250	105	11.9047619	7	8	0	4
Otolaryngologist	MD and DO	254.8	8	31.85	3	3	0	4
Occupational Medicine	MD and DO	400	14	28.57142857	2	2	0	4
Neurosurgery	MD and DO	900	12	75	1	1	0	4
Emergency Medicine	MD and DO	730	28	26.07142857	8	8	0	4
Family Medicine	MD and DO	300	30	10	2	2	0	4
Surgery	MD and DO	930	22	42.27272727	5	5	0	4
Emergency Medicine	MD and DO	500	23	21.73913043	6	6	0	4
General Surgery	MD and DO	7252.5	125	58.02	35	40	0	4
Emergency Medicine	MD and DO	621	23	27	7	7	0	4
Neurology	MD and DO	200	10	20	1	1	0	4
Family Medicine	MD and DO	235	7	33.57142857	2	2	0	4
Pediatrics	MD and DO	27	6	4.5	1	1	0	4
Internal Medicine	MD and DO	1370	58	23.62068966	16	16	0	4
Internal Medicine	MD and DO	249477.5	5008	49.81579473	169	193	37	5
Family Medicine	MD and DO	115305	2016	57.19494048	79	86	16	5
Family Medicine	MD and DO	75998	1617	46.99938157	65	69	14	5
Family Medicine	MD and DO	68621.5	1570	43.70796178	60	69	11	5
Internal Medicine	MD and DO	72729	1239	58.69975787	60	66	11	5
Family Medicine	MD and DO	22965	1171	19.61144321	45	51	9	5
Geriatric Medicine	MD and DO	10952.5	311	35.2170418	17	19	5	5
Oncology / Hematology	MD and DO	29782	496	60.04435484	24	38	5	5
Orthopedic Surgery	MD and DO	21021	475	44.25473684	44	45	5	5
Family Medicine	MD and DO	20270	372	54.48924731	19	22	5	5
General Surgery	MD and DO	10980	326	33.6809816	17	19	4	5
Internal Medicine	MD and DO	14009	552	25.37862319	19	20	4	5
Internal Medicine	MD and DO	2775	120	23.125	4	4	2	5
Family Medicine	MD and DO	4280	156	27.43589744	6	7	2	5
Oncology / Internal Medicine	MD and DO	23185	284	81.63732394	12	13	2	5
Internal Medicine	MD and DO	12082.5	616	19.61444805	31	33	2	5
Family Medicine	MD and DO	10947.5	502	21.80776892	20	20	2	5
Family Medicine	MD and DO	5250	260	20.19230769	8	9	2	5
Family Medicine	MD and DO	575	18	31.94444444	5	5	2	5
Plastic Surgery	MD and DO	1975	70	28.21428571	10	10	1	5
General Surgery	MD and DO	1650	46	35.86956522	11	11	1	5
Emergency Medicine	MD and DO	647.5	14	46.25	5	5	1	5
Plastic Surgery / Orthopedic Hand Surgery	MD and DO	600	25	24	3	3	1	5
Plastic Surgery	MD and DO	550	20	27.5	5	5	1	5
Neurology	MD and DO	262.5	11	23.86363636	2	2	1	5
Obstetrics / Gynecology	MD and DO	1735	65	26.69230769	9	9	1	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family / Geriatric Medicine	MD and DO	400	65	6.153846154	3	3	1	5
Otolaryngology	MD and DO	504	48	10.5	5	5	1	5
Laparoendoscopic Surgery	MD and DO	1300	57	22.80701754	10	10	1	5
Orthopedic Surgery	MD and DO	3570	59	60.50847458	8	8	1	5
Neurology	MD and DO	1365	82	16.64634146	5	5	1	5
Family Medicine	MD and DO	5280	133	39.69924812	5	6	1	5
Family Medicine	MD and DO	2035	79	25.75949367	5	5	1	5
Dentistry	DDS	1780	86	20.69767442	10	10	1	5
Dentistry	DDS	108	4	27	1	1	1	5
Dentistry	DDS	2575	65	39.61538462	31	31	1	5
Dentistry	DDS	1245	37	33.64864865	19	19	1	5
Institutional	Institution	11880	327	36.33027523	39	42	4	5
Dentistry	DDS	112.5	3	37.5	1	1	0	5
Dentistry	DDS	90	5	18	1	1	0	5
Veternary Medicine	VET	150	30	5	1	1	0	5
Podiatric Medicine	DPM	1650	43	38.37209302	9	9	0	5
Dentistry	DDS	768	20	38.4	7	8	0	5
Dentistry	DDS	5899.5	118	49.99576271	35	37	0	5
Dentistry	DDS	250	12	20.83333333	3	3	0	5
Dentistry	DDS	3120	100	31.2	19	19	0	5
Dentistry	DDS	81	6	13.5	1	1	0	5
Dentistry	DDS	450	21	21.42857143	4	5	0	5
Dentistry	DDS	112.5	3	37.5	1	1	0	5
Dentistry	DDS	108	4	27	2	2	0	5
Podiatric Medicine	DPM	300	7	42.85714286	1	1	0	5
Podiatric Medicine	DPM	150	10	15	1	1	0	5
Dentistry	DDS	75	2	37.5	1	1	0	5
Veternary Medicine	VET	500	17	29.41176471	1	1	0	5
Dentistry	DDS	200	5	40	1	1	0	5
Dentistry	DDS	90	3	30	1	1	0	5
Dentistry	DDS	1002	39	25.69230769	7	8	0	5
Dentistry	DDS	144	4	36	1	1	0	5
Neurology	MD and DO	1085.5	77	14.0974026	7	7	0	5
Otolaryngologist	MD and DO	950	39	24.35897436	4	4	0	5
Ophthalmology	MD and DO	272	6	45.33333333	2	2	0	5
Emergency Medicine	MD and DO	30	3	10	1	1	0	5
Family Medicine	MD and DO	225	13	17.30769231	4	4	0	5
Emergency Medicine	MD and DO	345	11	31.36363636	5	5	0	5
Family Medicine	MD and DO	350	21	16.66666667	2	2	0	5
Pediatrics	MD and DO	43.2	3	14.4	1	1	0	5
Family Medicine	MD and DO	1450	182	7.967032967	7	7	0	5
Family Medicine	MD and DO	2400	100	24	4	4	0	5
Internal Medicine	MD and DO	1850	86	21.51162791	3	3	0	5
Family Medicine	MD and DO	680	53	12.83018868	6	6	0	5
Family Medicine	MD and DO	1636	86	19.02325581	21	21	0	5
Rheumatology	MD and DO	2595	142	18.27464789	10	10	0	5
Urology	MD and DO	175	7	25	2	2	0	5
Cardiology / Cardiac Surgery	MD and DO	1200	30	40	1	1	0	5
Occupational / Environmental Medicine	MD and DO	800	29	27.5862069	4	4	0	5
Family Medicine	MD and DO	3045	148	20.57432432	8	9	0	5
Cardiac / Thoracic Surgery	MD and DO	600	21	28.57142857	2	3	0	5
Internal Medicine	MD and DO	3600	165	21.81818182	6	6	0	5
Emergency Medicine	MD and DO	60	2	30	1	1	0	5
Family Medicine	MD and DO	7450	224	33.25892857	13	13	0	5
Orthopedic Surgery	MD and DO	4293	102	42.08823529	18	23	0	5
Family Medicine	MD and DO	300	10	30	1	1	0	5
Family Medicine	MD and DO	48600	1210	40.16528926	40	41	0	5
Family Medicine	MD and DO	500	33	15.15151515	1	1	0	5
General Surgery	MD and DO	535	8	66.875	2	2	0	5
Family Medicine	MD and DO	2375	205	11.58536585	6	6	0	5
Pulmonology	MD and DO	750	17	44.11764706	1	1	0	5
Psychiatric Medicine	MD and DO	2100	90	23.33333333	3	3	0	5
Gastroenterology / Internal Medicine	MD and DO	100	6	16.66666667	1	1	0	5
Family Medicine	MD and DO	3150	68	46.32352941	1	3	0	5
Emergency Medicine	MD and DO	225	15	15	2	2	0	5
Internal Medicine	MD and DO	270	30	9	1	1	0	5
Nephrology / Hospic / Palliative Care Medicine	MD and DO	600	30	20	1	1	0	5
Neurology	MD and DO	1260	120	10.5	4	4	0	5
Orthopedic Surgery	MD and DO	875	29	30.17241379	3	3	0	5
Emergency Medicine	MD and DO	470	20	23.5	4	4	0	5
Emergency Medicine	MD and DO	100	5	20	1	1	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Oncology	MD and DO	900	15	60	1	1	0	5
Plastic Surgery	MD and DO	67.5	2	33.75	1	1	0	5
Family Medicine	MD and DO	1425	103	13.83495146	7	7	0	5
Family Medicine	MD and DO	23020	673	34.20505201	41	45	5	6
Family Medicine	MD and DO	33465	1062	31.51129944	45	46	5	6
Nephrology	MD and DO	14277.5	890	16.04213483	30	32	5	6
Obstetrics / Gynecology	MD and DO	11978	194	61.74226804	15	15	5	6
Family Medicine	MD and DO	42055	688	61.12645349	32	34	4	6
General Surgery	MD and DO	325	23	14.13043478	4	4	4	6
Orthopedic Surgery	MD and DO	8151	361	22.57894737	16	16	4	6
Family Medicine	MD and DO	17550	269	65.24163569	10	11	4	6
Family Medicine	MD and DO	14550	380	38.28947368	29	32	3	6
Internal Medicine	MD and DO	1875	85	22.05882353	6	6	2	6
Internal Medicine	MD and DO	26375	449	58.74164811	24	25	2	6
Internal Medicine	MD and DO	6560	270	24.2962963	11	13	2	6
Family Medicine	MD and DO	12874	354	36.36723164	15	15	1	6
Infectious Disease Medicine	MD and DO	4185	75	55.8	5	5	1	6
General Surgery	MD and DO	978	52	18.80769231	9	9	1	6
Internal Medicine	MD and DO	17970	676	26.58284024	22	23	1	6
General Surgery	MD and DO	562.5	21	26.78571429	6	6	1	6
Family Medicine	MD and DO	685	30	22.83333333	4	4	1	6
Internal Medicine	MD and DO	3555	240	14.8125	7	8	1	6
Obstetrics / Gynecology	MD and DO	2250	64	35.15625	3	3	1	6
Family Medicine	MD and DO	4177.5	144	29.01041667	10	10	1	6
Ophthalmology	MD and DO	390	14	27.85714286	3	3	1	6
Family Medicine	MD and DO	662.5	19	34.86842105	3	4	1	6
Orthopedic Surgery	MD and DO	550	25	22	3	3	1	6
Oncology	MD and DO	12800	171	74.85380117	7	9	1	6
Plastic Surgery	MD and DO	1050	31	33.87096774	6	6	1	6
Podiatric Medicine	DPM	315	11	28.63636364	2	2	0	6
Dentistry	DDS	135	8	16.875	2	2	0	6
Dentistry	DDS	381	12	31.75	3	3	0	6
Dentistry	DDS	67.5	15	4.5	1	1	0	6
Dentistry	DDS	72	2	36	1	1	0	6
Dentistry	DDS	285	12	23.75	4	4	0	6
Dentistry	DDS	117	7	16.71428571	1	1	0	6
Dentistry	DDS	45	2	22.5	1	1	0	6
Dentistry	DDS	112	4	28	2	2	0	6
Dentistry	DDS	150	6	25	2	2	0	6
Dentistry	DDS	100	3	33.33333333	1	1	0	6
Dentistry	DDS	270	6	45	2	2	0	6
Dentistry	DDS	90	3	30	1	1	0	6
Dentistry	DDS	264	11	24	2	3	0	6
Dentistry	DDS	810	23	35.2173913	9	9	0	6
Dentistry	DDS	680	20	34	7	7	0	6
Dentistry	DDS	360	14	25.71428571	5	5	0	6
Dentistry	DDS	1120	39	28.71794872	15	15	0	6
Dentistry	DDS	540	8	67.5	3	5	0	6
Dentistry	DDS	75	2	37.5	1	1	0	6
Dentistry	DDS	262	10	26.2	3	3	0	6
Dentistry	DDS	967	19	50.89473684	5	6	0	6
Dentistry	DDS	1265	30	42.16666667	9	9	0	6
Dentistry	DDS	300	10	30	2	2	0	6
Dentistry	DDS	435	10	43.5	2	2	2	6
Dentistry	DDS	960	34	28.23529412	9	10	2	6
Institutional	Institution	8837	163	54.21472393	11	11	1	6
Podiatry	DPM	660	92	7.173913043	4	4	1	6
Family Medicine	MD and DO	5415	161	33.63354037	11	11	0	6
Internal Medicine	MD and DO	90	5	18	1	1	0	6
Dentistry	DDS	535	27	19.81481481	8	8	1	6
Pulmonology	MD and DO	1110	37	30	2	2	0	6
Otolaryngology	MD and DO	180	4	45	1	1	0	6
Internal Medicine	MD and DO	1170	24	48.75	4	4	0	6
Podiatric Medicine	DPM	940	31	30.32258065	5	6	1	6
Family Medicine	MD and DO	1350	70	19.28571429	3	3	0	6
Obstetrics / Gynecology	MD and DO	225	15	15	2	2	0	6
Dentistry	#N/A	3140	96	32.70833333	21	21	1	6
Pediatrics	MD and DO	440	23	19.13043478	7	7	0	6
Dentistry	DDS	517.5	19	27.23684211	6	6	1	6
General Surgery	MD and DO	400	10	40	1	1	0	6
Emergency Medicine	MD and DO	54	3	18	1	1	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	1600	18	88.88888889	2	3	0	6
Internal Medicine	MD and DO	135	15	9	1	1	0	6
Family Medicine	MD and DO	4275	110	38.86363636	6	6	0	6
Pediatrics	MD and DO	63	7	9	1	1	0	6
Orthopedic Surgery	MD and DO	3170	131	24.19847328	8	10	0	6
Obstetrics / Gynecology	MD and DO	240	8	30	2	2	0	6
Internal Medicine	MD and DO	1650	67	24.62686567	3	3	0	6
Ophthalmology	MD and DO	166.5	10	16.65	6	6	0	6
Obstetrics / Gynecology	MD and DO	400	10	40	2	2	0	6
General Surgery	MD and DO	500	17	29.41176471	3	3	0	6
Family Medicine	MD and DO	3952.5	190	20.80263158	9	9	0	6
General Surgery	MD and DO	250	8	31.25	2	2	0	6
Family Medicine	MD and DO	7075	263	26.90114068	13	13	0	6
Gastroenterology	MD and DO	135	3	45	1	1	0	6
Internal Medicine	MD and DO	90	3	30	1	1	0	6
Psychiatry	MD and DO	4800	30	160	1	1	0	6
Urology	MD and DO	100	5	20	1	1	0	6
General Surgery	MD and DO	2940	60	49	2	2	0	6
Family Medicine	MD and DO	495	35	14.14285714	4	4	0	6
Otolaryngology	MD and DO	324	14	23.14285714	1	1	0	6
Internal Medicine	MD and DO	300	15	20	1	1	0	6
Family Medicine	MD and DO	150	15	10	1	1	0	6
Orthopedic Surgery	MD and DO	2350	149	15.77181208	11	11	0	6
Neurosurgery	MD and DO	135	30	4.5	1	1	0	6
Obstetrics / Gynecology	MD and DO	499.5	18	27.75	4	5	0	6
Psychiatry	MD and DO	2400	34	70.58823529	1	1	0	6
Obstetrics / Gynecology	MD and DO	650	11	59.09090909	3	3	0	6
Neurology	MD and DO	3300	120	27.5	2	2	0	6
Family Medicine	MD and DO	240	11	21.81818182	2	2	0	6
Emergency Medicine	MD and DO	135	5	27	1	1	0	6
Orthopedic Surgery	MD and DO	600	9	66.66666667	3	3	0	6
Neurology	MD and DO	420	20	21	2	2	0	6
Addiction Psychiatry	MD and DO	278170	1524	182.5262467	47	58	19	7
Pain Management	MD and DO	197890	1147	172.5283348	38	43	16	7
Emergency Medicine	MD and DO	107104	617	173.5883306	20	26	7	7
