Improving the Safety of Opioid Prescribing and Effectiveness of Pain Management Approaches: An Improvement Project in Rural Kansas Communities

July 2019

Introduction

Abstract

Background: In 1999, the Veterans Health Administration (VHA) launched the "Pain as the 5th Vital Sign" initiative to implement pain assessment and management for all their patients. In 2000, the 106th US Congress passed H.R. 3244 that established the "Decade of Pain Control and Research." The Joint Commission rolled out new Pain Management Standards in 2001 for all patient care organizations that it accredited. And from May 2000 through January 2001, the Institute for Healthcare Improvement (IHI) ran a collaborative with the VHA "to improve delivery of pain management to VHA patients"[1]. Chronic pain is reported by more than 100 million Americans annually and affects more people than diabetes, heart disease and cancer combined[1]. The annual cost of chronic pain, including medical costs of pain care and economic costs related to disability days, lost wages, and lost productivity range from $560 - $635 billion (in 2010 dollars)[2]. Opioids are often our best weapon for acute pain. However, there is no good evidence regarding their effectiveness at reducing chronic pain. Chronic pain is traditionally defined as pain that lasts more than 3 months. There is, however, evidence that alternative treatments can be effective with less harm[3]. Despite this fact, the use of opioids for treating both chronic and acute pain has been increasing. In 2010, an estimated 20% of patients presenting to physician offices in the US with pain symptoms or diagnoses (including both acute and chronic pain) were prescribed opioids[4]. Most recommendations and guidelines target safer outpatient opioid treatment focused on reducing long-term opioid use for chronic pain.

Local Problem: Rural areas of Kansas are uniquely challenged to adopt promising practices with regard to appropriate pain management and opioid prescribing. Subsequently, rural areas also have opioid prescribing rates above the state rate and specific socioeconomic challenges also prevalent in these areas likely contribute to this disparity. A model that would be successful in this part of the state could easily be adapted to nearly any other community across the country with similar success.

[1] Martin L, Laderman M, Hyatt J, Krueger J. Addressing the Opioid Crisis in the United States. IHI Innovation Report. Cambridge, Massachusetts: Institute for Healthcare Improvement; April 2016.
[2] U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2014). National Action Plan for Adverse Drug Event Prevention. Washington DC.
[3] LeShaundra Cordier Scott, MPH, CHES & Sarah Lewis, MPH, CHES, "Opioids for Chronic Pain", *JAMA*. 2016; 315(15): 1672. Doi: 10.1001/jama.2016.3224.
[4] Daubresse M, Chang HY, Yu Y, Viswanathan S, Shah ND, Stafford RS, Kruszewski SP, Alexander GC, Ambulatory diagnosis and treatment of nonmalignant pain in the United States, 2000-2010. Med Care 2013 Oct: 51(10): 870-8.

Methods: The Opioid Special Innovation Project (SIP) and subsequent extension supported recruited, rural providers with evaluating evidence-based interventions for implementation within the context of the rural healthcare delivery environment, specifically focusing on adapting evidence-base care guidelines for chronic pain to the rural, resource-constrained environment in an effort to align participant prescribing practices with the 2016 CDC Prescribing Guidelines.

Interventions: Four primary interventions were deployed: Data Feedback and Benchmarking; Education on Evidence Based Guidelines and Recommendations; Tailored Technical Assistance; and Chronic Disease Self-Management Programming for Chronic Pain Patients.

Results: Improvements were seen in several areas specifically targeted in this special innovation project including opioid prescribing rates, safer prescribing practices, decreased emergency department visits due to pain, and better chronic pain management.

Conclusions: Improvement in opioid prescribing rates is likely the result of a combination of factors, including technical assistance provided to participating primary care providers, Opioid prescribing reports, educational offerings through the Learning and Action Network, Chronic Pain Self-Management workshops, and alignment of national, regional and local efforts. However, in order to achieve large-scale, sustained improvements in both pain management and opioid prescribing, there is still much work to do in coordinating resources and assistance available to consumers and prescribers alike.

Local Problem

According to the Centers for Medicare and Medicaid Services (CMS), the average opioid prescribing rate was 5.47% of all Part D claims prior to project initiation. Prescribing rates for Kansas were slightly above the national average at 5.84% (2013 Medicare Part D Claims Data). Further analysis revealed rural communities in Kansas with inconsistent and alarmingly high opioid prescribing rates ranging from 17.57% to 36.04%. This variation in rates underscores the need for a tailored approach to rural communities to improve access to alternative therapies for appropriate pain management and adherence to appropriate prescribing guidelines. Rural parts of the country are uniquely challenged to adopt best or promising practices regarding healthcare and health behavior improvement, since most practices are developed in areas where different resources exist to support success. Rural providers of healthcare are typically geographically isolated, and resource constrained (both human and capital). The opioid crisis is not new; nor is the disparity that exists between rural and urban providers. This innovation project brings the two of those together and was born after a routine stakeholder meeting. GPQIN was approached by a partner, a large academic medical center, who had developed and validated a model to provide appropriate and evidence-based pain management services while decreasing the inappropriate or over utilization of opioid medications for patients with both acute and chronic pain. The challenge was that this model had been developed in an urban, metropolitan area in a large, academic health care system. This hospital (University of Kansas Medical Center or KUMC) knew their model was sound, but they also recognized it was not easily translatable to the rural environment and wanted assistance in working with rural providers to refine their model, one which combined medical education with data feedback and direct technical assistance, to ensure applicability and success in all delivery environments.

In reviewing publicly available data, a 9-county area in Southeast Kansas, which historically has had the worst health outcomes and worst health behaviors in the state, not surprisingly also had

some of the highest opioid prescribing rates in the state. It was also noted that there was some variability in prescribing rates. In addition to being one of the most rural areas of the state, Southeast Kansas also has some of the most pronounced socioeconomic challenges in Kansas. Therefore, a model that was able to be successful in this part of the state could easily be adapted to any community across the country. Additionally, GPQIN, as a Stanford Self-Management Education (SME) License Holder, had just received training and licensing to provide the Chronic Pain Self-Management Programming (CPSMP), which seemed to be the perfect rural alternative to expensive non-pharmacological pain management therapies, like physical therapy, acupuncture, and massage therapy, which rarely exist in rural communities. The innovation project would also utilize the medical education model developed by KUMC to provide medical education to prescribers regarding appropriate pain management and appropriate prescribing of opioids as a mechanism to reduce prescribing rates.

Improvements in local prescribing patterns were observed after the first phase of the Special Innovation Project. Therefore, Great Plains QIN recruited additional providers outside of the Southeast Kansas target area through leveraging existing relationships established through other 11th Statement of Work projects.