Internal Medicine	MD and DO	56055	311	180.2411576	12	15	5	7
Internal Medicine	MD and DO	53911	316	170.6044304	18	18	5	7
Internal Medicine	MD and DO	65025	270	240.8333333	7	10	4	7
Internal Medicine	MD and DO	13540	74	182.972973	4	6	4	7
Internal Medicine	MD and DO	79571	458	173.7358079	25	25	4	7
Internal Medicine	MD and DO	27400	112	244.6428571	8	8	3	7
Internal Medicine	MD and DO	9200	42	219.047619	4	6	3	7
Family Medicine	MD and DO	37760	229	164.8908297	17	30	3	7
Palliative / Hospice Medicine	MD and DO	55830	244	228.8114754	7	9	2	7
Gerontology	MD and DO	37080	180	206	4	6	2	7
Family Medicine / Addiction Rehab	MD and DO	54400	266	204.5112782	11	11	2	7
Internal Medicine	MD and DO	7620	40	190.5	2	3	2	7
Family Medicine	MD and DO	6345	36	176.25	3	5	2	7
Internal Medicine	MD and DO	56535	346	163.3959538	10	12	2	7
Internal Medicine	MD and DO	69740	433	161.0623557	22	27	2	7
Oncology / Hematology	MD and DO	60695	147	412.8911565	6	9	1	7
Pediatric Oncology	MD and DO	51450	145	354.8275862	4	6	1	7
Internal Medicine	MD and DO	10530	35	300.8571429	2	4	1	7
General Surgery	MD and DO	53100	186	285.483871	9	10	1	7
Psychiatry	MD and DO	8100	30	270	1	1	1	7
Internal Medicine	MD and DO	6300	26	242.3076923	1	1	1	7
Psychiatry	MD and DO	14400	60	240	2	2	1	7
Psychiatry	MD and DO	8400	35	240	1	2	1	7
Anesthesiology / Pain Management	MD and DO	32700	140	233.5714286	4	5	1	7
Infectious Disease	MD and DO	39650	189	209.7883598	7	9	1	7
Internal Medicine	MD and DO	32295	170	189.9705882	10	10	1	7
Internal Medicine	MD and DO	19138	106	180.5471698	4	6	1	7
Psychiatry	MD and DO	5400	30	180	1	1	1	7
Oncology / Hematology	MD and DO	10470	62	168.8709677	4	5	1	7
Orthopedic Surgery	MD and DO	33256	199	167.1155779	6	8	1	7
Emergency Medicine	MD and DO	18507	113	163.7787611	5	6	1	7
Nurse Practitioner	APN	10800	60	180	2	2	1	7
Physician's Assistant	PA	2700	15	180	1	1	1	7
Physician's Assistant	PA	690	4	172.5	2	2	1	7
Nurse Practitioner	APN	10800	65	166.1538462	2	3	1	7
Nurse Practitioner	APN	10000	62	161.2903226	2	3	1	7

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Nurse Practitioner	APN	68395	253	270.3359684	7	9	2	7
Nurse Practitioner	APN	12765	74	172.5	2	4	2	7
Nurse Practitioner	APN	45375	230	197.2826087	8	9	3	7
Nurse Practitioner	APN	63730	397	160.5289673	13	16	4	7
Nurse Practitioner	APN	373856	2292	163.113438	62	90	6	7
Oncology / Hematology	MD and DO	39000	58	672.4137931	3	4	0	7
Nurse Practitioner	APN	45600	130	350.7692308	4	5	0	7
Internal Medicine	MD and DO	9470	27	350.7407407	3	4	0	7
Psychiatry	MD and DO	2720	8	340	1	1	0	7
Internal Medicine	MD and DO	53400	160	333.75	6	6	0	7
Oncology / Hematology	MD and DO	2625	9	291.6666667	2	2	0	7
Nephrology	MD and DO	8640	30	288	1	1	0	7
Family Medicine	MD and DO	28335	99	286.2121212	8	9	0	7
Nephrology / Internal Medicine	MD and DO	4050	15	270	1	1	0	7
Internal Medicine	MD and DO	1890	7	270	1	1	0	7
Internal Medicine	MD and DO	22314	83	268.8433735	4	6	0	7
Psychiatry	MD and DO	1600	6	266.6666667	1	1	0	7
Oncology / Hematology	MD and DO	2688	11	244.3636364	1	1	0	7
Oncology / Hematology	MD and DO	29900	124	241.1290323	4	4	0	7
Emergency Medicine	MD and DO	3600	15	240	1	1	0	7
Oncology / Hematology	MD and DO	6000	25	240	1	1	0	7
Oncology / Hematology	MD and DO	7200	30	240	1	1	0	7
Pediatrics	MD and DO	7200	30	240	1	1	0	7
Psychiatry	MD and DO	7200	30	240	1	1	0	7
Nurse Practitioner	APN	7200	30	240	1	1	0	7
Internal Medicine	MD and DO	10132	43	235.627907	3	5	0	7
Internal Medicine	MD and DO	2520	11	229.0909091	2	2	0	7
Internal Medicine	MD and DO	13080	59	221.6949153	1	2	0	7
Internal Medicine	MD and DO	13200	63	209.5238095	2	3	0	7
Gynecologic Oncology	MD and DO	5535	27	205	2	2	0	7
Addiction Psychiatry	MD and DO	6000	30	200	1	1	0	7
Oncology / Hematology	MD and DO	50182	253	198.3478261	9	12	0	7
Family Medicine	MD and DO	23730	120	197.75	3	5	0	7
Infectious Disease	MD and DO	2688	14	192	1	1	0	7
Physician's Assistant	PA	5760	30	192	1	1	0	7
Nurse Practitioner	APN	26850	143	187.7622378	6	7	0	7
Family Medicine	MD and DO	560	3	186.6666667	1	1	0	7
Oncology / Hematology	MD and DO	5580	30	186	1	1	0	7
General Surgery	MD and DO	8212.5	45	182.5	2	4	0	7
Family Medicine	MD and DO	9120	50	182.4	1	2	0	7
Psychiatry	MD and DO	22880	126	181.5873016	4	5	0	7
Family Medicine	MD and DO	80100	445	180	15	15	0	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Anesthesiology / Pain Management	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	2700	15	180	1	1	0	7
Oncology / Hematology	MD and DO	10800	60	180	1	2	0	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	17960	101	177.8217822	4	4	0	7
Addiction / Internal Medicine	MD and DO	25280	145	174.3448276	7	7	0	7
Psychiatry	MD and DO	1040	6	173.3333333	1	1	0	7
Internal Medicine	MD and DO	5540	32	173.125	1	3	0	7
Pediatric Oncology / Hematology	MD and DO	21205	124	171.0080645	7	10	0	7
Internal Medicine	MD and DO	11100	65	170.7692308	2	2	0	7
Family Medicine	MD and DO	45520	267	170.4868914	11	15	0	7
Family Medicine	MD and DO	5445	32	170.15625	2	2	0	7
Diagnostic Radilology	MD and DO	9000	54	166.6666667	3	4	0	7
Urology	MD and DO	6962.5	42	165.7738095	3	3	0	7
Psychiatry	MD and DO	18240	113	161.4159292	3	6	0	7
Psychiatry	MD and DO	3360	21	160	2	2	0	7
Psychiatry	MD and DO	7040	44	160	2	2	0	7
General Practice	MD and DO	800	5	160	1	1	0	7

December Regional Opioid Prescribing Data for Institutions

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Institutional	Institution	6300	144	43.75	7	7	2	2
Institutional	Institution	8837	163	54.21472393	11	11	1	6
Institutional	Institution	11880	327	36.33027523	39	42	4	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Podiatry	DPM	5900	47	125.5319149	5	5	1	4
Podiatric Surgeon	DPM	1140	13	87.69230769	2	2	0	1
Podiatric Surgeon	DPM	3300	39	84.61538462	6	6	0	1
Podiatry	DPM	135	2	67.5	1	1	0	3
Podiatric Surgeon	DPM	150	3	50	1	1	0	2
Podiatric Medicine	DPM	300	7	42.85714286	1	1	0	5
Podiatric Medicine	DPM	1650	43	38.37209302	9	9	0	5
Podiatric Surgeon	DPM	1800	56	32.14285714	5	6	0	2
Podiatric Surgeon	DPM	805	26	30.96153846	10	11	1	2
Podiatric Medicine	DPM	940	31	30.32258065	5	6	1	6
Podiatric Medicine	DPM	315	11	28.63636364	2	2	0	6
Podiatry / Podiatric Surgery	DPM	1015	47	21.59574468	5	5	0	2
Podiatry	DPM	600	30	20	1	1	0	3
Podiatric Medicine	DPM	150	10	15	1	1	0	5
Podiatry	DPM	660	92	7.173913043	4	4	1	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Physician's Assistant	PA	5760	30	192	1	1	0	7
Physician's Assistant	PA	2700	15	180	1	1	1	7
Physician's Assistant	PA	690	4	172.5	2	2	1	7
Physician's Assistant	PA	560	5	112	1	1	1	1
Physician's Assistant	PA	12702.5	137	92.7189781	13	14	1	1
Physician's Assistant	PA	4030	46	87.60869565	3	3	1	1
Physician's Assistant	PA	22800	270	84.44444444	22	23	3	1
Physician's Assistant	PA	6480	97	66.80412371	5	7	0	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Veterinary Medicine	VET	720	7	102.8571429	1	1	0	4
Veterinary Medicine	VET	2250	30	75	1	2	0	1
Veterinary Medicine	VET	900	20	45	1	1	0	4
Veternary Medicine	VET	500	17	29.41176471	1	1	0	5
Veterinarian	VET	630	28	22.5	4	4	1	3
Veternary Medicine	VET	150	30	5	1	1	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Nurse Practitioner	APN	45600	130	350.7692308	4	5	0	7
Nurse Practitioner	APN	68395	253	270.3359684	7	9	2	7
Nurse Practitioner	APN	7200	30	240	1	1	0	7
Nurse Practitioner	APN	45375	230	197.2826087	8	9	3	7
Nurse Practitioner	APN	26850	143	187.7622378	6	7	0	7
Nurse Practitioner	APN	10800	60	180	2	2	1	7
Nurse Practitioner	APN	12765	74	172.5	2	4	2	7
Nurse Practitioner	APN	10800	65	166.1538462	2	3	1	7
Nurse Practitioner	APN	373856	2292	163.113438	62	90	6	7
Nurse Practitioner	APN	10000	62	161.2903226	2	3	1	7
Nurse Practitioner	APN	63730	397	160.5289673	13	16	4	7
Nurse Practitioner	APN	600	5	120	1	1	0	1
Nurse Practitioner	APN	17850	155	115.1612903	6	7	1	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Nurse Practitioner	APN	1400	14	100	2	2	1	1
Anesthesiology / Pain Management	APN	126105	1525	82.69180328	55	71	10	1
Nurse Practitioner	APN	95535	1248	76.55048077	39	46	1	1
Nurse Practitioner	APN	3000	40	75	3	4	1	1
Nurse Practitioner	APN	3150	43	73.25581395	3	3	1	1
Nurse Practitioner	APN	152195	2325	65.46021505	61	79	5	1
Nurse Practitioner	APN	24847	383	64.87467363	28	31	6	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Dentistry	DDS	100	1	100	1	1	0	1
Dentistry	DDS	75	1	75	1	1	0	1
Dentistry	DDS	72	1	72	1	1	0	1
Dentistry	DDS	3865	55	70.27272727	3	5	2	1
Dentistry	DDS	540	8	67.5	3	5	0	6
Dentistry	DDS	200	3	66.66666667	1	1	1	1
Dentistry	DDS	967	19	50.89473684	5	6	0	6
Dentistry	DDS	5899.5	118	49.99576271	35	37	0	5
Dentistry	DDS	690	15	46	5	5	0	2
Dentistry	DDS	90	2	45	1	1	0	3
Dentistry	DDS	135	3	45	1	1	0	4
Dentistry	DDS	270	6	45	2	2	0	6
Dentistry	DDS	1230	28	43.92857143	5	6	0	4
Dentistry	DDS	435	10	43.5	2	2	2	6
Dentistry	DDS	300	7	42.85714286	2	2	0	3
Dentistry	DDS	1265	30	42.16666667	9	9	0	6
Dentistry	DDS	240	6	40	4	4	1	2
Dentistry	DDS	480	12	40	3	4	0	3
Dentistry	DDS	200	5	40	1	1	0	5
Dentistry	DDS	2575	65	39.61538462	31	31	1	5
Dentistry	DDS	11691.5	299	39.10200669	64	64	6	4
Dentistry	DDS	3037.5	78	38.94230769	24	24	1	3
Dentistry	DDS	768	20	38.4	7	8	0	5
Dentistry	DDS	300	8	37.5	3	3	2	2
Dentistry	DDS	112.5	3	37.5	1	1	0	5
Dentistry	DDS	112.5	3	37.5	1	1	0	5
Dentistry	DDS	75	2	37.5	1	1	0	5
Dentistry	DDS	75	2	37.5	1	1	0	6
Dentistry	DDS	72	2	36	1	1	0	3
Dentistry	DDS	72	2	36	1	1	0	4
Dentistry	DDS	144	4	36	1	1	0	5
Dentistry	DDS	72	2	36	1	1	0	6
Dentistry	DDS	1867.5	52	35.91346154	24	25	5	4
Dentistry	DDS	810	23	35.2173913	9	9	0	6
Dentistry	DDS	521	15	34.73333333	7	7	1	4
Dentistry	DDS	680	20	34	7	7	0	6
Dentistry	DDS	1290	38	33.94736842	7	8	0	2
Dentistry	DDS	847.5	25	33.9	22	22	1	4
Dentistry	DDS	270	8	33.75	3	3	1	3
Dentistry	DDS	1245	37	33.64864865	19	19	1	5
Dentistry	DDS	100	3	33.33333333	2	2	0	3
Dentistry	DDS	100	3	33.33333333	1	1	0	6
Dentistry	DDS	6499	197	32.98984772	32	35	10	3
Dentistry	#N/A	3140	96	32.70833333	21	21	1	6
Dentistry	DDS	390	12	32.5	3	3	0	2
Dentistry	DDS	381	12	31.75	3	3	0	6
Dentistry	DDS	410	13	31.53846154	5	5	0	3
Dentistry	DDS	126	4	31.5	1	1	0	3
Dentistry	DDS	3120	100	31.2	19	19	0	5
Dentistry	DDS	517.5	17	30.44117647	8	8	1	3
Dentistry	DDS	425	14	30.35714286	4	4	1	2
Dentistry	DDS	90	3	30	1	1	0	2
Dentistry	DDS	60	2	30	1	1	0	2
Dentistry	DDS	90	3	30	1	1	0	3
Dentistry	DDS	90	3	30	1	1	0	3
Dentistry	DDS	90	3	30	1	1	0	5
Dentistry	DDS	90	3	30	1	1	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Dentistry	DDS	300	10	30	2	2	0	6
Dentistry	DDS	1120	39	28.71794872	15	15	0	6
Dentistry	DDS	960	34	28.23529412	9	10	2	6
Dentistry	DDS	225	8	28.125	2	2	0	3
Dentistry	DDS	112	4	28	2	2	0	6
Dentistry	DDS	517.5	19	27.23684211	6	6	1	6
Dentistry	DDS	27	1	27	1	1	0	3
Dentistry	DDS	108	4	27	2	2	0	3
Dentistry	DDS	108	4	27	1	1	1	5
Dentistry	DDS	108	4	27	2	2	0	5
Dentistry	DDS	456	17	26.82352941	8	8	0	3
Dentistry	DDS	134	5	26.8	2	2	0	4
Dentistry	DDS	80	3	26.66666667	1	1	0	3
Dentistry	DDS	52.5	2	26.25	1	1	0	3
Dentistry	DDS	262	10	26.2	3	3	0	6
Dentistry	DDS	360	14	25.71428571	5	5	0	6
Dentistry	DDS	1002	39	25.69230769	7	8	0	5
Dentistry	DDS	100	4	25	1	1	0	4
Dentistry	DDS	150	6	25	2	2	0	6
Dentistry	DDS	594	24	24.75	9	9	0	3
Dentistry	DDS	742.5	30	24.75	11	11	0	4
Dentistry	DDS	492	20	24.6	7	9	1	3
Dentistry	DDS	171	7	24.42857143	3	3	0	4
Dentistry	DDS	264	11	24	2	3	0	6
Dentistry	DDS	285	12	23.75	4	4	0	6
Dentistry	DDS	320	14	22.85714286	4	4	0	4
Dentistry	DDS	250	11	22.72727273	3	3	0	4
Dentistry	DDS	135	6	22.5	1	2	0	3
Dentistry	DDS	67.5	3	22.5	1	1	0	4
Dentistry	DDS	45	2	22.5	1	1	0	6
Dentistry	DDS	510	23	22.17391304	7	7	0	3
Dentistry	DDS	110	5	22	2	2	0	3
Dentistry	DDS	450	21	21.42857143	4	5	0	5
Dentistry	DDS	250	12	20.83333333	3	3	0	5
Dentistry	DDS	1780	86	20.69767442	10	10	1	5
Dentistry	DDS	804	40	20.1	10	12	2	4
Dentistry	DDS	80	4	20	1	1	0	2
Dentistry	DDS	100	5	20	1	1	0	3
Dentistry	DDS	40	2	20	1	1	0	4
Dentistry	DDS	100	5	20	1	1	1	4
Dentistry	DDS	535	27	19.81481481	8	8	1	6
Dentistry	DDS	117	6	19.5	3	3	0	4
Dentistry	DDS	190	10	19	2	2	0	2
Dentistry	DDS	114	6	19	2	2	1	3
Dentistry	DDS	75	4	18.75	1	1	0	4
Dentistry	DDS	90	5	18	1	1	0	5
Dentistry	DDS	135	8	16.875	2	2	0	6
Dentistry	DDS	117	7	16.71428571	1	1	0	6
Dentistry	DDS	45	3	15	1	1	0	3
Dentistry	DDS	72	5	14.4	1	1	1	2
Dentistry	DDS	81	6	13.5	1	1	0	5
Dentistry	DDS	67.5	15	4.5	1	1	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Oncology / Hematology	MD and DO	39000	58	672.4137931	3	4	0	7
Oncology / Hematology	MD and DO	60695	147	412.8911565	6	9	1	7
Pediatric Oncology	MD and DO	51450	145	354.8275862	4	6	1	7
Internal Medicine	MD and DO	9470	27	350.7407407	3	4	0	7
Psychiatry	MD and DO	2720	8	340	1	1	0	7
Internal Medicine	MD and DO	53400	160	333.75	6	6	0	7
Internal Medicine	MD and DO	10530	35	300.8571429	2	4	1	7
Oncology / Hematology	MD and DO	2625	9	291.6666667	2	2	0	7
Nephrology	MD and DO	8640	30	288	1	1	0	7
Family Medicine	MD and DO	28335	99	286.2121212	8	9	0	7
General Surgery	MD and DO	53100	186	285.483871	9	10	1	7
Psychiatry	MD and DO	8100	30	270	1	1	1	7

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Nephrology / Internal Medicine	MD and DO	4050	15	270	1	1	0	7
Internal Medicine	MD and DO	1890	7	270	1	1	0	7
Internal Medicine	MD and DO	22314	83	268.8433735	4	6	0	7
Psychiatry	MD and DO	1600	6	266.6666667	1	1	0	7
Internal Medicine	MD and DO	27400	112	244.6428571	8	8	3	7
Oncology / Hematology	MD and DO	2688	11	244.3636364	1	1	0	7
Internal Medicine	MD and DO	6300	26	242.3076923	1	1	1	7
Oncology / Hematology	MD and DO	29900	124	241.1290323	4	4	0	7
Internal Medicine	MD and DO	65025	270	240.8333333	7	10	4	7
Psychiatry	MD and DO	14400	60	240	2	2	1	7
Psychiatry	MD and DO	8400	35	240	1	2	1	7
Emergency Medicine	MD and DO	3600	15	240	1	1	0	7
Oncology / Hematology	MD and DO	6000	25	240	1	1	0	7
Oncology / Hematology	MD and DO	7200	30	240	1	1	0	7
Pediatrics	MD and DO	7200	30	240	1	1	0	7
Psychiatry	MD and DO	7200	30	240	1	1	0	7
Internal Medicine	MD and DO	10132	43	235.627907	3	5	0	7
Anesthesiology / Pain Management	MD and DO	32700	140	233.5714286	4	5	1	7
Internal Medicine	MD and DO	2520	11	229.0909091	2	2	0	7
Palliative / Hospice Medicine	MD and DO	55830	244	228.8114754	7	9	2	7
Internal Medicine	MD and DO	13080	59	221.6949153	1	2	0	7
Internal Medicine	MD and DO	9200	42	219.047619	4	6	3	7
Infectious Disease	MD and DO	39650	189	209.7883598	7	9	1	7
Internal Medicine	MD and DO	13200	63	209.5238095	2	3	0	7
Gerontology	MD and DO	37080	180	206	4	6	2	7
Gynecologic Oncology	MD and DO	5535	27	205	2	2	0	7
Family Medicine / Addiction Rehab	MD and DO	54400	266	204.5112782	11	11	2	7
Addiction Psychiatry	MD and DO	6000	30	200	1	1	0	7
Oncology / Hematology	MD and DO	50182	253	198.3478261	9	12	0	7
Family Medicine	MD and DO	23730	120	197.75	3	5	0	7
Infectious Disease	MD and DO	2688	14	192	1	1	0	7
Internal Medicine	MD and DO	7620	40	190.5	2	3	2	7
Internal Medicine	MD and DO	32295	170	189.9705882	10	10	1	7
Family Medicine	MD and DO	560	3	186.6666667	1	1	0	7
Oncology / Hematology	MD and DO	5580	30	186	1	1	0	7
Internal Medicine	MD and DO	13540	74	182.972973	4	6	4	7
Addiction Psychiatry	MD and DO	278170	1524	182.5262467	47	58	19	7
General Surgery	MD and DO	8212.5	45	182.5	2	4	0	7
Family Medicine	MD and DO	9120	50	182.4	1	2	0	7
Psychiatry	MD and DO	22880	126	181.5873016	4	5	0	7
Internal Medicine	MD and DO	19138	106	180.5471698	4	6	1	7
Internal Medicine	MD and DO	56055	311	180.2411576	12	15	5	7
Psychiatry	MD and DO	5400	30	180	1	1	1	7
Family Medicine	MD and DO	80100	445	180	15	15	0	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Anesthesiology / Pain Management	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	2700	15	180	1	1	0	7
Oncology / Hematology	MD and DO	10800	60	180	1	2	0	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	17960	101	177.8217822	4	4	0	7
Family Medicine	MD and DO	6345	36	176.25	3	5	2	7
Addiction / Internal Medicine	MD and DO	25280	145	174.3448276	7	7	0	7
Internal Medicine	MD and DO	79571	458	173.7358079	25	25	4	7
Psychiatry	MD and DO	32300	186	173.655914	9	9	2	1
Emergency Medicine	MD and DO	107104	617	173.5883306	20	26	7	7
Psychiatry	MD and DO	1040	6	173.3333333	1	1	0	7
Internal Medicine	MD and DO	5540	32	173.125	1	3	0	7
Psychiatry	MD and DO	43200	250	172.8	9	9	4	1
Pain Management	MD and DO	197890	1147	172.5283348	38	43	16	7
Pediatric Oncology / Hematology	MD and DO	21205	124	171.0080645	7	10	0	7
Internal Medicine	MD and DO	11100	65	170.7692308	2	2	0	7
Internal Medicine	MD and DO	53911	316	170.6044304	18	18	5	7
Family Medicine	MD and DO	45520	267	170.4868914	11	15	0	7
Family Medicine	MD and DO	5445	32	170.15625	2	2	0	7
Oncology / Hematology	MD and DO	10470	62	168.8709677	4	5	1	7
Orthopedic Surgery	MD and DO	33256	199	167.1155779	6	8	1	7
Diagnostic Radilology	MD and DO	9000	54	166.6666667	3	4	0	7
Urology	MD and DO	6962.5	42	165.7738095	3	3	0	7
Family Medicine	MD and DO	37760	229	164.8908297	17	30	3	7
Emergency Medicine	MD and DO	18507	113	163.7787611	5	6	1	7
Internal Medicine	MD and DO	56535	346	163.3959538	10	12	2	7

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	6030	37	162.972973	2	3	1	1
Pain Medicine/Family Medicine	MD and DO	112835	697	161.8866571	17	24	2	1
Psychiatry	MD and DO	18240	113	161.4159292	3	6	0	7
Internal Medicine	MD and DO	69740	433	161.0623557	22	27	2	7
Psychiatry	MD and DO	4800	30	160	1	1	0	6
Psychiatry	MD and DO	3360	21	160	2	2	0	7
Psychiatry	MD and DO	7040	44	160	2	2	0	7
General Practice	MD and DO	800	5	160	1	1	0	7
Psychiatry	MD and DO	14520	93	156.1290323	4	4	2	1
Internal Medicine	MD and DO	12642	81	156.0740741	8	12	3	1
Oncology	MD and DO	16590	109	152.2018349	6	8	1	1
Internal Medicine	MD and DO	300	2	150	1	1	0	1
Ophthalmology	MD and DO	300	2	150	1	1	0	1
Oncology / Internal Medicine	MD and DO	63740	450	141.6444444	20	26	6	2
Hematology	MD and DO	38995	282	138.2801418	13	15	2	1
Occupational Medicine / Urgent Care	MD and DO	135	1	135	1	1	0	1
Family Medicine	MD and DO	171700	1315	130.5703422	51	54	1	1
Internal Medicine	MD and DO	21012.5	161	130.5124224	7	9	0	1
Oncology / Hematology	MD and DO	71085	583	121.9296741	24	29	4	3
Oncology / Hematology	MD and DO	3600	30	120	1	1	0	1
Oncology / Hematology	MD and DO	4200	37	113.5135135	1	2	1	2
Family Medicine	MD and DO	9045	80	113.0625	3	4	0	1
Internal Medicine / Geriatrics	MD and DO	3240	30	108	2	3	0	1
Internal Medicine	MD and DO	114334.5	1067	107.1551078	49	54	8	4
Family Medicine	MD and DO	9600	90	106.6666667	1	3	0	1
Psychiatry / Family Medicine	MD and DO	10600	104	101.9230769	3	5	0	1
Family Medicine	MD and DO	1120	11	101.8181818	3	5	0	1
Family Medicine	MD and DO	31215	309	101.0194175	17	22	3	1
Oncology/Hematology	MD and DO	25005	248	100.8266129	8	13	1	1
Family Medicine	MD and DO	67240	667	100.8095952	36	46	8	4
Anesthesiology / Pain Management	MD and DO	24639	245	100.5673469	14	21	7	1
Family Medicine	MD and DO	199760	1989	100.4323781	67	79	21	4
Plastic Surgeon	MD and DO	500	5	100	1	1	0	1
Palliative Care / Hospice	MD and DO	6570	66	99.54545455	6	7	3	1
Oncology / Hematology	MD and DO	10250	103	99.51456311	2	5	0	1
Internal Medicine / Geriatrics	MD and DO	12555	130	96.57692308	6	6	0	1
Oncology / Hematology	MD and DO	15785	165	95.66666667	12	12	0	1
Oncology/Hematology	MD and DO	24624	259	95.07335907	9	12	1	1
Internal Medicine	MD and DO	1800	19	94.73684211	3	3	2	1
Family Medicine	MD and DO	44025	471	93.47133758	24	31	4	1
Oncology / Hematology	MD and DO	8300.5	89	93.26404494	4	5	1	4
Family Medicine	MD and DO	363607.5	3941	92.26275057	230	257	52	1
Internal Medicine	MD and DO	1600	18	88.88888889	2	3	0	6
Oncology	MD and DO	29560	335	88.23880597	17	22	2	1
Orthopedic Surgery	MD and DO	11250	129	87.20930233	27	27	5	1
Family Medicine	MD and DO	63675	736	86.51494565	25	29	2	1
Emergency Medicine	MD and DO	600	7	85.71428571	3	3	0	1
Orthopedic Surgery	MD and DO	29447.5	344	85.60319767	28	37	2	1
Family / Geriatric Medicine	MD and DO	15300	179	85.47486034	6	7	2	2
Family Medicine	MD and DO	2470	29	85.17241379	4	6	0	2
Family Medicine	MD and DO	45930	547	83.96709324	17	21	4	1
Rehab Medicine / Addictionology	MD and DO	81995	986	83.15922921	37	38	2	1
Psychiatry & Addiction Medicine	MD and DO	9770	118	82.79661017	5	7	0	1
Palliative Care / Hospice	MD and DO	27985	341	82.06744868	25	37	20	1
Family Medicine	MD and DO	81983	999	82.06506507	43	54	9	1
Oncology / Internal Medicine	MD and DO	23185	284	81.63732394	12	13	2	5
Pain Medicine	MD and DO	597131.5	7352	81.2202802	215	257	20	1
Anesthesiology / Pain Management	MD and DO	634249.5	7894	80.34576894	206	264	25	1
Internal Medicine	MD and DO	29200	367	79.5640327	16	21	4	1
Oncology / Internal Medicine	MD and DO	21370	269	79.44237918	11	15	3	1
General Surgery	MD and DO	3650	46	79.34782609	8	9	1	1
Colon & Rectal Surgery	MD and DO	3125	41	76.2195122	8	8	0	1
Internal & Geriatric Medicine	MD and DO	11400	150	76	3	3	0	1
Anesthesiology / Pain Management	MD and DO	522319	6885	75.86332607	196	261	33	1
Oncology/Internal Medicine	MD and DO	23270	307	75.7980456	15	17	2	1
Internal Medicine	MD and DO	10335	137	75.4379562	15	16	0	1
Internal Medicine	MD and DO	118268	1571	75.281986	58	71	11	1
Family Medicine	MD and DO	1500	20	75	2	2	1	2
Neurosurgery	MD and DO	900	12	75	1	1	0	4
Oncology	MD and DO	12800	171	74.85380117	7	9	1	6
Family Medicine	MD and DO	64302.5	872	73.74139908	37	38	5	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Neurology	MD and DO	10650	149	71.47651007	5	6	0	1
Family Medicine	MD and DO	31324.8	439	71.35489749	28	35	14	1
Family Medicine	MD and DO	44075	620	71.08870968	24	25	1	1
General Surgery	MD and DO	4451.2	63	70.65396825	3	5	0	1
Psychiatry	MD and DO	2400	34	70.58823529	1	1	0	6
Family Medicine	MD and DO	98672.5	1398	70.58118741	66	73	4	1
Family Medicine	MD and DO	68758	978	70.30470348	39	45	7	3
Cardiology & Internal Medicine	MD and DO	700	10	70	2	2	0	1
Family Medicine	MD and DO	280	4	70	2	2	0	1
Family Medicine	MD and DO	45045	647	69.62132921	27	33	4	1
Family Medicine	MD and DO	13998	203	68.95566502	11	12	8	4