Available Knowledge

Access to safe and effective pain care remains an important problem in the United States; efforts to minimize the burden of harm from opioid use should be implemented in parallel with efforts to ensure patients suffering from pain receive the most effective and safest treatment possible. In March of 2016, the CDC released updated recommendations regarding Opioid Prescribing Guidelines for Chronic Pain Management, providing a strong, evidence-based recommendation against utilizing opioid therapy for chronic pain management. Primary care clinicians continue to have concerns about opioid misuse, view managing patients with chronic pain as stressful, are concerned about patient addiction, and report insufficient training on prescribing opioids[5]. Additionally, an Institute of Medicine report from June 2011 strongly recommends postgraduate continuing education for primary care practitioners and other healthcare providers to improve their knowledge and skills in pain assessment and treatment, including safe and effective opioid prescribing[6]. Education, the report noted, is a central part of the necessary cultural transformation of the approach to pain.

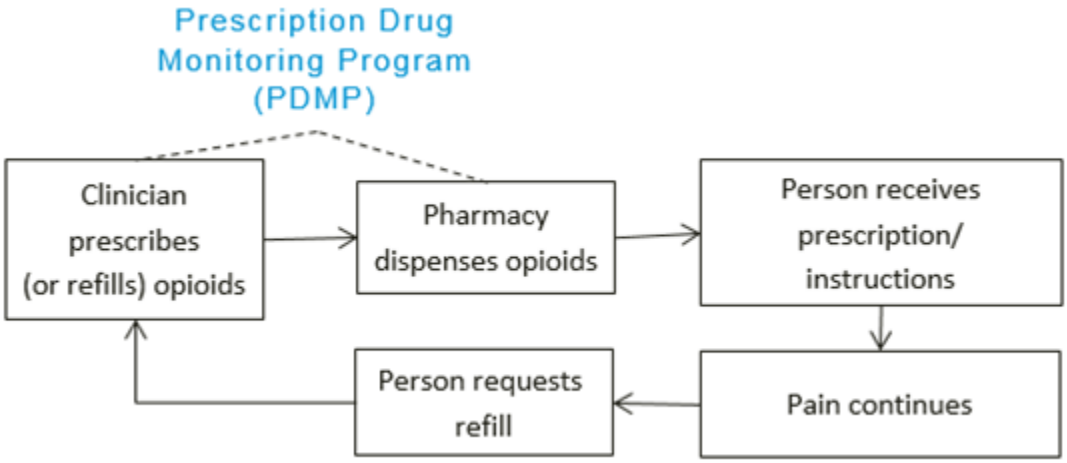
However, accountability for the dichotomy of chronic pain and opioid use does not fall solely on the shoulders of the prescribing provider. Prevention, assessment and treatment of chronic pain are challenges for health providers and health systems alike. Pain might go unrecognized and patients, particularly 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 or inappropriate pain treatment. As many as 1 in 4 patients receiving opioids for chronic pain develops an opioid use disorder[7]. Baby boomers (aged 50 and over) are four times as likely to abuse opioids as Millennials. Collectively, primary care physicians write the greatest volume of opioid prescriptions – according to a recent study, 15.3 million prescriptions for

[5] LeShaundra Cordier Scott, MPH, CHES & Sarah Lewis, MPH, CHES, "Opioids for Chronic Pain", *JAMA*. 2016; 315(15): 1672. Doi: 10.1001/jama.2016.3224.

[6] Institute of Medicine, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research,* Report Brief; June 2011

[7] U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2014). National Action Plan for Adverse Drug Event Prevention. Washington DC.

Medicare patients alone in 2013[8]. Often, an orthopedic surgeon or emergency physician writes an initial opioid prescription for "short term use" and never sees the patient again. The patient follows up with their primary care provider who is now faced with managing the patient's pain. This challenge becomes even more complex in rural parts of the country, where availability and access to alternative modalities is limited at best. When cities are ranked by percentage of opioid prescriptions abused in Kansas, 17 out of the top 25 cities are primarily rural. In all rural communities, both patient and provider lack the means to consult pain specialists, lack access to alternative pain management strategies and often resort to inappropriate or ineffective opioid prescribing practices. Many healthcare providers prescribing opioids fall into the typical cycle of chronic opioid use, as represented in the figure below[9].



When opioids are used to treat chronic pain, they can produce increased sensitivity to pain, leading to more opioid use and the start of a vicious cycle. Even when alternative pain management options are available and accessible, utilization is often limited, due in part to lack of reimbursement from payers. This increased opioid prescribing leads to some patients becoming dependent and potentially facilitates inappropriate use of opioids.

According to the U.S. Department of Health & Human Services, opioid abuse is a serious public health issue. Drug overdose deaths, a majority of which involve prescription medications, are the leading cause of unintentional deaths in the United States, surpassing vehicle crashes. With 44 deaths each day and an economic cost estimated at over $500 billion, access to safe and effective pain care remains an important problem in the United States.

Rationale

An informal and adapted version of the Promoting Action on Research Implementation in Health Services (PARIHS) framework was used to guide the process of implementing this Opioid Special Innovation Project. This framework argues that successful implementation of evidence-based strategies is based on the interaction of three core elements – evidence, context and facilitation. Additionally, to integrate evidence-based guidelines into practice, the context or setting where the evidence is being applied and the way in which the evidence is facilitated into

[8] Hoffman J, "Patients in Pain, and a Doctor Who Must Limit Drugs", *New York Times*, 2016, March 17.

[9] Martin L, Laderman M, Hyatt J, Krueger J. Addressing the Opioid Crisis in the United States. IHI Innovation Report. Cambridge, Massachusetts: Institute for Healthcare Improvement; April 2016.

practice is as important, if not more-so, than the evidence itself[10]. Context was assessed through participant interviews and analysis of Medicare Claims Data. Evidence included guidelines, findings and recommendations collected from medical literature and publications, intervention/knowledge assessments completed by participating provider organizations, and in some cases, patient chart reviews. The facilitation plan was somewhat vague and fluid, impacted by participant feedback and modified throughout the duration of project implementation based on analysis of feedback, both quantitative and qualitative. The adaptation of the model included the shaping and molding of the intervention strategy, based on feedback and information gathered from participants and stakeholders during project implementation. The project's interventions to improve opioid prescribing rates were identified after thorough exploration of available evidence-based practices (evidence), a review of known barriers to appropriate prescribing in rural communities (context), assessment of experience with successful implementation strategies and the need to leverage all available resources (facilitation) to increase the project's likelihood of success.

Evidence-Based Practices

Evidence suggests that healthcare providers struggle with opioid stewardship best practices for a variety of reasons[6]. Sinnenberg et al states, "The decision to prescribe opioids to patients in the emergency department is complex and nuanced. Physicians are interested in guidance and are concerned about the competing pressures placed on their opioid prescribing due to incentives related to patient satisfaction scores on one hand and inflexible policies that do not allow for individualized, patient-centered decisions on the other." [7] Therefore, the foundational interventions identified for this project focused on helping hospitals and clinicians investigate their own prescribing history to identify areas of opportunity for improvement, education and assistance with implementing Joint Commission standards and CDC guidelines for opioid prescribing and pain management, and on identification of alternatives to opioid therapy including setting realistic pain management goals with patients and utilizing non-pharmacological interventions that can improve patients' pain experience without exposing them to the risks and long-term ineffectiveness of opioids . This intervention focused on providing technical assistance to participating providers to encourage them to consider non-opioid pain therapies and to implement best practices when opioids are the best method for treating pain. Best practices for opioid prescribing include 1) utilizing the CDC Guidelines for Prescribing as a guide to identify opportunities to improve the safety of provider prescribing practices; 2) leveraging functional pain assessments and setting realistic goals for pain management rather than using solely subjective pain scales with the expectation that clinical interventions will completely eliminate all pain; 3) requiring patients to give informed consent so they are aware of the risks of opioid therapy; 4) implementing patient agreements that outline the patients' responsibilities during opioid therapy and provider expectations; 5) developing processes and procedures for Prescription Drug Monitoring Program (PDMP) utilization and; 6) starting opioid therapy with a plan to discontinue opioids as acute pain improves or as other non-opioid therapies are introduced.

[10] Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence-based practice: a conceptual framework. *Quality in Health Care, 7*, 149-158. DOI: 10.1136/qshc.7.3.149.

Known Barriers to Opioid Stewardship

Known barriers to opioid stewardship are primarily about accessibility of alternative pain management therapies. Currently, healthcare reimbursement models exist that make opioid therapy considerably cheaper than non-opioid alternatives. This barrier is exponentially harder to overcome in socioeconomically disparate regions, as decisions about opioid therapy versus alternative options are driven by provider preference and experience or patient's need to continue to be present at work, provide financially for other personal or family needs (i.e. living expenses), and the geographic access challenges in rural areas. For example, a person can receive a single prescription under a single copay that will help them manage pain for 30-90 days, allowing them a perceived "quick fix" for debilitating pain. Alternatives such as physical therapy, when such alternatives are available in rural communities, require patients to pay several copays each week for frequent visits (impacting work/school obligations), and take more time to be effective. The cost of the copayments is compounded by the cost of patients missing work and the cost of travelling to appointments. For retired adults who do not lose wages, transportation to multiple appointments can still be a considerable barrier, especially in rural areas. Patient expectations and the misperception that opioid therapy is low-risk are barriers to appropriate prescribing, as is the well-known connection between pain management and patient satisfaction scores.

Successful Implementation Strategies

Great Plains QIN has extensive experience in leading large-scale quality improvement projects in multiple healthcare and community settings. Results have consistently shown that individualized technical assistance is an effective strategy for ensuring sustainable practice change with the most intensive assistance provided to those with the greatest need. Additionally, adapting best practices for rural providers is something Great Plains QIN is intimately familiar with. Great Plains QIN leverages data to monitor longitudinal improvement at both the individual provider and state level to identify variation so those actively working to improve performance are able to learn from high performers and to drive continued improvement through aggregation and presentation showing relative performance among peers. In this extended Special Innovation Project, Great Plains QIN staff assisted providers in the analysis of accessible data; in developing processes to validate and enhance available data sources; to analyze and identify the value of existing data; and incorporate analysis and action into everyday workflows.

Leveraging All Available Resources

Great Plains QIN structures projects from the perspective of a convener and coach/mentor, encouraging project participants to take leadership roles in designing and carrying out project plans. Intentional project design relies on existing resources to innovate and adapt promising practices to meet the unique demographic of the community or population being served, recognizing the benefits of coordination of project efforts with key stakeholder organizations that were also working to improve opioid prescribing rates in Kansas. This coordination and collaboration streamlined interactions with providers, and the expertise and resources of each organization strengthened efforts toward achieving this common goal. Among the key partners and stakeholders in this initiative are K-TRACS – Kansas's PDMP, the Kansas Department of Health and Environment, the Shawnee County Collaborative on Chronic Pain, the Kansas Prescription Drug and Opioid Advisory Committee, The Governors Substance Use Disorder Task Force, and many other state-based opioid taskforces.

Specific Aims

The Opioid SIP had four primary aims. The first was to reduce opioid prescribing practices in Kansas when non-opioid pain management techniques and supports are available in the healthcare system, available in the community and/or available through community supports.

The second was to reduce Medicare consumer opioid utilization rates for those participating in non-opioid pain management interventions across the state of Kansas. The third was to introduce a sustainable and replicable non-opioid community intervention strategy to support rural Medicare consumers and healthcare providers. The fourth aim was to identify best practices and intervention strategies in the following categories: Healthcare provider education, which includes testing of alternative delivery strategies (for example: interactive television and web-based) and Medicare consumer self-management courses and/or support.