Psychiatry	MD and DO	8800	128	68.75	5	6	1	1
Gastroenterology	MD and DO	5495	81	67.83950617	6	6	1	1
Internal Medicine	MD and DO	4050	60	67.5	1	2	0	2
General Surgery	MD and DO	535	8	66.875	2	2	0	5
Family Medicine	MD and DO	164762.5	2464	66.86789773	69	89	15	1
Orthopedic Surgery	MD and DO	600	9	66.66666667	3	3	0	6
Family Medicine	MD and DO	21542.5	324	66.48919753	15	18	4	1
Orthopedic Surgery	MD and DO	5245	79	66.39240506	16	16	0	1
Gastroenterology	MD and DO	8760	132	66.36363636	4	5	1	1
Family Medicine	MD and DO	16950	258	65.69767442	9	11	0	1
Obstetrics / Gynecology	MD and DO	525	8	65.625	3	3	0	1
Orthopedic Surgery	MD and DO	525	8	65.625	2	2	0	1
Orthopedic Surgery	MD and DO	32410	494	65.60728745	44	49	3	1
Family Medicine	MD and DO	17550	269	65.24163569	10	11	4	6
Neurological Surgery	MD and DO	5000	77	64.93506494	10	12	3	1
Oncology /Hematology	MD and DO	7660	119	64.3697479	5	6	0	1
Orthopedic Surgery	MD and DO	2380	37	64.32432432	6	6	0	1
Anesthesiology / Pain Management	MD and DO	180032	2801	64.27418779	80	95	7	1
Orthopedic Surgery	MD and DO	6940	108	64.25925926	18	19	0	1
Family Medicine	MD and DO	337341.5	5295	63.70944287	163	189	40	4
Family Medicine	MD and DO	95755	1529	62.62589928	53	62	18	4
Internal Medicine	MD and DO	134412.5	2153	62.43032977	95	109	25	3
Obstetrics / Gynecology	MD and DO	11978	194	61.74226804	15	15	5	6
Family Medicine	MD and DO	249810	4062	61.49926145	160	170	38	4
Family Medicine	MD and DO	42055	688	61.12645349	32	34	4	6
Orthopedic Surgery	MD and DO	3570	59	60.50847458	8	8	1	5
Oncology / Hematology	MD and DO	29782	496	60.04435484	24	38	5	5
Pulmonology	MD and DO	1800	30	60	1	1	1	3
Obstertrics / Gynecology	MD and DO	180	3	60	1	1	0	3
Oncology	MD and DO	900	15	60	1	1	0	5
General Surgery	MD and DO	2275	38	59.86842105	9	9	0	4
Family Medicine	MD and DO	46493	778	59.7596401	30	33	4	3
Internal Medicine	MD and DO	82890	1395	59.41935484	45	51	13	3
Obstetrics / Gynecology	MD and DO	650	11	59.09090909	3	3	0	6
Internal Medicine	MD and DO	26375	449	58.74164811	24	25	2	6
Internal Medicine	MD and DO	72729	1239	58.69975787	60	66	11	5
Family Medicine	MD and DO	94099.5	1613	58.33818971	48	59	8	2
Family Medicine	MD and DO	74878	1284	58.31619938	38	44	10	3
Internal Medicine	MD and DO	90289.5	1554	58.10135135	50	54	4	2
General Surgery	MD and DO	7252.5	125	58.02	35	40	0	4
Anesthesiology / Pain Management	MD and DO	95509	1652	57.81416465	51	58	4	3
Internal Medicine	MD and DO	7550	132	57.1969697	8	9	0	2
Family Medicine	MD and DO	115305	2016	57.19494048	79	86	16	5
Family Medicine	MD and DO	2385	42	56.78571429	2	3	0	2
Family Medicine	MD and DO	29942.5	533	56.17729831	21	22	9	2
Infectious Disease Medicine	MD and DO	4185	75	55.8	5	5	1	6
Neurology	MD and DO	3000	54	55.55555556	3	3	1	2
Internal Medicine	MD and DO	72639	1317	55.15489749	74	87	24	4
Family Medicine	MD and DO	20270	372	54.48924731	19	22	5	5
Internal / Geriatric Medicine	MD and DO	187426.5	3452	54.29504635	160	186	30	3
Family Medicine	MD and DO	81512	1532	53.20626632	82	91	14	2
Family Medicine	MD and DO	13914	265	52.50566038	10	10	2	3
Family Medicine	MD and DO	75815	1449	52.32229124	66	75	16	3
Family Medicine	MD and DO	24907	478	52.10669456	31	33	7	2
Oncology / Hematology	MD and DO	4269	83	51.43373494	5	5	3	3
Family Medicine	MD and DO	136801.5	2674	51.15987285	96	110	27	4
Internal Medicine	MD and DO	16825	330	50.98484848	11	14	2	2
Internal Medicine	MD and DO	73134	1447	50.54181064	58	61	14	4
Family Medicine	MD and DO	36010	716	50.29329609	31	33	9	2
Emergency Medicine	MD and DO	36825	736	50.03396739	24	27	7	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	249477.5	5008	49.81579473	169	193	37	5
Family Medicine	MD and DO	76210	1530	49.81045752	58	65	18	4
Internal Medicine	MD and DO	50124	1008	49.72619048	42	47	10	2
Family Medicine	MD and DO	110885	2255	49.172949	73	77	32	4
General Surgery	MD and DO	2940	60	49	2	2	0	6
Family Medicine	MD and DO	35650	730	48.83561644	51	58	13	3
Internal Medicine	MD and DO	1170	24	48.75	4	4	0	6
Family Medicine	MD and DO	75998	1617	46.99938157	65	69	14	5
Family Medicine	MD and DO	44444	957	46.44096134	43	45	4	2
Family Medicine	MD and DO	3150	68	46.32352941	1	3	0	5
Emergency Medicine	MD and DO	647.5	14	46.25	5	5	1	5
Rheumatology	MD and DO	110506	2405	45.94844075	90	97	19	2
Family Medicine	MD and DO	101376	2209	45.89225894	89	98	20	2
Family Medicine	MD and DO	87560	1914	45.74712644	80	95	16	2
Family Medicine	MD and DO	76275	1669	45.70101857	63	69	13	4
Ophthalmology	MD and DO	272	6	45.33333333	2	2	0	5
Surgery	MD and DO	1575	35	45	5	5	1	3
Obstetrics / Gynecology	MD and DO	225	5	45	1	1	0	3
Emergency Medicine	MD and DO	450	10	45	4	4	0	3
Emergency Medicine	MD and DO	90	2	45	1	1	0	4
Otolaryngology	MD and DO	180	4	45	1	1	0	6
Gastroenterology	MD and DO	135	3	45	1	1	0	6
Family Medicine	MD and DO	77785	1731	44.93645292	78	90	21	4
Family Medicine	MD and DO	143755	3223	44.60285448	103	106	33	4
Neurology	MD and DO	55325	1248	44.33092949	46	48	10	3
Orthopedic Surgery	MD and DO	21021	475	44.25473684	44	45	5	5
Family Medicine	MD and DO	57062.5	1291	44.20023238	55	62	16	4
Pulmonology	MD and DO	750	17	44.11764706	1	1	0	5
Family Medicine	MD and DO	68621.5	1570	43.70796178	60	69	11	5
Family Medicine	MD and DO	33340	776	42.96391753	34	38	4	2
Orthopedic Surgery	MD and DO	1882.5	44	42.78409091	11	12	0	3
Internal Medicine	MD and DO	27695	648	42.73919753	43	49	5	3
Surgery	MD and DO	930	22	42.27272727	5	5	0	4
Orthopedic Surgery	MD and DO	4293	102	42.08823529	18	23	0	5
Anesthesiology / Pain Management	MD and DO	74445	1773	41.98815567	59	60	8	4
Internal Medicine	MD and DO	37765	901	41.9145394	32	34	1	4
Family Medicine	MD and DO	44773	1097	40.81403829	72	80	16	2
General Surgery	MD and DO	772.5	19	40.65789474	7	8	0	4
Family Medicine	MD and DO	61579.5	1515	40.64653465	76	88	13	2
Family Medicine	MD and DO	48600	1210	40.16528926	40	41	0	5
Family Medicine	MD and DO	1847.5	46	40.16304348	15	15	0	2
Emergency Medicine	MD and DO	40	1	40	1	1	1	2
Cardiology / Cardiac Surgery	MD and DO	1200	30	40	1	1	0	5
General Surgery	MD and DO	400	10	40	1	1	0	6
Obstetrics / Gynecology	MD and DO	400	10	40	2	2	0	6
Internal Medicine	MD and DO	44645	1117	39.96866607	39	39	2	3
Family Medicine	MD and DO	69992	1761	39.74559909	67	72	6	3
Family Medicine	MD and DO	5280	133	39.69924812	5	6	1	5
Family Medicine	MD and DO	8700	220	39.54545455	11	13	3	2
Orthopedic Surgery	MD and DO	2427.5	62	39.15322581	18	20	2	4
Family Medicine	MD and DO	4275	110	38.86363636	6	6	0	6
Family Medicine	MD and DO	14550	380	38.28947368	29	32	3	6
Internal Medicine	MD and DO	138927.5	3648	38.08319627	124	130	24	2
Family Medicine	MD and DO	57480	1510	38.06622517	55	60	13	4
Plastic Surgery	MD and DO	875	23	38.04347826	8	8	0	3
Family Medicine	MD and DO	124312.5	3275	37.95801527	102	123	23	2
Psychiatric Medicine	MD and DO	75	2	37.5	1	1	1	2
Urology	MD and DO	225	6	37.5	3	3	1	2
Emergency Medicine	MD and DO	225	6	37.5	3	3	0	2
Neurosurgery	MD and DO	300	8	37.5	1	1	0	3
General Surgery	MD and DO	19662.5	526	37.38117871	19	20	2	4
Family Medicine	MD and DO	25850	693	37.3015873	39	42	11	3
Internal Medicine	MD and DO	12120	328	36.95121951	14	15	2	4
Internal Medicine	MD and DO	34990	947	36.94825766	35	37	5	4
Internal Medicine	MD and DO	89362	2423	36.88072637	97	102	17	3
Internal Medicine	MD and DO	31827	871	36.54075775	37	37	4	3
Family Medicine	MD and DO	12874	354	36.36723164	15	15	1	6
Urology	MD and DO	4200	116	36.20689655	23	23	0	2
Internal Medicine	MD and DO	13677.5	379	36.0883905	21	25	4	2
General Surgery	MD and DO	1650	46	35.86956522	11	11	1	5
Otolaryngology	MD and DO	750	21	35.71428571	3	3	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Urology	MD and DO	750	21	35.71428571	5	5	0	3
Family Medicine	MD and DO	112755	3163	35.64811887	104	117	35	4
Pulmonology / Internal Medicine	MD and DO	34860	980	35.57142857	37	40	5	2
Emergency Medicine	MD and DO	3537.5	100	35.375	27	27	2	4
Geriatric Medicine	MD and DO	10952.5	311	35.2170418	17	19	5	5
Obstetrics / Gynecology	MD and DO	2250	64	35.15625	3	3	1	6
Emergency Medicine	MD and DO	595	17	35	6	6	0	2
Family Medicine	MD and DO	662.5	19	34.86842105	3	4	1	6
Internal Medicine	MD and DO	19310	559	34.54382826	20	21	2	3
Emergency Medicine	MD and DO	1035	30	34.5	6	6	0	2
Family Medicine	MD and DO	32260	942	34.2462845	40	41	5	4
Family Medicine	MD and DO	23020	673	34.20505201	41	45	5	6
Plastic Surgery	MD and DO	1050	31	33.87096774	6	6	1	6
Plastic Surgery	MD and DO	67.5	2	33.75	1	1	0	5
General Surgery	MD and DO	10980	326	33.6809816	17	19	4	5
Family Medicine	MD and DO	5415	161	33.63354037	11	11	0	6
Family Medicine	MD and DO	235	7	33.57142857	2	2	0	4
Family Medicine	MD and DO	7450	224	33.25892857	13	13	0	5
Family Medicine	MD and DO	3600	110	32.72727273	4	4	2	2
Urology	MD and DO	4875	149	32.71812081	17	19	1	4
Internal Medicine	MD and DO	30346.5	945	32.11269841	53	56	9	3
Family Medicine	MD and DO	575	18	31.94444444	5	5	2	5
Otolaryngologist	MD and DO	254.8	8	31.85	3	3	0	4
Orthopedic Surgery	MD and DO	17280	544	31.76470588	39	43	8	4
Family Medicine	MD and DO	10512	333	31.56756757	14	15	1	2
Family Medicine	MD and DO	33465	1062	31.51129944	45	46	5	6
Family Medicine	MD and DO	16827.5	535	31.45327103	28	28	1	4
Emergency Medicine	MD and DO	345	11	31.36363636	5	5	0	5
General Surgery	MD and DO	250	8	31.25	2	2	0	6
Family Medicine	MD and DO	32931.5	1077	30.57706592	46	47	10	4
Family Medicine	MD and DO	34725	1140	30.46052632	35	39	1	3
Family Medicine	MD and DO	39837.5	1319	30.20280516	47	50	10	3
Orthopedic Surgery	MD and DO	875	29	30.17241379	3	3	0	5
Nephrology / Internal Medicine	MD and DO	5100	170	30	7	7	1	2
Otolaryngology	MD and DO	180	6	30	1	1	0	2
Obstetrics / Gynecology	MD and DO	360	12	30	2	2	0	3
Internal Medicine	MD and DO	900	30	30	1	1	0	3
Family Medicine	MD and DO	5610	187	30	7	7	0	3
Emergency Medicine	MD and DO	60	2	30	1	1	0	5
Family Medicine	MD and DO	300	10	30	1	1	0	5
Pulmonology	MD and DO	1110	37	30	2	2	0	6
Obstetrics / Gynecology	MD and DO	240	8	30	2	2	0	6
Internal Medicine	MD and DO	90	3	30	1	1	0	6
Thoracic / General Surgery	MD and DO	2312.5	78	29.6474359	19	23	1	2
Internal Medicine	MD and DO	14170	480	29.52083333	17	18	3	2
Family Medicine	MD and DO	8700	295	29.49152542	11	11	1	4
General Surgery	MD and DO	500	17	29.41176471	3	3	0	6
Otolaryngology	MD and DO	4190	143	29.3006993	19	19	0	3
Family Medicine	MD and DO	28474.5	973	29.26464543	37	41	6	3
Emergency Medicine	MD and DO	350	12	29.16666667	3	3	0	2
Family Medicine	MD and DO	4177.5	144	29.01041667	10	10	1	6
General Surgery	MD and DO	1300	45	28.88888889	7	7	1	4
Obstetrics / Gynecology	MD and DO	430	15	28.66666667	2	2	0	2
General Surgery	MD and DO	1315	46	28.58695652	10	12	1	4
Occupational Medicine	MD and DO	400	14	28.57142857	2	2	0	4
Cardiac / Thoracic Surgery	MD and DO	600	21	28.57142857	2	3	0	5
Family Medicine	MD and DO	18695	655	28.54198473	30	30	5	3
Family Medicine	MD and DO	14370	508	28.28740157	27	32	7	2
Plastic Surgery	MD and DO	1975	70	28.21428571	10	10	1	5