Methods

Context

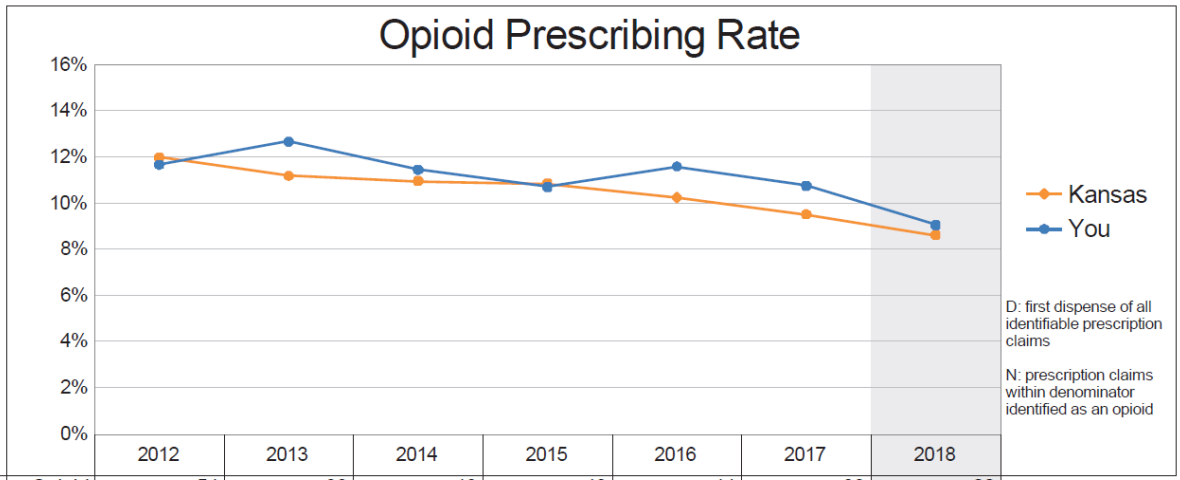
As previously mentioned, based on publicly available prescribing data, a 9-county area in Southeast Kansas was identified as having some of the most pronounced socioeconomic challenges as well as some of the highest opioid prescribing rates and is considered mostly rural. Initial recruitment of providers to participate in this work was relatively easy. All seemed to want to be on the front side of a solution in rural America. KUMC was recruited to provide expert faculty to deliver this face-to-face, medical education session in Southeast Kansas. As the date of the kick off learning session neared, there were zero participating providers registered to attend. The session was canceled, and project staff sought to engage each committed provider directly to determine the challenges in attending a collaborative learning session. Project kickoff was redirected and launched through face-to-face site visits with each committed participant in August 2017. Providers seemed very receptive to visiting with project staff individually. However, while most prescribers were eager to work on this issue, prescribing rates and prescribing practices are very personal for providers, and most were not willing to collectively discuss their own rates as part of a larger group. Project staff also identified that prescribers were much more comfortable being a part of a "community effort" rather than being the only source of the solution. Additionally, most providers who knew their prescribing rates were not ideal, struggled to find the solutions, as what they felt they needed was not accessible in their community, or they were attributing it to other factors (i.e. outside specialists brought in by the hospital). As such, through partnership with the hospital association, we sought to engage each community hospital as the coordinator/facilitator of the community effort in each of the targeted communities. Hospitals have a much greater capacity for putting people and other resources behind quality improvement efforts, even in rural areas, so this served to provide additional and necessary resources to support the effort that individual providers would not have individually been able to contribute. After the development of the feedback report, 308 recruitment packets were generated and sent to providers identified as practicing in the 9-county target area. These recruitment packets included feedback data demonstrating targeted prescribers opioid prescribing history, a needs assessment soliciting educational preferences and barriers to appropriate prescribing, providing resource on addiction treatment facilities in Southeast Kansas, and an offer for free patient-engagement, educational posters about opioid risks. Qualitative feedback regarding the packets was positive. 36 providers formally committed to participation in this "community effort" during the initial performance period, representing four Southeast Kansas counties. The four targeted counties range in total

population from 21,000 – 40,000 and are all designated by the Health Resources and Services Administration as "rural". These four counties ranked 78th, 82nd, 96th and 101st (of 103 ranked counties) in worst health outcomes in Kansas and 92nd, 94th, 101st, and 102nd (of 103 ranked counties) in worst health factors[11]. Three of the four counties sit directly on the state border with either Missouri, Oklahoma or both.

During the 12-month extension period, additional providers were recruited for participation across the state of Kansas, intending to demonstrate that providing feedback on prescribing habits was indeed a successful intervention in reducing inappropriate, unnecessary or unsafe prescribing. Also, additional coordinating organizations were recruited to host and support chronic pain self-management classes.

Interventions

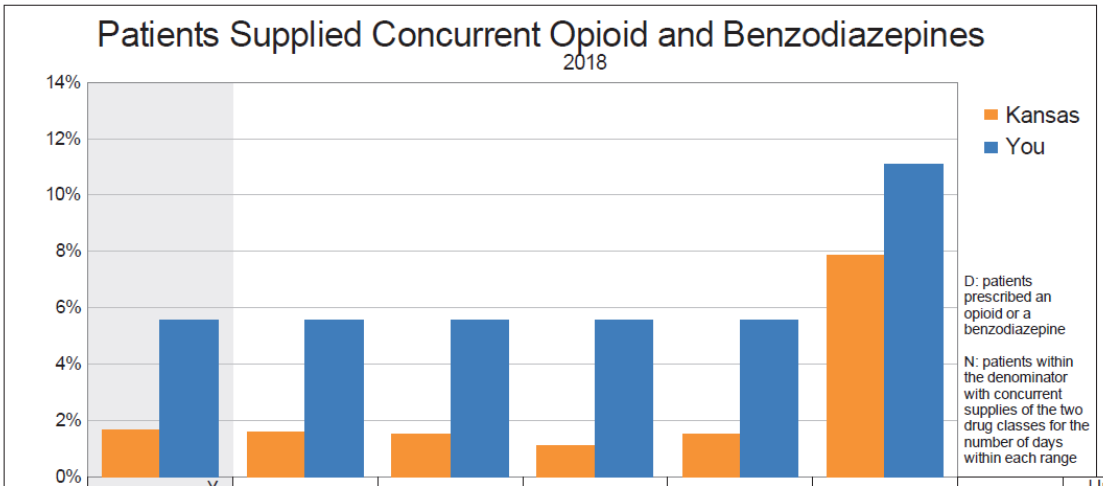
Data Feedback (i.e. Prescriber Reports): Opioid prescribing feedback reports were developed and distributed to recruited providers to engage them in awareness, evaluation, and self-monitoring of their personal opioid prescribing practices. Data feedback was considered a foundational component of this project. Initially, K-TRACS Data (PDMP Data) was thought to be the gold standard for feedback, but due to the lack of prescribers using the system at initiation of a prescription, it was difficult to use this data to begin to engage providers in actively using data to guide improvement in this area. An example of the prescribing rate graph, from the SIP developed report, is below.



		2012	2013	2014	2015	2016	2017	2018
Your Claims	Opioid	54	66	49	43	44	33	22
	All	463	521	428	402	380	307	243

The report also includes other metrics to identify unsafe prescribing practices, including opioid prescription day supply, patients' prescribed days' supply of opioids, patients supplied a daily milligram of morphine equivalence (MME) at or above 50, patients supplied a daily MME at or above 90, patients supplied concurrent opioid and benzodiazepines, and patients supplied concurrent long and short acting opioids. These reports are sent to providers quarterly along with resources and tools to improve key areas of performance. Along with each metric, the feedback reports connect the measure of performance to available evidence intended to motivate change in the prescriber's behavior. See a sample metric with specific guidance below:

[11] 2018 County Health Rankings & Roadmaps, A Robert Wood Johnson Foundation Program, http://www.countyhealthrankings.org/app/kansas/2018/compare/snapshot?counties=20_021%2B20_037%2B20_125%2B20_099



	1 to 3 days ¥	4 to 7 days	8 to 14 days	15 to 21 days	22 to 31 days	Over 1 month	Total	Unique Patients
Your Claims	1	1	1	1	1	2	7	18

Using a similar approach as that used when calculating patients' daily available MME, dates when a patient has both opioid and benzodiazepine available can be determined along with the total number of days this has occurred for the patient over the past year. Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible[5]. Patients receiving opioid therapy are at elevated risk of attempting suicide. Sedative co-prescriptions increases the risk of suicide attempt (OR=20.3)[6].

These patients are identified as your patient when a prescription you wrote for either an opioid or a benzodiazepine is dispensed while the other drug type is still within its supplied coverage. The percentage of these patients have then been categorized by the total number of days they have had concurrent opioid and benzodiazepine supplies. Utilization of K-TRACS, the Kansas prescription drug monitoring program, can prevent unknown or unnecessary concurrent prescriptions.

Recruited providers are also able to request beneficiary level data to conduct a root cause analysis of prescribing patterns to target their improvement efforts.

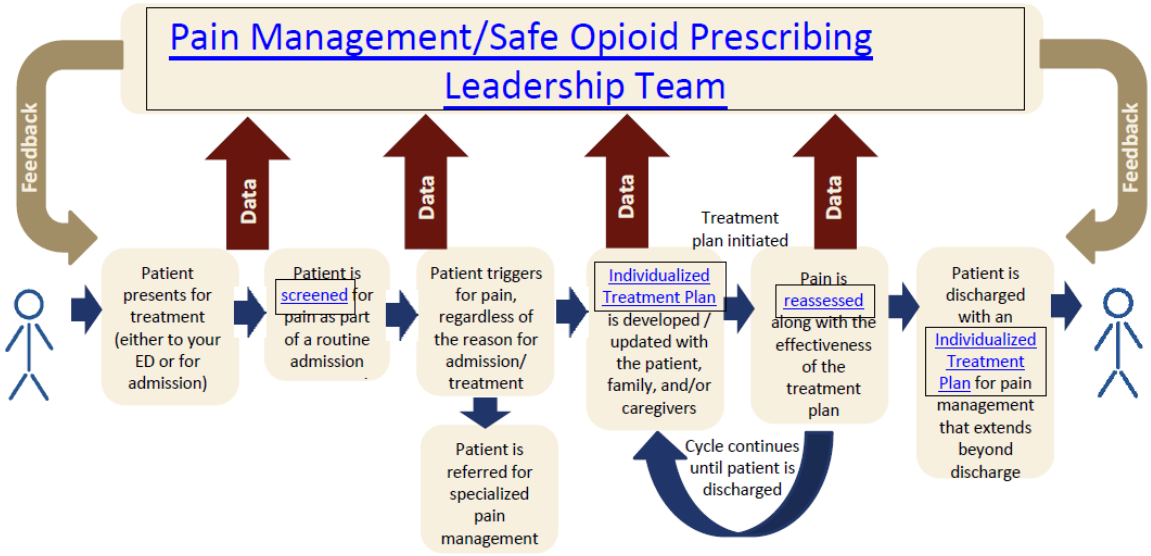
Great Plains QIN health data analytic staff provided analytic support to project team members in the development of metrics to analyze prescribing patterns. The metrics follow closely the guidelines provided in the 2016 CDC recommendations and SAS analytic code was developed specifically to generate the feedback reports from Medicare Claims Data. The reports are enhanced and updated based on feedback received by project staff directly from providers actively working to improve performance.

Education: Development and dissemination of educational resources to participating providers to increase their ability and capacity to care for patients with chronic pain. To engage a broader group of providers, stakeholders, and patients in improving opioid prescribing rates, Great Plains QIN helped facilitate a regional Learning in Action Network (LAN). The LAN framework consisted of multiple educational sessions, peer-to-peer sharing, and access to relevant tools and resources. They provide a non-threatening environment and lower education cost due to not needing to travel to attend, as they are primarily delivered virtually. Invitations are sent to recruited providers for all educational events that are related to opioid safety, and individuals were able to register for LAN events via the Great Plains QIN website. LAN webinars were designed to improve clinical knowledge and support quality improvement implementation strategies and covered topics. The Opioid SIP collaborated with the C3.6 Medication Safety task to develop an education series which began in May 2018 focused on Opioid Safety. The topics

included: Physician Perspective and Opioid Stewardship, Medication Assisted Treatment (MAT), Appropriate Management: How to De-prescribe Opioids: The Art and Science of Opioid Tapering, Screening for Substance Use Disorder (SUD), and Addiction Support: Primary Care Provider (PCP) Management. Each learning session featured didactic education followed by an opportunity for questions and answers and peer sharing. Speakers included both subject matter experts and Opioid-SIP participants. All webinars were recorded and are accessible online following the live broadcast. By enrolling in the LAN, providers and partners were also given access to a variety of online tools and resources to support appropriate utilization of opioids. Other LAN sessions included Prescription Drug Monitoring Programs: Part I & II, Pain and Addiction: A Challenging Co-occurring Disorder, Naloxone and Its Role in Prevention of Opioid Overdose Death, and Chronic Pain Management at a Family Medicine Residency Clinic.

Learning and Action Network events are developed by the Opioid Project Team in conjunction with the larger Medication Safety team, which includes both clinical staff (nursing, pharmacy) and performance improvement experts. This team then utilizes industry subject matter experts to provide the learning session content.

Technical Assistance: The creation of an Opioid toolkit and provision of tailored, technical assistance in implementing best practices, including the development and delivery of an adapted Project ECHO series. An Opioid Toolkit was developed for providers to reference for pain management and safe opioid prescribing, specifically to support the Joint Commission's updated Pain Management Accreditation Guidelines for 2018. In working directly with providers, this was identified as a gap, as there were numerous toolkits providing community-based interventions, clinical interventions, and prescribing guidelines, but no existing toolkit cross-walked the updated accreditation guidelines for hospitals to assist with implementation. The main page of the toolkit is below[12].



[12] *Medication Safety*. (2018). Retrieved from Great Plains Quality Innovation Network: https://greatplainsqin.org/wp-content/uploads/2018/04/KS-Opioid-Toolkit-Combined.pdf

This toolkit focuses on the Joint Commission Standards implementation of new and revised pain assessment and management standards that became effective January 1, 2018. It focuses on how to develop a leadership team, screening of patients, treatment for patients, informed consent forms, individualized treatment agreements, screening and monitoring tools, and care plans. This toolkit was distributed to the Opioid SIP recruited providers as well as the C3.6 cross-task and posted to the Great Plains QIN website for the public to access.