Orthopedic Surgery	MD and DO	1100	39	28.20512821	5	5	0	2
Anesthesiology / Pain Management	MD and DO	920	33	27.87878788	3	3	1	2
Ophthalmology	MD and DO	390	14	27.85714286	3	3	1	6
General Surgery	MD and DO	500	18	27.77777778	5	5	0	3
Obstetrics / Gynecology	MD and DO	499.5	18	27.75	4	5	0	6
Otolaryngologist	MD and DO	221.4	8	27.675	2	2	1	4
Hyperbaric Medicine	MD and DO	2625	95	27.63157895	5	6	0	3
Occupational / Environmental Medicine	MD and DO	800	29	27.5862069	4	4	0	5
Obstetrics / Gynecology	MD and DO	1017.5	37	27.5	8	8	2	2
Plastic Surgery	MD and DO	550	20	27.5	5	5	1	5
Neurology	MD and DO	3300	120	27.5	2	2	0	6
Family Medicine	MD and DO	4280	156	27.43589744	6	7	2	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
General Surgery	MD and DO	1350	50	27	10	10	0	2
Emergency Medicine	MD and DO	621	23	27	7	7	0	4
Emergency Medicine	MD and DO	135	5	27	1	1	0	6
Family Medicine	MD and DO	7075	263	26.90114068	13	13	0	6
General Surgery	MD and DO	562.5	21	26.78571429	6	6	1	6
Obstetrics / Gynecology	MD and DO	1735	65	26.69230769	9	9	1	5
Internal Medicine	MD and DO	9954	373	26.68632708	15	16	0	4
Internal Medicine	MD and DO	17970	676	26.58284024	22	23	1	6
Family Medicine	MD and DO	5375	203	26.47783251	9	9	0	2
Internal Medicine	MD and DO	25205	955	26.39267016	28	30	2	3
Emergency Medicine	MD and DO	730	28	26.07142857	8	8	0	4
Urology	MD and DO	544	21	25.9047619	5	5	0	4
Family / GeriatricMedicine	MD and DO	10271	397	25.87153652	24	26	1	2
Family Medicine	MD and DO	6245	242	25.80578512	10	10	1	3
Family Medicine	MD and DO	2035	79	25.75949367	5	5	1	5
Obstetrics / Gynecology	MD and DO	1539	60	25.65	6	6	0	2
Otolaryngology	MD and DO	254	10	25.4	2	2	0	3
Internal Medicine	MD and DO	14009	552	25.37862319	19	20	4	5
Internal Medicine	MD and DO	252.5	10	25.25	3	3	1	4
Orthopedic Surgery	MD and DO	4760	189	25.18518519	17	17	3	4
Urology	MD and DO	175	7	25	2	2	0	5
Family Medicine	MD and DO	11005	446	24.67488789	18	18	9	3
Internal Medicine	MD and DO	1650	67	24.62686567	3	3	0	6
Orthopedic Surgery	MD and DO	6100	248	24.59677419	14	16	0	2
Internal / Geriatric Medicine	MD and DO	14190	578	24.55017301	32	36	3	2
Otolaryngologist	MD and DO	950	39	24.35897436	4	4	0	5
Internal Medicine	MD and DO	6560	270	24.2962963	11	13	2	6
Orthopedic Surgery	MD and DO	3170	131	24.19847328	8	10	0	6
Family Medicine	MD and DO	8000	331	24.16918429	15	15	0	3
Plastic Surgery / Orthopedic Hand Surgery	MD and DO	600	25	24	3	3	1	5
Family Medicine	MD and DO	2400	100	24	4	4	0	5
Neurology	MD and DO	262.5	11	23.86363636	2	2	1	5
Plastic Surgery	MD and DO	285	12	23.75	2	2	0	3
Otolaryngology	MD and DO	1918.8	81	23.68888889	15	17	0	3
Internal Medicine	MD and DO	1370	58	23.62068966	16	16	0	4
Anesthesiology / Pain Management	MD and DO	4000	170	23.52941176	4	4	0	3
Emergency Medicine	MD and DO	470	20	23.5	4	4	0	5
Psychiatric Medicine	MD and DO	2100	90	23.33333333	3	3	0	5
Family Medicine	MD and DO	22050	947	23.28405491	46	48	7	2
Otolaryngology	MD and DO	1205	52	23.17307692	7	7	0	3
Otolaryngology	MD and DO	324	14	23.14285714	1	1	0	6
Internal Medicine	MD and DO	2775	120	23.125	4	4	2	5
Colon & Rectal Surgery	MD and DO	3117.5	135	23.09259259	15	16	2	2
Family Medicine	MD and DO	685	30	22.83333333	4	4	1	6
Laparoendoscopic Surgery	MD and DO	1300	57	22.80701754	10	10	1	5
Internal Medicine	MD and DO	21381	938	22.79424307	49	52	9	4
Family Medicine	MD and DO	250	11	22.72727273	2	2	1	4
Orthopedic Surgery	MD and DO	8151	361	22.57894737	16	16	4	6
Oncology / Hematology	MD and DO	900	40	22.5	2	2	0	3
Pediatrics	MD and DO	675	30	22.5	1	1	0	4
Family Medicine	MD and DO	40605	1815	22.37190083	64	69	10	4
Family Medicine	MD and DO	15705	705	22.27659574	25	25	7	4
Internal Medicine	MD and DO	1875	85	22.05882353	6	6	2	6
Orthopedic Surgery	MD and DO	550	25	22	3	3	1	6
Family Medicine	MD and DO	4164	190	21.91578947	11	11	1	4
Internal Medicine	MD and DO	3600	165	21.81818182	6	6	0	5
Family Medicine	MD and DO	240	11	21.81818182	2	2	0	6
Family Medicine	MD and DO	10947.5	502	21.80776892	20	20	2	5
Otolaryngology	MD and DO	544.5	25	21.78	5	6	0	2
Emergency Medicine	MD and DO	500	23	21.73913043	6	6	0	4
Internal Medicine	MD and DO	10279	473	21.73150106	18	18	4	4
Family Medicine	MD and DO	1800	83	21.68674699	5	5	2	4
Internal Medicine	MD and DO	1850	86	21.51162791	3	3	0	5
Allergy / Pediatric Pulmonology	MD and DO	150	7	21.42857143	1	1	0	2
General Surgery	MD and DO	150	7	21.42857143	1	1	0	2
Family Medicine	MD and DO	13930	652	21.36503067	20	20	6	4
Internal Medicine	MD and DO	844.8	40	21.12	6	6	0	3
Internal Medicine	MD and DO	9332	444	21.01801802	25	25	2	4
Neurology	MD and DO	420	20	21	2	2	0	6
Internal Medicine	MD and DO	12675	607	20.88138386	26	28	6	4
Emergency Medicine	MD and DO	875	42	20.83333333	5	6	0	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	20152.5	968	20.81869835	37	38	10	3
Family Medicine	MD and DO	3952.5	190	20.80263158	9	9	0	6
Family Medicine	MD and DO	914	44	20.77272727	14	14	3	3
Family Medicine	MD and DO	12225	592	20.65033784	18	19	5	3
Urology	MD and DO	1340	65	20.61538462	13	13	1	4
Family Medicine	MD and DO	3045	148	20.57432432	8	9	0	5
Family / Ambulatory Medicine	MD and DO	3675	179	20.53072626	11	11	2	2
Family Medicine	MD and DO	8000	394	20.30456853	15	16	2	3
Family Medicine	MD and DO	5250	260	20.19230769	8	9	2	5
Internal / Geriatric Medicine	MD and DO	33765	1675	20.15820896	63	66	6	2
Anesthesiology / Pain Management	MD and DO	8925	443	20.14672686	17	17	3	4
Pediatrics	MD and DO	300	15	20	1	1	0	2
Family Medicine	MD and DO	280	14	20	3	3	0	3
Surgery	MD and DO	600	30	20	1	1	1	4
Family Medicine	MD and DO	100	5	20	1	1	0	4
Neurology	MD and DO	200	10	20	1	1	0	4
Nephrology / Hospic / Palliative Care Medicine	MD and DO	600	30	20	1	1	0	5
Emergency Medicine	MD and DO	100	5	20	1	1	0	5
Urology	MD and DO	100	5	20	1	1	0	6
Internal Medicine	MD and DO	300	15	20	1	1	0	6
Internal Medicine	MD and DO	12082.5	616	19.61444805	31	33	2	5
Family Medicine	MD and DO	22965	1171	19.61144321	45	51	9	5
Emergency Medicine	MD and DO	625	32	19.53125	8	8	1	4
Emergency Medicine	MD and DO	270	14	19.28571429	5	5	0	3
Family Medicine	MD and DO	1350	70	19.28571429	3	3	0	6
Obstetrics / Gynecology	MD and DO	1650	86	19.18604651	9	9	3	2
Pediatrics	MD and DO	440	23	19.13043478	7	7	0	6
Internal Medicine	MD and DO	2385	125	19.08	5	5	2	4
Family Medicine	MD and DO	1636	86	19.02325581	21	21	0	5
General Surgery	MD and DO	978	52	18.80769231	9	9	1	6
Internal Medicine	MD and DO	4455	238	18.71848739	9	9	2	3
Neurology	MD and DO	3345	180	18.58333333	6	6	1	2
Rheumatology	MD and DO	2595	142	18.27464789	10	10	0	5
Emergency Medicine	MD and DO	1096.4	60	18.27333333	17	17	2	2
Obstetrics / Gynecology	MD and DO	1745	96	18.17708333	11	12	0	2
Gastroenterology	MD and DO	540	30	18	1	1	0	2
Family Medicine	MD and DO	540	30	18	1	1	0	4
Internal Medicine	MD and DO	90	5	18	1	1	0	6
Emergency Medicine	MD and DO	54	3	18	1	1	0	6
Internal Medicine	MD and DO	1150	64	17.96875	3	3	0	2
Pain Management / Physical & Rehabilitation Me	MD and DO	3225	185	17.43243243	7	7	1	2
Family Medicine	MD and DO	225	13	17.30769231	4	4	0	5
Family Medicine	MD and DO	325	19	17.10526316	2	2	1	3
Internal Medicine	MD and DO	15837.5	943	16.79480382	27	30	16	4
Epidemiology	MD and DO	100	6	16.66666667	1	1	0	3
Family Medicine	MD and DO	350	21	16.66666667	2	2	0	5
Gastroenterology / Internal Medicine	MD and DO	100	6	16.66666667	1	1	0	5
Ophthalmology	MD and DO	166.5	10	16.65	6	6	0	6
Neurology	MD and DO	1365	82	16.64634146	5	5	1	5
Family Medicine	MD and DO	1927.5	118	16.33474576	5	6	0	3
Family Medicine	MD and DO	6285	388	16.19845361	16	17	5	3
Family Medicine	MD and DO	1275	79	16.13924051	5	5	1	2
Nephrology	MD and DO	14277.5	890	16.04213483	30	32	5	6
Orthopedic Surgery	MD and DO	2350	149	15.77181208	11	11	0	6
General Surgery	MD and DO	762.5	49	15.56122449	5	5	0	3
Family Medicine	MD and DO	500	33	15.15151515	1	1	0	5
Neurology	MD and DO	2040	135	15.11111111	5	5	1	2
Ophthalmology	MD and DO	15	1	15	1	1	1	2
Obstetrics / Gynecology	MD and DO	45	3	15	1	1	0	2
Gastroenterology	MD and DO	450	30	15	1	1	0	3
Pulmonology	MD and DO	450	30	15	1	1	0	3
Emergency Medicine	MD and DO	225	15	15	2	2	0	5
Obstetrics / Gynecology	MD and DO	225	15	15	2	2	0	6
Internal Medicine	MD and DO	3555	240	14.8125	7	8	1	6
Family Medicine	MD and DO	2700	183	14.75409836	9	10	0	2
Pediatrics	MD and DO	59	4	14.75	1	1	0	2
Gastroenterology / Internal Medicine	MD and DO	440	30	14.66666667	2	2	0	2
Internal Medicine	MD and DO	12525	860	14.56395349	26	27	5	3
Pediatrics	MD and DO	43.2	3	14.4	1	1	0	5
Family Medicine	MD and DO	10595	737	14.37584803	31	32	6	2
Family Medicine	MD and DO	4955	349	14.19770774	12	13	4	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	495	35	14.14285714	4	4	0	6
General Surgery	MD and DO	325	23	14.13043478	4	4	4	6
Neurology	MD and DO	1085.5	77	14.0974026	7	7	0	5
Family Medicine	MD and DO	1425	103	13.83495146	7	7	0	5
Family Medicine	MD and DO	6177	448	13.78794643	15	15	2	3
Family Medicine	MD and DO	2005	148	13.5472973	8	8	1	2
Internal Medicine	MD and DO	405	30	13.5	1	1	0	2
Obstetrics / Gynecology	MD and DO	11184	845	13.23550296	42	44	4	3
Family Medicine	MD and DO	680	53	12.83018868	6	6	0	5
Cardiology	MD and DO	325	27	12.03703704	2	2	0	2
Internal Medicine	MD and DO	1250	105	11.9047619	7	8	0	4
Family Medicine	MD and DO	2375	205	11.58536585	6	6	0	5
Otolaryngology	MD and DO	504	48	10.5	5	5	1	5
Neurology	MD and DO	1260	120	10.5	4	4	0	5
Family Medicine	MD and DO	5100	505	10.0990099	13	16	2	2
Gastroenterology	MD and DO	300	30	10	1	1	0	2
Family Medicine	MD and DO	300	30	10	2	2	0	4
Emergency Medicine	MD and DO	30	3	10	1	1	0	5
Family Medicine	MD and DO	150	15	10	1	1	0	6
Internal Medicine	MD and DO	270	30	9	1	1	0	5
Internal Medicine	MD and DO	135	15	9	1	1	0	6
Pediatrics	MD and DO	63	7	9	1	1	0	6
Family Medicine	MD and DO	1450	182	7.967032967	7	7	0	5
Family / Geriatric Medicine	MD and DO	400	65	6.153846154	3	3	1	5
Internal Medicine	MD and DO	150	30	5	1	1	0	3
Family Medicine	MD and DO	150	30	5	1	1	0	4
Pediatrics	MD and DO	27	6	4.5	1	1	0	4
Neurosurgery	MD and DO	135	30	4.5	1	1	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine / Addiction Rehab	MD and DO	54400	266	204.5112782	11	11	2	7
Addiction Psychiatry	MD and DO	6000	30	200	1	1	0	7
Addiction Psychiatry	MD and DO	278170	1524	182.5262467	47	58	19	7
Addiction / Internal Medicine	MD and DO	25280	145	174.3448276	7	7	0	7
Rehab Medicine / Addictionology	MD and DO	81995	986	83.15922921	37	38	2	1
Psychiatry & Addiction Medicine	MD and DO	9770	118	82.79661017	5	7	0	1

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Allergy / Pediatric Pulmonology	MD and DO	150	7	21.42857143	1	1	0	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Anesthesiology / Pain Management	MD and DO	32700	140	233.5714286	4	5	1	7
Palliative / Hospice Medicine	MD and DO	55830	244	228.8114754	7	9	2	7
Anesthesiology / Pain Management	MD and DO	5400	30	180	1	1	0	7
Pain Management	MD and DO	197890	1147	172.5283348	38	43	16	7