Great Plains QIN also provides tailored technical assistance to participating providers as needed. This assistance includes conducting additional data analysis and stratification, root cause analysis to identify specific opportunities to improve compliance with evidence-based prescribing practices, assistance guiding implementation specifics of interventions, provision of tools, protocols and policies, tailoring learning session content to the needs of the participating provider communities and collecting feedback on gaps/needs that remain unmet to improve performance. In alignment with the CDC opioid prescribing guidelines, technical assistance included testing the validity of, and refining the implementation strategy of such guidelines for rural providers on the available evidence for safer, more effective treatment of both acute and chronic pain by:

- Conducting a physical exam, pain history, past medical history, and family/social history; reduce the stigma of pain and promote comprehensive diagnosis, assessment and treatment. This should include a psychological assessment, including risk of addictive disorders.
- Using non-opioid medications and other therapies, such as physical therapy, instead of or in combination with opioids. Clinicians should consider the full range of therapeutic options for the treatment of chronic and acute pain.
- For complex pain syndromes, pain specialty consultation should be considered to assist with diagnosis as well as management. Diagnosis can help identify disease-specific interventions to reverse or improve pain.
- Prescribing the lowest effective dosage of opioids to reduce the risk of Opioid Use Disorder (OUD) or overdose; completing an appropriate trial of opioid therapy with or without adjunctive medication.
- Discuss potential benefits and harms of opioids with patients (Informed Consent) and use pain treatment agreements.
- Assess improvements in pain and function regularly, including pre- or post-intervention assessment of pain level and function and reassessment of pain score and level of function.
- Use tools such as urine drug tests and PDMP to inform prescribers about patients' other medications and increased risk.
- Monitor patients for signs of whether OUD might be developing and arrange treatment if needed. Reduce the stigma of substance use disorder and enhance access to treatment.

Finally, Great Plains QIN assisted KUMC in developing an adapted Project ECHO series for pain management that meets the needs of rural primary care providers. The original Project ECHO design included 6 sessions, open to 25 clinicians, and cost approximately $4,000 per provider. This intervention design was too limited, too expensive and too long to provide benefit to rural providers. Working directly with the telemedicine department at KUMC, Great Plains QIN worked to assist them in adapting the model to better meet the needs of resource-challenged providers. The adapted model was completed in 4-sessions and titled "Treat PAIN in 2018". The series included an overview of pain, non-opioid treatment strategies, overview of opioid use disorder, and

assessment and treatment options. 300 unique attendees participated between 4 sessions and it was accessible by primary care providers across the four-state GPQIN region at no cost to the providers.

Toolkit development and technical assistance was provided by a multi-disciplinary team of consultants, including nursing staff, performance improvement experts, medical direction, healthcare administration, health data analytics and assessment, certified self-management trainers, communications experts, project coordination staff and work is designed and implemented in conjunction with the Kansas Prescription Drug advisory group and other interested and engaged stakeholder groups (i.e. the Kansas Hospital Association, the Kansas Medical Society, the Kansas Department of Health and Environment). The KUMC Project ECHO curriculum was developed and will be delivered by their Clinical Expert Team, including a Medical Director, Inter-professional Specialty Team (Pain Management Physician, Pain Management Nursing, Opioid Use Disorder Diagnosis and Treatment Faculty, and Behavioral/Mental Health Faculty).

Fourth: Building the infrastructure to support the spread of the Chronic Pain Self-Management Program, an evidence-based intervention developed by Stanford University.

Great Plains QIN - Kansas has a license with the Self-Management Resource Center (formerly held by Stanford University) to offer Chronic Disease Self-Management workshops across the state of Kansas and partners with the Kansas Department of Health and Environment, the only other license holder in the state, to expand the network of program leaders while developing the referral supports to create ongoing sustainability for the programs. This suite of programs endorsed and supported by Great Plains QIN includes a Chronic Pain Self-Management program (CPSMP), an evidence-based self-management program specifically tailored to assist people experiencing chronic pain with developing alternative methods to improve their pain. Topics covered during the six-week workshop include techniques to deal with problems such as frustration, fatigue, isolation, and poor sleep; appropriate exercise for maintaining and improving strength, flexibility, and endurance; appropriate use of medications; communicating effectively with family, friends, and health professionals; nutrition; pacing activity and rest; and how to evaluate new treatments[13].

Great Plains QIN – Kansas provides all the necessary tools and training to coordinating organizations who wish to begin offering self-management programming, including training Group Leaders to lead the classes. Once trained, Group Leaders and/or coordinating organizations are provided with an implementation "tool-kit" which includes all necessary workshop related materials. This includes a library of books and CDs for participants to "check out" while participating in the class, paper charts needed for every workshop, dry erase markers, CD Player, etc. Once trained, Group Leaders continue to receive support from either Great Plains QIN Kansas or the Kansas Department of Health and Environment, as Group Leaders are expected to adhere to program fidelity and data collection expectations to maintain licensure standing. Group Leaders must attend all four days of become certified and to continue their certification, leaders must facilitate one workshop every 12 months.

[13] *Help Your Community Take Charge of its Health*. (2018). Retrieved from Self-Management Resource Center: https://www.selfmanagementresource.com/

Unfortunately, the resources necessary to support self-management programming are problematic for many provider organizations, as self-management programs are not a revenue-generating service. As such, building the infrastructure necessary to support such programming despite the lack of financial support is time consuming and proves to be problematic for accelerated implementation timelines. Initial interest in serving as coordinating organizations for the Southeast Kansas project was hindered by a lack of available lay leaders to be trained. Since the Chronic Pain Self-Management Program (CPSMP) is based on the Chronic Disease Self-Management Program (CDSMP) curriculum, Group Leaders participate in the four-day CDSMP training, and one and a half day CPSMP cross-training. The Self-Management Project team includes four Stanford Certified Master Trainers, five additional certified group leaders, community engagement experts, communications and marketing experts, project coordination and support staff.

During the 12-month extension period, a pilot project with a long-term care facility was initiated. This project rolled out formally in January 2019 and ran for 6 months. Two internal measures were established to gauge success: a 10% increase in documented indication for opioid use and a 10% reduction in Long-Stay and Short-Stay pain Quality Measures. The project design included a three-tiered approach to education including leadership education, direct care team education followed by direct elder and family education on non-pharmacological interventions and introduction of comfort menus.

Study of the Interventions

Data Feedback (i.e. Prescriber Reports): Analysis of the effectiveness of this intervention is primarily through evaluating qualitative feedback from providers who are using the reports. Evaluation of prescribing data and changes in feedback report metrics were also used to determine effectiveness of the feedback process.

Education: Analysis of the effectiveness of this intervention is primarily through evaluating qualitative feedback solicited during interactions with participating providers and event evaluations.

Technical Assistance: Tailored technical assistance has been provided to assist participating providers in analyzing their feedback data for patterns, trends or opportunities. Tailored technical assistance has been provided to assist in evaluating and analyzing the best practice interventions provided through education to determine those appropriate for adoption based on data feedback to facilitate improvement in the identified metrics regarding safe prescribing practices.