Pain Medicine/Family Medicine	MD and DO	112835	697	161.8866571	17	24	2	1
Anesthesiology / Pain Management	MD and DO	24639	245	100.5673469	14	21	7	1
Palliative Care / Hospice	MD and DO	6570	66	99.54545455	6	7	3	1
Palliative Care / Hospice	MD and DO	27985	341	82.06744868	25	37	20	1
Pain Medicine	MD and DO	597131.5	7352	81.2202802	215	257	20	1
Anesthesiology / Pain Management	MD and DO	634249.5	7894	80.34576894	206	264	25	1
Anesthesiology / Pain Management	MD and DO	522319	6885	75.86332607	196	261	33	1
Anesthesiology / Pain Management	MD and DO	180032	2801	64.27418779	80	95	7	1
Anesthesiology / Pain Management	MD and DO	95509	1652	57.81416465	51	58	4	3
Anesthesiology / Pain Management	MD and DO	74445	1773	41.98815567	59	60	8	4
Anesthesiology / Pain Management	MD and DO	920	33	27.87878788	3	3	1	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Anesthesiology / Pain Management	MD and DO	4000	170	23.52941176	4	4	0	3
Anesthesiology / Pain Management	MD and DO	8925	443	20.14672686	17	17	3	4
Pain Management / Physical & Rehabilitation Me	MD and DO	3225	185	17.43243243	7	7	1	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Cardiology & Internal Medicine	MD and DO	700	10	70	2	2	0	1
Cardiology / Cardiac Surgery	MD and DO	1200	30	40	1	1	0	5
Cardiac / Thoracic Surgery	MD and DO	600	21	28.57142857	2	3	0	5
Cardiology	MD and DO	325	27	12.03703704	2	2	0	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Diagnostic Radilology	MD and DO	9000	54	166.6666667	3	4	0	7

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Emergency Medicine	MD and DO	3600	15	240	1	1	0	7
Emergency Medicine	MD and DO	107104	617	173.5883306	20	26	7	7
Emergency Medicine	MD and DO	18507	113	163.7787611	5	6	1	7
Emergency Medicine	MD and DO	600	7	85.71428571	3	3	0	1
Emergency Medicine	MD and DO	36825	736	50.03396739	24	27	7	4
Emergency Medicine	MD and DO	647.5	14	46.25	5	5	1	5
Emergency Medicine	MD and DO	450	10	45	4	4	0	3
Emergency Medicine	MD and DO	90	2	45	1	1	0	4
Emergency Medicine	MD and DO	40	1	40	1	1	1	2
Emergency Medicine	MD and DO	225	6	37.5	3	3	0	2
Emergency Medicine	MD and DO	3537.5	100	35.375	27	27	2	4
Emergency Medicine	MD and DO	595	17	35	6	6	0	2
Emergency Medicine	MD and DO	1035	30	34.5	6	6	0	2
Emergency Medicine	MD and DO	345	11	31.36363636	5	5	0	5
Emergency Medicine	MD and DO	60	2	30	1	1	0	5
Emergency Medicine	MD and DO	350	12	29.16666667	3	3	0	2
Emergency Medicine	MD and DO	621	23	27	7	7	0	4
Emergency Medicine	MD and DO	135	5	27	1	1	0	6
Emergency Medicine	MD and DO	730	28	26.07142857	8	8	0	4
Emergency Medicine	MD and DO	470	20	23.5	4	4	0	5
Emergency Medicine	MD and DO	500	23	21.73913043	6	6	0	4
Emergency Medicine	MD and DO	875	42	20.83333333	5	6	0	2
Emergency Medicine	MD and DO	100	5	20	1	1	0	5
Emergency Medicine	MD and DO	625	32	19.53125	8	8	1	4
Emergency Medicine	MD and DO	270	14	19.28571429	5	5	0	3
Emergency Medicine	MD and DO	1096.4	60	18.27333333	17	17	2	2
Emergency Medicine	MD and DO	54	3	18	1	1	0	6
Emergency Medicine	MD and DO	225	15	15	2	2	0	5
Emergency Medicine	MD and DO	30	3	10	1	1	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Epidemiology	MD and DO	100	6	16.66666667	1	1	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	28335	99	286.2121212	8	9	0	7
Family Medicine	MD and DO	23730	120	197.75	3	5	0	7
Family Medicine	MD and DO	560	3	186.6666667	1	1	0	7
Family Medicine	MD and DO	9120	50	182.4	1	2	0	7
Family Medicine	MD and DO	80100	445	180	15	15	0	7
Family Medicine	MD and DO	6345	36	176.25	3	5	2	7
Family Medicine	MD and DO	45520	267	170.4868914	11	15	0	7
Family Medicine	MD and DO	5445	32	170.15625	2	2	0	7
Family Medicine	MD and DO	37760	229	164.8908297	17	30	3	7
General Practice	MD and DO	800	5	160	1	1	0	7
Family Medicine	MD and DO	171700	1315	130.5703422	51	54	1	1
Family Medicine	MD and DO	9045	80	113.0625	3	4	0	1
Family Medicine	MD and DO	9600	90	106.6666667	1	3	0	1
Family Medicine	MD and DO	1120	11	101.8181818	3	5	0	1
Family Medicine	MD and DO	31215	309	101.0194175	17	22	3	1
Family Medicine	MD and DO	67240	667	100.8095952	36	46	8	4
Family Medicine	MD and DO	199760	1989	100.4323781	67	79	21	4
Family Medicine	MD and DO	44025	471	93.47133758	24	31	4	1
Family Medicine	MD and DO	363607.5	3941	92.26275057	230	257	52	1
Family Medicine	MD and DO	63675	736	86.51494565	25	29	2	1
Family / Geriatric Medicine	MD and DO	15300	179	85.47486034	6	7	2	2
Family Medicine	MD and DO	2470	29	85.17241379	4	6	0	2
Family Medicine	MD and DO	45930	547	83.96709324	17	21	4	1
Family Medicine	MD and DO	81983	999	82.06506507	43	54	9	1
Family Medicine	MD and DO	1500	20	75	2	2	1	2
Family Medicine	MD and DO	64302.5	872	73.74139908	37	38	5	1
Family Medicine	MD and DO	31324.8	439	71.35489749	28	35	14	1
Family Medicine	MD and DO	44075	620	71.08870968	24	25	1	1
Family Medicine	MD and DO	98672.5	1398	70.58118741	66	73	4	1
Family Medicine	MD and DO	68758	978	70.30470348	39	45	7	3
Family Medicine	MD and DO	280	4	70	2	2	0	1
Family Medicine	MD and DO	45045	647	69.62132921	27	33	4	1
Family Medicine	MD and DO	13998	203	68.95566502	11	12	8	4
Family Medicine	MD and DO	164762.5	2464	66.86789773	69	89	15	1
Family Medicine	MD and DO	21542.5	324	66.48919753	15	18	4	1
Family Medicine	MD and DO	16950	258	65.69767442	9	11	0	1
Family Medicine	MD and DO	17550	269	65.24163569	10	11	4	6
Family Medicine	MD and DO	337341.5	5295	63.70944287	163	189	40	4
Family Medicine	MD and DO	95755	1529	62.62589928	53	62	18	4
Family Medicine	MD and DO	249810	4062	61.49926145	160	170	38	4
Family Medicine	MD and DO	42055	688	61.12645349	32	34	4	6
Family Medicine	MD and DO	46493	778	59.7596401	30	33	4	3
Family Medicine	MD and DO	94099.5	1613	58.33818971	48	59	8	2
Family Medicine	MD and DO	74878	1284	58.31619938	38	44	10	3
Family Medicine	MD and DO	115305	2016	57.19494048	79	86	16	5
Family Medicine	MD and DO	2385	42	56.78571429	2	3	0	2
Family Medicine	MD and DO	29942.5	533	56.17729831	21	22	9	2
Family Medicine	MD and DO	20270	372	54.48924731	19	22	5	5
Family Medicine	MD and DO	81512	1532	53.20626632	82	91	14	2
Family Medicine	MD and DO	13914	265	52.50566038	10	10	2	3
Family Medicine	MD and DO	75815	1449	52.32229124	66	75	16	3
Family Medicine	MD and DO	24907	478	52.10669456	31	33	7	2
Family Medicine	MD and DO	136801.5	2674	51.15987285	96	110	27	4
Family Medicine	MD and DO	36010	716	50.29329609	31	33	9	2
Family Medicine	MD and DO	76210	1530	49.81045752	58	65	18	4
Family Medicine	MD and DO	110885	2255	49.172949	73	77	32	4
Family Medicine	MD and DO	35650	730	48.83561644	51	58	13	3
Family Medicine	MD and DO	75998	1617	46.99938157	65	69	14	5
Family Medicine	MD and DO	44444	957	46.44096134	43	45	4	2
Family Medicine	MD and DO	3150	68	46.32352941	1	3	0	5
Family Medicine	MD and DO	101376	2209	45.89225894	89	98	20	2
Family Medicine	MD and DO	87560	1914	45.74712644	80	95	16	2
Family Medicine	MD and DO	76275	1669	45.70101857	63	69	13	4
Family Medicine	MD and DO	77785	1731	44.93645292	78	90	21	4
Family Medicine	MD and DO	143755	3223	44.60285448	103	106	33	4
Family Medicine	MD and DO	57062.5	1291	44.20023238	55	62	16	4
Family Medicine	MD and DO	68621.5	1570	43.70796178	60	69	11	5
Family Medicine	MD and DO	33340	776	42.96391753	34	38	4	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	44773	1097	40.81403829	72	80	16	2
Family Medicine	MD and DO	61579.5	1515	40.64653465	76	88	13	2
Family Medicine	MD and DO	48600	1210	40.16528926	40	41	0	5
Family Medicine	MD and DO	1847.5	46	40.16304348	15	15	0	2
Family Medicine	MD and DO	69992	1761	39.74559909	67	72	6	3
Family Medicine	MD and DO	5280	133	39.69924812	5	6	1	5
Family Medicine	MD and DO	8700	220	39.54545455	11	13	3	2
Family Medicine	MD and DO	4275	110	38.86363636	6	6	0	6
Family Medicine	MD and DO	14550	380	38.28947368	29	32	3	6
Family Medicine	MD and DO	57480	1510	38.06622517	55	60	13	4
Family Medicine	MD and DO	124312.5	3275	37.95801527	102	123	23	2
Family Medicine	MD and DO	25850	693	37.3015873	39	42	11	3
Family Medicine	MD and DO	12874	354	36.36723164	15	15	1	6
Family Medicine	MD and DO	112755	3163	35.64811887	104	117	35	4
Family Medicine	MD and DO	662.5	19	34.86842105	3	4	1	6
Family Medicine	MD and DO	32260	942	34.2462845	40	41	5	4
Family Medicine	MD and DO	23020	673	34.20505201	41	45	5	6
Family Medicine	MD and DO	5415	161	33.63354037	11	11	0	6
Family Medicine	MD and DO	235	7	33.57142857	2	2	0	4
Family Medicine	MD and DO	7450	224	33.25892857	13	13	0	5
Family Medicine	MD and DO	3600	110	32.72727273	4	4	2	2
Family Medicine	MD and DO	575	18	31.94444444	5	5	2	5
Family Medicine	MD and DO	10512	333	31.56756757	14	15	1	2
Family Medicine	MD and DO	33465	1062	31.51129944	45	46	5	6
Family Medicine	MD and DO	16827.5	535	31.45327103	28	28	1	4
Family Medicine	MD and DO	32931.5	1077	30.57706592	46	47	10	4
Family Medicine	MD and DO	34725	1140	30.46052632	35	39	1	3
Family Medicine	MD and DO	39837.5	1319	30.20280516	47	50	10	3
Family Medicine	MD and DO	5610	187	30	7	7	0	3
Family Medicine	MD and DO	300	10	30	1	1	0	5
Family Medicine	MD and DO	8700	295	29.49152542	11	11	1	4
Family Medicine	MD and DO	28474.5	973	29.26464543	37	41	6	3
Family Medicine	MD and DO	4177.5	144	29.01041667	10	10	1	6
Family Medicine	MD and DO	18695	655	28.54198473	30	30	5	3
Family Medicine	MD and DO	14370	508	28.28740157	27	32	7	2
Family Medicine	MD and DO	4280	156	27.43589744	6	7	2	5
Family Medicine	MD and DO	7075	263	26.90114068	13	13	0	6
Family Medicine	MD and DO	5375	203	26.47783251	9	9	0	2
Family / GeriatricMedicine	MD and DO	10271	397	25.87153652	24	26	1	2
Family Medicine	MD and DO	6245	242	25.80578512	10	10	1	3
Family Medicine	MD and DO	2035	79	25.75949367	5	5	1	5
Family Medicine	MD and DO	11005	446	24.67488789	18	18	9	3
Family Medicine	MD and DO	8000	331	24.16918429	15	15	0	3
Family Medicine	MD and DO	2400	100	24	4	4	0	5
Family Medicine	MD and DO	22050	947	23.28405491	46	48	7	2
Family Medicine	MD and DO	685	30	22.83333333	4	4	1	6
Family Medicine	MD and DO	250	11	22.72727273	2	2	1	4
Family Medicine	MD and DO	40605	1815	22.37190083	64	69	10	4
Family Medicine	MD and DO	15705	705	22.27659574	25	25	7	4
Family Medicine	MD and DO	4164	190	21.91578947	11	11	1	4
Family Medicine	MD and DO	240	11	21.81818182	2	2	0	6
Family Medicine	MD and DO	10947.5	502	21.80776892	20	20	2	5
Family Medicine	MD and DO	1800	83	21.68674699	5	5	2	4
Family Medicine	MD and DO	13930	652	21.36503067	20	20	6	4
Family Medicine	MD and DO	20152.5	968	20.81869835	37	38	10	3
Family Medicine	MD and DO	3952.5	190	20.80263158	9	9	0	6
Family Medicine	MD and DO	914	44	20.77272727	14	14	3	3
Family Medicine	MD and DO	12225	592	20.65033784	18	19	5	3
Family Medicine	MD and DO	3045	148	20.57432432	8	9	0	5
Family / Ambulatory Medicine	MD and DO	3675	179	20.53072626	11	11	2	2
Family Medicine	MD and DO	8000	394	20.30456853	15	16	2	3
Family Medicine	MD and DO	5250	260	20.19230769	8	9	2	5
Family Medicine	MD and DO	280	14	20	3	3	0	3
Family Medicine	MD and DO	100	5	20	1	1	0	4
Family Medicine	MD and DO	22965	1171	19.61144321	45	51	9	5
Family Medicine	MD and DO	1350	70	19.28571429	3	3	0	6
Family Medicine	MD and DO	1636	86	19.02325581	21	21	0	5
Family Medicine	MD and DO	540	30	18	1	1	0	4
Family Medicine	MD and DO	225	13	17.30769231	4	4	0	5
Family Medicine	MD and DO	325	19	17.10526316	2	2	1	3
Family Medicine	MD and DO	350	21	16.66666667	2	2	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Family Medicine	MD and DO	1927.5	118	16.33474576	5	6	0	3
Family Medicine	MD and DO	6285	388	16.19845361	16	17	5	3
Family Medicine	MD and DO	1275	79	16.13924051	5	5	1	2
Family Medicine	MD and DO	500	33	15.15151515	1	1	0	5
Family Medicine	MD and DO	2700	183	14.75409836	9	10	0	2
Family Medicine	MD and DO	10595	737	14.37584803	31	32	6	2
Family Medicine	MD and DO	4955	349	14.19770774	12	13	4	4
Family Medicine	MD and DO	495	35	14.14285714	4	4	0	6
Family Medicine	MD and DO	1425	103	13.83495146	7	7	0	5
Family Medicine	MD and DO	6177	448	13.78794643	15	15	2	3
Family Medicine	MD and DO	2005	148	13.5472973	8	8	1	2
Family Medicine	MD and DO	680	53	12.83018868	6	6	0	5
Family Medicine	MD and DO	2375	205	11.58536585	6	6	0	5
Family Medicine	MD and DO	5100	505	10.0990099	13	16	2	2
Family Medicine	MD and DO	300	30	10	2	2	0	4
Family Medicine	MD and DO	150	15	10	1	1	0	6
Family Medicine	MD and DO	1450	182	7.967032967	7	7	0	5
Family / Geriatric Medicine	MD and DO	400	65	6.153846154	3	3	1	5
Family Medicine	MD and DO	150	30	5	1	1	0	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Gastroenterology	MD and DO	5495	81	67.83950617	6	6	1	1
Gastroenterology	MD and DO	8760	132	66.36363636	4	5	1	1
Gastroenterology	MD and DO	135	3	45	1	1	0	6
Gastroenterology	MD and DO	540	30	18	1	1	0	2
Gastroenterology / Internal Medicine	MD and DO	100	6	16.66666667	1	1	0	5
Gastroenterology	MD and DO	450	30	15	1	1	0	3
Gastroenterology / Internal Medicine	MD and DO	440	30	14.66666667	2	2	0	2
Gastroenterology	MD and DO	300	30	10	1	1	0	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
General Surgery	MD and DO	53100	186	285.483871	9	10	1	7
General Surgery	MD and DO	8212.5	45	182.5	2	4	0	7
General Surgery	MD and DO	3650	46	79.34782609	8	9	1	1
General Surgery	MD and DO	4451.2	63	70.65396825	3	5	0	1
General Surgery	MD and DO	535	8	66.875	2	2	0	5
General Surgery	MD and DO	2275	38	59.86842105	9	9	0	4
General Surgery	MD and DO	7252.5	125	58.02	35	40	0	4
General Surgery	MD and DO	2940	60	49	2	2	0	6
General Surgery	MD and DO	772.5	19	40.65789474	7	8	0	4
General Surgery	MD and DO	400	10	40	1	1	0	6
General Surgery	MD and DO	19662.5	526	37.38117871	19	20	2	4
General Surgery	MD and DO	1650	46	35.86956522	11	11	1	5
General Surgery	MD and DO	10980	326	33.6809816	17	19	4	5
General Surgery	MD and DO	250	8	31.25	2	2	0	6
General Surgery	MD and DO	500	17	29.41176471	3	3	0	6
General Surgery	MD and DO	1300	45	28.88888889	7	7	1	4
General Surgery	MD and DO	1315	46	28.58695652	10	12	1	4
General Surgery	MD and DO	500	18	27.77777778	5	5	0	3
General Surgery	MD and DO	1350	50	27	10	10	0	2
General Surgery	MD and DO	562.5	21	26.78571429	6	6	1	6
General Surgery	MD and DO	150	7	21.42857143	1	1	0	2
General Surgery	MD and DO	978	52	18.80769231	9	9	1	6
General Surgery	MD and DO	762.5	49	15.56122449	5	5	0	3
General Surgery	MD and DO	325	23	14.13043478	4	4	4	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Hyperbaric Medicine	MD and DO	2625	95	27.63157895	5	6	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Oncology / Hematology	MD and DO	39000	58	672.4137931	3	4	0	7
Oncology / Hematology	MD and DO	60695	147	412.8911565	6	9	1	7
Oncology / Hematology	MD and DO	2625	9	291.6666667	2	2	0	7
Oncology / Hematology	MD and DO	2688	11	244.3636364	1	1	0	7
Oncology / Hematology	MD and DO	29900	124	241.1290323	4	4	0	7
Oncology / Hematology	MD and DO	6000	25	240	1	1	0	7
Oncology / Hematology	MD and DO	7200	30	240	1	1	0	7
Gynecologic Oncology	MD and DO	5535	27	205	2	2	0	7
Oncology / Hematology	MD and DO	50182	253	198.3478261	9	12	0	7
Oncology / Hematology	MD and DO	5580	30	186	1	1	0	7
Oncology / Hematology	MD and DO	10800	60	180	1	2	0	7
Oncology / Hematology	MD and DO	10470	62	168.8709677	4	5	1	7
Oncology	MD and DO	16590	109	152.2018349	6	8	1	1
Oncology / Internal Medicine	MD and DO	63740	450	141.6444444	20	26	6	2
Oncology / Hematology	MD and DO	71085	583	121.9296741	24	29	4	3
Oncology / Hematology	MD and DO	3600	30	120	1	1	0	1
Oncology / Hematology	MD and DO	4200	37	113.5135135	1	2	1	2
Oncology/Hematology	MD and DO	25005	248	100.8266129	8	13	1	1
Oncology / Hematology	MD and DO	10250	103	99.51456311	2	5	0	1
Oncology / Hematology	MD and DO	15785	165	95.66666667	12	12	0	1
Oncology/Hematology	MD and DO	24624	259	95.07335907	9	12	1	1
Oncology / Hematology	MD and DO	8300.5	89	93.26404494	4	5	1	4
Oncology	MD and DO	29560	335	88.23880597	17	22	2	1
Oncology / Internal Medicine	MD and DO	23185	284	81.63732394	12	13	2	5
Oncology / Internal Medicine	MD and DO	21370	269	79.44237918	11	15	3	1
Oncology/Internal Medicine	MD and DO	23270	307	75.7980456	15	17	2	1
Oncology	MD and DO	12800	171	74.85380117	7	9	1	6
Oncology /Hematology	MD and DO	7660	119	64.3697479	5	6	0	1
Oncology / Hematology	MD and DO	29782	496	60.04435484	24	38	5	5
Oncology	MD and DO	900	15	60	1	1	0	5
Oncology / Hematology	MD and DO	4269	83	51.43373494	5	5	3	3
Oncology / Hematology	MD and DO	900	40	22.5	2	2	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Infectious Disease	MD and DO	39650	189	209.7883598	7	9	1	7
Infectious Disease	MD and DO	2688	14	192	1	1	0	7
Infectious Disease Medicine	MD and DO	4185	75	55.8	5	5	1	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	9470	27	350.7407407	3	4	0	7
Internal Medicine	MD and DO	53400	160	333.75	6	6	0	7
Internal Medicine	MD and DO	10530	35	300.8571429	2	4	1	7
Internal Medicine	MD and DO	1890	7	270	1	1	0	7
Internal Medicine	MD and DO	22314	83	268.8433735	4	6	0	7
Internal Medicine	MD and DO	27400	112	244.6428571	8	8	3	7
Internal Medicine	MD and DO	6300	26	242.3076923	1	1	1	7
Internal Medicine	MD and DO	65025	270	240.8333333	7	10	4	7
Internal Medicine	MD and DO	10132	43	235.627907	3	5	0	7
Internal Medicine	MD and DO	2520	11	229.0909091	2	2	0	7
Internal Medicine	MD and DO	13080	59	221.6949153	1	2	0	7

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	9200	42	219.047619	4	6	3	7
Internal Medicine	MD and DO	13200	63	209.5238095	2	3	0	7
Internal Medicine	MD and DO	7620	40	190.5	2	3	2	7
Internal Medicine	MD and DO	32295	170	189.9705882	10	10	1	7
Internal Medicine	MD and DO	13540	74	182.972973	4	6	4	7
Internal Medicine	MD and DO	19138	106	180.5471698	4	6	1	7
Internal Medicine	MD and DO	56055	311	180.2411576	12	15	5	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	2700	15	180	1	1	0	7
Internal Medicine	MD and DO	5400	30	180	1	1	0	7
Internal Medicine	MD and DO	17960	101	177.8217822	4	4	0	7
Internal Medicine	MD and DO	79571	458	173.7358079	25	25	4	7
Internal Medicine	MD and DO	5540	32	173.125	1	3	0	7
Internal Medicine	MD and DO	11100	65	170.7692308	2	2	0	7
Internal Medicine	MD and DO	53911	316	170.6044304	18	18	5	7
Internal Medicine	MD and DO	56535	346	163.3959538	10	12	2	7
Internal Medicine	MD and DO	6030	37	162.972973	2	3	1	1
Internal Medicine	MD and DO	69740	433	161.0623557	22	27	2	7
Internal Medicine	MD and DO	12642	81	156.0740741	8	12	3	1
Internal Medicine	MD and DO	300	2	150	1	1	0	1
Internal Medicine	MD and DO	21012.5	161	130.5124224	7	9	0	1
Internal Medicine / Geriatrics	MD and DO	3240	30	108	2	3	0	1
Internal Medicine	MD and DO	114334.5	1067	107.1551078	49	54	8	4
Internal Medicine / Geriatrics	MD and DO	12555	130	96.57692308	6	6	0	1
Internal Medicine	MD and DO	1800	19	94.73684211	3	3	2	1
Internal Medicine	MD and DO	1600	18	88.88888889	2	3	0	6
Internal Medicine	MD and DO	29200	367	79.5640327	16	21	4	1
Internal & Geriatric Medicine	MD and DO	11400	150	76	3	3	0	1
Internal Medicine	MD and DO	10335	137	75.4379562	15	16	0	1
Internal Medicine	MD and DO	118268	1571	75.281986	58	71	11	1
Internal Medicine	MD and DO	4050	60	67.5	1	2	0	2
Internal Medicine	MD and DO	134412.5	2153	62.43032977	95	109	25	3
Internal Medicine	MD and DO	82890	1395	59.41935484	45	51	13	3
Internal Medicine	MD and DO	26375	449	58.74164811	24	25	2	6
Internal Medicine	MD and DO	72729	1239	58.69975787	60	66	11	5
Internal Medicine	MD and DO	90289.5	1554	58.10135135	50	54	4	2
Internal Medicine	MD and DO	7550	132	57.1969697	8	9	0	2
Internal Medicine	MD and DO	72639	1317	55.15489749	74	87	24	4
Internal / Geriatric Medicine	MD and DO	187426.5	3452	54.29504635	160	186	30	3
Internal Medicine	MD and DO	16825	330	50.98484848	11	14	2	2
Internal Medicine	MD and DO	73134	1447	50.54181064	58	61	14	4
Internal Medicine	MD and DO	249477.5	5008	49.81579473	169	193	37	5
Internal Medicine	MD and DO	50124	1008	49.72619048	42	47	10	2
Internal Medicine	MD and DO	1170	24	48.75	4	4	0	6
Internal Medicine	MD and DO	27695	648	42.73919753	43	49	5	3
Internal Medicine	MD and DO	37765	901	41.9145394	32	34	1	4
Internal Medicine	MD and DO	44645	1117	39.96866607	39	39	2	3
Internal Medicine	MD and DO	138927.5	3648	38.08319627	124	130	24	2
Internal Medicine	MD and DO	12120	328	36.95121951	14	15	2	4
Internal Medicine	MD and DO	34990	947	36.94825766	35	37	5	4
Internal Medicine	MD and DO	89362	2423	36.88072637	97	102	17	3
Internal Medicine	MD and DO	31827	871	36.54075775	37	37	4	3
Internal Medicine	MD and DO	13677.5	379	36.0883905	21	25	4	2
Internal Medicine	MD and DO	19310	559	34.54382826	20	21	2	3
Internal Medicine	MD and DO	30346.5	945	32.11269841	53	56	9	3
Internal Medicine	MD and DO	900	30	30	1	1	0	3
Internal Medicine	MD and DO	90	3	30	1	1	0	6
Internal Medicine	MD and DO	14170	480	29.52083333	17	18	3	2
Internal Medicine	MD and DO	9954	373	26.68632708	15	16	0	4
Internal Medicine	MD and DO	17970	676	26.58284024	22	23	1	6
Internal Medicine	MD and DO	25205	955	26.39267016	28	30	2	3
Internal Medicine	MD and DO	14009	552	25.37862319	19	20	4	5
Internal Medicine	MD and DO	252.5	10	25.25	3	3	1	4
Internal Medicine	MD and DO	1650	67	24.62686567	3	3	0	6
Internal / Geriatric Medicine	MD and DO	14190	578	24.55017301	32	36	3	2
Internal Medicine	MD and DO	6560	270	24.2962963	11	13	2	6
Internal Medicine	MD and DO	1370	58	23.62068966	16	16	0	4
Internal Medicine	MD and DO	2775	120	23.125	4	4	2	5
Internal Medicine	MD and DO	21381	938	22.79424307	49	52	9	4
Internal Medicine	MD and DO	1875	85	22.05882353	6	6	2	6
Internal Medicine	MD and DO	3600	165	21.81818182	6	6	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Internal Medicine	MD and DO	10279	473	21.73150106	18	18	4	4
Internal Medicine	MD and DO	1850	86	21.51162791	3	3	0	5
Internal Medicine	MD and DO	844.8	40	21.12	6	6	0	3
Internal Medicine	MD and DO	9332	444	21.01801802	25	25	2	4
Internal Medicine	MD and DO	12675	607	20.88138386	26	28	6	4
Internal / Geriatric Medicine	MD and DO	33765	1675	20.15820896	63	66	6	2
Internal Medicine	MD and DO	300	15	20	1	1	0	6
Internal Medicine	MD and DO	12082.5	616	19.61444805	31	33	2	5
Internal Medicine	MD and DO	2385	125	19.08	5	5	2	4