Chronic Pain Self-Management: Evaluation of this intervention, specifically as it relates to this special innovation project, was determined by the number of new master trainers and group leaders trained in this discipline, and the number of consumers completing the program.

Measures

The evaluation assessment strategy for monitoring the success of the Opioid Special Innovation Project is outlined in the Table below. Those that were added for the 12-month extension period are included in bold:

Process Measures	Outcome Measures	Return on Investment
1. Have a policy in place to conduct comprehensive exam (physical, pain history, pre/post intervention, functional) 2. Adoption of clinical practice guidelines to consider non-opioid medications and non-pharmacological interventions prior to initiation of opioid therapy 3. Establish a relationship with a pain management specialist for direct consultation 4. Adoption of clinical practice guidelines to ensure prescribers prescribe the lowest effective dose 5. Utilization of an Informed Consent Process for opioid therapy 6. Establish a referral process for Self-Management interventions to assist with pain management and tolerance 7. Have a policy in place to monitor and screen patients for Opioid Use Disorder 8. **Number of Chronic Pain Leaders** 9. **Number of Workshops Held** 10. **Number of participating providers**	1. Opioid Prescribing rate for targeted counties compared to the statewide rate 2. Number of Days Prescribed rate for targeted counties compared to the statewide rate 3. Patients' Prescribed Days' Supply rate for targeted counties compared to the statewide rate 4. Days Prescribed at or above 50 MME rate for targeted counties compared to the statewide rate 5. Days Prescribed at or above 90 MME rate for targeted counties compared to the statewide rate 6. Days Patient's Supplied Concurrent Opioids and Benzodiazepines rate for targeted counties compared to the statewide rate 7. Incidence of Newly Diagnosed Opioid Use Disorder rate for targeted counties compared to the statewide rate 8. Rate of Patient's Discontinuing Chronic Opioid Prescription 9. Therapeutic Outcome Measure for targeted counties 10. **Appropriate tapering of high doses of Opioids** 11. **Rate of adverse events associated with uncontrolled pain** 12. **Short Stay Resident- Pain QM Rate (LTC Pilot)** 13. **Long Stay Resident – Pain QM Rate (LTC Pilot)**	1. Decrease in number of Opioid Claims 2. Better Chronic Care Management 3. Safer Opioid Prescribing Practices 4. Lower ED Utilization due to pain related diagnoses

Analysis

The process measures were calculated based on direct feedback from participating providers at the initiation of the project and then again at the conclusion of the project. Kansas Medicare part D claims were obtained from CMS for the years several years prior to project initiation to develop baseline rates for both the state and the original targeted providers in Southeast Kansas. In this claims data, each claim includes a single drug referenced by its national drug code (NDC) along with the associated Medicare ID. For those drugs that require a prescription, the prescribing

individual is identified along with the filling pharmacy on the claim. From these prescription claims we were able to identify the quantity dispensed, date of dispensing, and days this quantity should supply. After isolating the claims to include only those properly submitted with both a prescriber and pharmacy identifier, further reduction occurred by including only claims listed with a known prescription type NDC. These codes were identified using the publicly available NDC database file found on the Food and Drug Administration's (FDA) website[14] and those listed on the CDC's opioid overdose website[15]. At this point, every filling of a prescription whether initial or refill was included in the claim set. To provide proper comparison to a drug class that does not allow any refills, a final reduction of claims to include only the initial filling occurred. Using the previously mentioned CDC file[16], the remaining claims were further categorized into Opioid, Benzodiazepine, and other drug classes. For those contained in the other drug class, additional processing occurred to obtain the NDC's active substance listed on the FDA's product information file[17]. Those containing an Opioid derivative substance were re-categorized as part of the Opioid drug class. For each measure, only one data point was available representing a full quarter of performance data. Therefore, performance quarter was compared to prior quarter to identify a change, positive or negative, in the identified measure. That change was then compared to the state-wide change for the same metric. For all Medicare Part D claim measures, Medicare Part A and B claims were cross-referenced to remove claims for those beneficiaries receiving palliative care or cancer treatment. Each measure was then calculated as follows:

- Prescribing Rate – Medicare Part D claims showing an opioid prescription were compared to claims showing any type of known prescription and the prescribing rate is represented as a percent of total claims.
- Opioid Prescription Day Supply – The quantity dispensed by a prescription does not directly represent how long the supply should last a patient. The number of days supplied, based on the prescribed dose, were categorized by number of days supplied by the dispensed opioids of each prescription.
- Patient' Prescribed Days' Supply of Opioids – The number of prescriptions does not directly relate to the number of patients (Medicare Part D Beneficiaries). Nor does every patient receive the same day supply with each prescription; therefore, the number of beneficiaries that have been dispensed in each of the supply ranges is estimated.
- Days Patients Prescribed At or Above 50 MME – By splitting a patient's dispensed opioid MME across all days it should cover and then aggregating based upon each patient, the available morphine equivalence across all prescribers and all pharmacies was obtained. Then dates, along with total number of days over the year, that a harmful MME has been

[14] U.S. Food & Drug Administration "National Drug Code Directory" https://www.fda.gov/Drugs/InformationOnDrugs/ucm142438.htm [accessed December 7,2017

[15] Centers for Disease Control and Prevention "Opioid Overdose" https://www.cdc.gov/drugoverdose/resources/data.html [accessed December 7, 2017].

[16]Centers for Disease Control and Prevention (2017) "CDC compilation of benzodiazepines, muscle relaxants, stimulants, zolpidem, and opioid analgesics with oral morphine equivalent conversion factors" [Spreadsheet] https://www.cdc.gov/drugoverdose/datafiles/CDC_Oral_Morphine_Milligram_Equivalents_Sept_2017.xlsx [accessed December 7,2017].

[17] U.S. Food & Drug Administration (12/7/2017) "NDC Database File" [Text/Zip] https://www.accessdata.fda.gov/cder/ndctext.zip [accessed December 7,2017].

available to the patient was determined. Patients were attributed to prescribers if the prescriber wrote a prescription that was dispensed on one of the dates determined to be at or above 50 MME.