Internal Medicine	MD and DO	4455	238	18.71848739	9	9	2	3
Internal Medicine	MD and DO	90	5	18	1	1	0	6
Internal Medicine	MD and DO	1150	64	17.96875	3	3	0	2
Internal Medicine	MD and DO	15837.5	943	16.79480382	27	30	16	4
Internal Medicine	MD and DO	3555	240	14.8125	7	8	1	6
Internal Medicine	MD and DO	12525	860	14.56395349	26	27	5	3
Internal Medicine	MD and DO	405	30	13.5	1	1	0	2
Internal Medicine	MD and DO	1250	105	11.9047619	7	8	0	4
Internal Medicine	MD and DO	270	30	9	1	1	0	5
Internal Medicine	MD and DO	135	15	9	1	1	0	6
Internal Medicine	MD and DO	150	30	5	1	1	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Laparoendoscopic Surgery	MD and DO	1300	57	22.80701754	10	10	1	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Nephrology	MD and DO	8640	30	288	1	1	0	7
Nephrology / Internal Medicine	MD and DO	4050	15	270	1	1	0	7
Nephrology / Internal Medicine	MD and DO	5100	170	30	7	7	1	2
Nephrology / Hospic / Palliative Care Medicine	MD and DO	600	30	20	1	1	0	5
Nephrology	MD and DO	14277.5	890	16.04213483	30	32	5	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Neurosurgery	MD and DO	900	12	75	1	1	0	4
Neurological Surgery	MD and DO	5000	77	64.93506494	10	12	3	1
Neurosurgery	MD and DO	300	8	37.5	1	1	0	3
Neurosurgery	MD and DO	135	30	4.5	1	1	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Obstetrics / Gynecology	MD and DO	525	8	65.625	3	3	0	1
Obstetrics / Gynecology	MD and DO	11978	194	61.74226804	15	15	5	6
Obstertrics / Gynecology	MD and DO	180	3	60	1	1	0	3
Obstetrics / Gynecology	MD and DO	650	11	59.09090909	3	3	0	6
Obstetrics / Gynecology	MD and DO	225	5	45	1	1	0	3
Obstetrics / Gynecology	MD and DO	400	10	40	2	2	0	6
Obstetrics / Gynecology	MD and DO	2250	64	35.15625	3	3	1	6
Obstetrics / Gynecology	MD and DO	360	12	30	2	2	0	3
Obstetrics / Gynecology	MD and DO	240	8	30	2	2	0	6
Obstetrics / Gynecology	MD and DO	430	15	28.66666667	2	2	0	2
Obstetrics / Gynecology	MD and DO	499.5	18	27.75	4	5	0	6
Obstetrics / Gynecology	MD and DO	1017.5	37	27.5	8	8	2	2
Obstetrics / Gynecology	MD and DO	1735	65	26.69230769	9	9	1	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Obstetrics / Gynecology	MD and DO	1539	60	25.65	6	6	0	2
Obstetrics / Gynecology	MD and DO	1650	86	19.18604651	9	9	3	2
Obstetrics / Gynecology	MD and DO	1745	96	18.17708333	11	12	0	2
Obstetrics / Gynecology	MD and DO	45	3	15	1	1	0	2
Obstetrics / Gynecology	MD and DO	225	15	15	2	2	0	6
Obstetrics / Gynecology	MD and DO	11184	845	13.23550296	42	44	4	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Occupational Medicine / Urgent Care	MD and DO	135	1	135	1	1	0	1
Occupational Medicine	MD and DO	400	14	28.57142857	2	2	0	4
Occupational / Environmental Medicine	MD and DO	800	29	27.5862069	4	4	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Oncology / Hematology	MD and DO	39000	58	672.4137931	3	4	0	7
Oncology / Hematology	MD and DO	60695	147	412.8911565	6	9	1	7
Oncology / Hematology	MD and DO	2625	9	291.6666667	2	2	0	7
Oncology / Hematology	MD and DO	2688	11	244.3636364	1	1	0	7
Oncology / Hematology	MD and DO	29900	124	241.1290323	4	4	0	7
Oncology / Hematology	MD and DO	6000	25	240	1	1	0	7
Oncology / Hematology	MD and DO	7200	30	240	1	1	0	7
Oncology / Hematology	MD and DO	50182	253	198.3478261	9	12	0	7
Oncology / Hematology	MD and DO	5580	30	186	1	1	0	7
Oncology / Hematology	MD and DO	10800	60	180	1	2	0	7
Oncology / Hematology	MD and DO	10470	62	168.8709677	4	5	1	7
Oncology	MD and DO	16590	109	152.2018349	6	8	1	1
Oncology / Internal Medicine	MD and DO	63740	450	141.6444444	20	26	6	2
Oncology / Hematology	MD and DO	71085	583	121.9296741	24	29	4	3
Oncology / Hematology	MD and DO	3600	30	120	1	1	0	1
Oncology / Hematology	MD and DO	4200	37	113.5135135	1	2	1	2
Oncology/Hematology	MD and DO	25005	248	100.8266129	8	13	1	1
Oncology / Hematology	MD and DO	10250	103	99.51456311	2	5	0	1
Oncology / Hematology	MD and DO	15785	165	95.66666667	12	12	0	1
Oncology/Hematology	MD and DO	24624	259	95.07335907	9	12	1	1
Oncology / Hematology	MD and DO	8300.5	89	93.26404494	4	5	1	4
Oncology	MD and DO	29560	335	88.23880597	17	22	2	1
Oncology / Internal Medicine	MD and DO	23185	284	81.63732394	12	13	2	5
Oncology / Internal Medicine	MD and DO	21370	269	79.44237918	11	15	3	1
Oncology/Internal Medicine	MD and DO	23270	307	75.7980456	15	17	2	1
Oncology	MD and DO	12800	171	74.85380117	7	9	1	6
Oncology /Hematology	MD and DO	7660	119	64.3697479	5	6	0	1
Oncology / Hematology	MD and DO	29782	496	60.04435484	24	38	5	5
Oncology	MD and DO	900	15	60	1	1	0	5
Oncology / Hematology	MD and DO	4269	83	51.43373494	5	5	3	3
Oncology / Hematology	MD and DO	900	40	22.5	2	2	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Ophthalmology	MD and DO	300	2	150	1	1	0	1
Ophthalmology	MD and DO	272	6	45.33333333	2	2	0	5
Ophthalmology	MD and DO	390	14	27.85714286	3	3	1	6
Ophthalmology	MD and DO	166.5	10	16.65	6	6	0	6
Ophthalmology	MD and DO	15	1	15	1	1	1	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Orthopedic Surgery	MD and DO	33256	199	167.1155779	6	8	1	7
Orthopedic Surgery	MD and DO	11250	129	87.20930233	27	27	5	1
Orthopedic Surgery	MD and DO	29447.5	344	85.60319767	28	37	2	1
Orthopedic Surgery	MD and DO	600	9	66.66666667	3	3	0	6
Orthopedic Surgery	MD and DO	5245	79	66.39240506	16	16	0	1
Orthopedic Surgery	MD and DO	525	8	65.625	2	2	0	1
Orthopedic Surgery	MD and DO	32410	494	65.60728745	44	49	3	1
Orthopedic Surgery	MD and DO	2380	37	64.32432432	6	6	0	1
Orthopedic Surgery	MD and DO	6940	108	64.25925926	18	19	0	1
Orthopedic Surgery	MD and DO	3570	59	60.50847458	8	8	1	5
Orthopedic Surgery	MD and DO	21021	475	44.25473684	44	45	5	5
Orthopedic Surgery	MD and DO	1882.5	44	42.78409091	11	12	0	3
Orthopedic Surgery	MD and DO	4293	102	42.08823529	18	23	0	5
Orthopedic Surgery	MD and DO	2427.5	62	39.15322581	18	20	2	4
Orthopedic Surgery	MD and DO	17280	544	31.76470588	39	43	8	4
Orthopedic Surgery	MD and DO	875	29	30.17241379	3	3	0	5
Orthopedic Surgery	MD and DO	1100	39	28.20512821	5	5	0	2
Orthopedic Surgery	MD and DO	4760	189	25.18518519	17	17	3	4
Orthopedic Surgery	MD and DO	6100	248	24.59677419	14	16	0	2
Orthopedic Surgery	MD and DO	3170	131	24.19847328	8	10	0	6
Orthopedic Surgery	MD and DO	8151	361	22.57894737	16	16	4	6
Orthopedic Surgery	MD and DO	550	25	22	3	3	1	6
Orthopedic Surgery	MD and DO	2350	149	15.77181208	11	11	0	6

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Otolaryngology	MD and DO	180	4	45	1	1	0	6
Otolaryngology	MD and DO	750	21	35.71428571	3	3	0	3
Otolaryngologist	MD and DO	254.8	8	31.85	3	3	0	4
Otolaryngology	MD and DO	180	6	30	1	1	0	2
Otolaryngology	MD and DO	4190	143	29.3006993	19	19	0	3
Otolaryngologist	MD and DO	221.4	8	27.675	2	2	1	4
Otolaryngology	MD and DO	254	10	25.4	2	2	0	3
Otolaryngologist	MD and DO	950	39	24.35897436	4	4	0	5
Otolaryngology	MD and DO	1918.8	81	23.68888889	15	17	0	3
Otolaryngology	MD and DO	1205	52	23.17307692	7	7	0	3
Otolaryngology	MD and DO	324	14	23.14285714	1	1	0	6
Otolaryngology	MD and DO	544.5	25	21.78	5	6	0	2
Otolaryngology	MD and DO	504	48	10.5	5	5	1	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Palliative / Hospice Medicine	MD and DO	55830	244	228.8114754	7	9	2	7
Pain Management	MD and DO	197890	1147	172.5283348	38	43	16	7
Pain Medicine/Family Medicine	MD and DO	112835	697	161.8866571	17	24	2	1
Palliative Care / Hospice	MD and DO	6570	66	99.54545455	6	7	3	1
Palliative Care / Hospice	MD and DO	27985	341	82.06744868	25	37	20	1
Pain Medicine	MD and DO	597131.5	7352	81.2202802	215	257	20	1
Pain Management / Physical & Rehabilitation Me	MD and DO	3225	185	17.43243243	7	7	1	2

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Pediatric Oncology	MD and DO	51450	145	354.8275862	4	6	1	7
Pediatrics	MD and DO	7200	30	240	1	1	0	7
Pediatric Oncology / Hematology	MD and DO	21205	124	171.0080645	7	10	0	7
Pediatrics	MD and DO	675	30	22.5	1	1	0	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Pediatrics	MD and DO	300	15	20	1	1	0	2
Pediatrics	MD and DO	440	23	19.13043478	7	7	0	6
Pediatrics	MD and DO	59	4	14.75	1	1	0	2
Pediatrics	MD and DO	43.2	3	14.4	1	1	0	5
Pediatrics	MD and DO	63	7	9	1	1	0	6
Pediatrics	MD and DO	27	6	4.5	1	1	0	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Plastic Surgeon	MD and DO	500	5	100	1	1	0	1
Plastic Surgery	MD and DO	875	23	38.04347826	8	8	0	3
Plastic Surgery	MD and DO	1050	31	33.87096774	6	6	1	6
Plastic Surgery	MD and DO	67.5	2	33.75	1	1	0	5
Plastic Surgery	MD and DO	1975	70	28.21428571	10	10	1	5
Plastic Surgery	MD and DO	550	20	27.5	5	5	1	5
Plastic Surgery / Orthopedic Hand Surgery	MD and DO	600	25	24	3	3	1	5
Plastic Surgery	MD and DO	285	12	23.75	2	2	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Psychiatry	MD and DO	2720	8	340	1	1	0	7
Psychiatry	MD and DO	8100	30	270	1	1	1	7
Psychiatry	MD and DO	1600	6	266.6666667	1	1	0	7
Psychiatry	MD and DO	14400	60	240	2	2	1	7
Psychiatry	MD and DO	8400	35	240	1	2	1	7
Psychiatry	MD and DO	7200	30	240	1	1	0	7
Psychiatry	MD and DO	22880	126	181.5873016	4	5	0	7
Psychiatry	MD and DO	5400	30	180	1	1	1	7
Psychiatry	MD and DO	32300	186	173.655914	9	9	2	1
Psychiatry	MD and DO	1040	6	173.3333333	1	1	0	7
Psychiatry	MD and DO	43200	250	172.8	9	9	4	1
Psychiatry	MD and DO	18240	113	161.4159292	3	6	0	7
Psychiatry	MD and DO	4800	30	160	1	1	0	6
Psychiatry	MD and DO	3360	21	160	2	2	0	7
Psychiatry	MD and DO	7040	44	160	2	2	0	7
Psychiatry	MD and DO	14520	93	156.1290323	4	4	2	1
Psychiatry / Family Medicine	MD and DO	10600	104	101.9230769	3	5	0	1
Psychiatry & Addiction Medicine	MD and DO	9770	118	82.79661017	5	7	0	1
Psychiatry	MD and DO	2400	34	70.58823529	1	1	0	6
Psychiatry	MD and DO	8800	128	68.75	5	6	1	1
Psychiatric Medicine	MD and DO	75	2	37.5	1	1	1	2
Psychiatric Medicine	MD and DO	2100	90	23.33333333	3	3	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Pulmonology	MD and DO	1800	30	60	1	1	1	3
Pulmonology	MD and DO	750	17	44.11764706	1	1	0	5
Pulmonology / Internal Medicine	MD and DO	34860	980	35.57142857	37	40	5	2
Pulmonology	MD and DO	1110	37	30	2	2	0	6
Pulmonology	MD and DO	450	30	15	1	1	0	3

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Rheumatology	MD and DO	110506	2405	45.94844075	90	97	19	2
Rheumatology	MD and DO	2595	142	18.27464789	10	10	0	5

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Surgery	MD and DO	1575	35	45	5	5	1	3
Surgery	MD and DO	930	22	42.27272727	5	5	0	4
Thoracic / General Surgery	MD and DO	2312.5	78	29.6474359	19	23	1	2
Surgery	MD and DO	600	30	20	1	1	1	4

Taxonomy		Total MMEs	Total Day Supply	Avg MME Per Day	Total Patients	Total Prescriptions	Number of Benzo Opioid Overlap	Public Health Region
Urology	MD and DO	6962.5	42	165.7738095	3	3	0	7
Urology	MD and DO	225	6	37.5	3	3	1	2
Urology	MD and DO	4200	116	36.20689655	23	23	0	2
Urology	MD and DO	750	21	35.71428571	5	5	0	3
Urology	MD and DO	4875	149	32.71812081	17	19	1	4
Urology	MD and DO	544	21	25.9047619	5	5	0	4
Urology	MD and DO	175	7	25	2	2	0	5
Urology	MD and DO	1340	65	20.61538462	13	13	1	4
Urology	MD and DO	100	5	20	1	1	0	6