- Days Patients Prescribed At or Above 90 MME – By splitting a patient's dispensed opioid MME across all days it should cover and then aggregating based upon each patient, obtain the available morphine equivalence across all prescribers and all pharmacies was obtained. Then dates, along with total number of days over the year, that a harmful MME has been available to the patient was determined. Patients were attributed to prescribers if the prescriber wrote a prescription that was dispensed on one of the dates determined to be at or above 90 MME.
- Days Patients Supplied Concurrent Opioid and Benzodiazepines – Using a similar approach as that used when calculating patients' daily available MME, dates when a patient has both opioid and benzodiazepine available were determined along with the total number of days this has occurred for the patient over the year. Patients were attributed to prescribers if the prescriber wrote a prescription for either an opioid or a benzodiazepine while the other drug type was still within its supplied coverage range.
- Incidence of Newly Diagnosed Opioid Use Disorder – Medicare Part A and B claims were analyzed to identify Medicare beneficiaries with newly assigned Opioid Use Disorder Diagnosis
- Rate of Patients Discontinuing Chronic Opioid Prescriptions – Chronic Opioid Users were identified as those beneficiaries holding opioid prescriptions for 60 or more days during the quarter from dispensing within or prior to that quarter. The relative change of the ratios of stopped chronic opioid users to new and relapsed chronic users were used to determine a discontinuation rate.
- Appropriate Tapering of High Dose Opioids – this measure was unable to be calculated based on available data. There were identified problems with using the Days Supplied accessible on the claim. The claims data only includes the total days supplied that is assigned by the pharmacist rather than the days' supply written by the prescriber. Due to identified inconsistencies in the data (listed on the claim as "3" when it clearly should have been "30", this measure was not calculated. In order to reliably calculate and identify appropriate versus inappropriate tapering, analytic staff will need access to the prescriber data either through the electronic health records or PDMP data.
- Adverse Events Associated with uncontrolled pain – Emergency Department Claims were analyzed and a rate was calculated for those claims that included a pain related diagnosis code.
- Therapeutic Outcome Measure – Relative Improvement Rate of Pain Management in Short Stay and Long Stay LTC Residents in the targeted communities were calculated based on CASPER data for the initial performance period. However, during the extension period, these measures were monitored only for the pilot facility working to implement alternative pain management interventions as part of this project.
- Return on Investment was calculated by applying costs to the number of decreased Opioid claims and estimating a 10% reduction on the total annual cost of treating chronic pain, which was then applied to the number of beneficiaries who discontinued chronic opioid prescriptions.

Ethical Considerations

The Opioid-SIP posed no ethical concerns or conflicts of interest for recruited practices, stakeholders and partners, or project staff. Participating clinics and partnering organizations received no financial incentives for participation in the Opioid-SIP. All resources received from CMS for the Opioid-SIP were used to support project aims.

Results

Intervention Results

Data Feedback (i.e. Feedback Reports): The prescribing reports were a great way to engage providers in the project and facilitate evaluation of prescribing patterns. Providers were more willing to participate when they were able to objectively review their contribution to prescribing rates and these reports served as the first step to getting providers to consider that their own prescribing practices may benefit from improvement efforts. Providers were more willing to review their own data in private than they were to do so at an in-person education session. The limitation of the prescribing reports in that it only includes Medicare claims data with a four to six - month lag in the data. Despite this, providers seem very engaged with the reports and are interested in comparing their performance to statewide performance and the trend over time. The feedback reports were developed to help providers understand how their current prescribing practices matched, or deviated from, the CDC Prescribing Guidelines released in 2016. They have been received very favorably by providers, and assisted providers in understanding the patients they care for who are receiving opioid therapy to determine the continued appropriateness of such therapy. The provision of evidence and/or recommendations along with the metrics helped to quantify for providers the risk of continuing to prescribe outside the CDC Prescribing Guidelines. We heard from several providers that they identified issues within their prescribing practices that they had not previously recognized, but we also learned from providers that simply understanding the deviations from guidelines were not always enough to prompt action to correct the deviation. We visited directly with providers who already recognized, on some level, that their prescribing rates and/or practices were not ideal, but struggled to find alternatives and felt geographically isolated, specifically as it related to team based, non-medical approaches to appropriate pain management and substance use treatment/support.

One key take-away from the provider feedback report intervention is that providers crave data to drive care decisions, but the data must be timely, relevant and actionable. At the conclusion of the project, we are working with providers to access more real-time data for some of the metrics directly from the PDMP and to continue their internal evaluation process within their normal workflow on a regular basis. Provider feedback reports were developed, distributed, and reviewed quarterly and are only sustainable as long as funding is available for Great Plains QIN staff to develop and distribute. Utilizing provider data, within their own systems, and in real-time is the final phase of this improvement project to ensure progress accelerates and continues. However, the provider feedback reports are invaluable in building the momentum for this improvement activity. At the conclusion of the base performance period (09/2016 through 09/2018), 36 individual prescribers were recruited to participate in the feedback process. During the extension period (9/2018 – 09/2019), and additional 999 prescribers were recruited with the final recruited population being 1,035 individual prescribers.

Education: Providing education to providers who already feel burdened can be a challenge. Initial plans for this project included the delivery of evidence-based care guidelines to participating providers during a face-to-face learning session to launch or kick off the project activities. The original project design followed previous project collaborative that Great Plains QIN has used successfully and followed a modified or adapted version of the IHI Collaborative Model (Pre-work to prepare for an initial project launch or kickoff/learning session, performance period with feedback/technical assistance and learning sessions, followed by an outcomes congress). Great Plains QIN worked closely with KUMC to identify expert faculty to deliver this face-to-face medical education session in Southeast Kansas. As the date of the kick-off learning session drew near, there were 0 registrants for this session. The session was canceled, and project staff sought to engage each committed provider directly to determine the challenges in attending a collaborative learning session. Alternately, the project was launched through face-to-face site visits with each committed participant. Providers seemed very receptive to visiting with project staff individually. While most prescribers are eager to work on this issue, prescribing rates and prescribing practices are very personal for providers, and most were not willing to collectively discuss in a larger group their own rates they had not previously seen or worked to understand themselves. Providers also were much more comfortable being a part of a "community effort" rather than being the only source of the solution. Based on this feedback, project leadership adjusted the project-team composition at the local level and adopted a completely different, community-based approach to project activities, while recognizing the need for specific education around evidence-based care guidelines for both chronic pain and opioid therapy, as well as opioid use monitoring, screening, de-prescribing, and referral for substance use treatment services. Based on this feedback, project staff also enhanced the panel of subject matter experts available to support the clinical education needed to drive improvement in this project. Initially, we collected faculty from the medical community, but expanded our learning session offerings to include all aspects of pain management and opioid therapy in tandem and added behavioral health and addiction expertise to our faculty panel. Project staff also heard from providers that specifically in rural areas, it was not possible to dedicate large amounts of time to continuing education on new or promising practices. Many are sole community providers and in addition to seeing patients in their clinic, they follow patients in the hospital and respond to emergencies. It was determined from this feedback that education needed to be in small snippets, allowing providers to only "dial in" for topics that were of specific interest or need to them, without having to dedicate time to topics or interventions they considered "not relevant" to their individual practice. The learning sessions should also be repeatable (recorded) and available on demand. Learning sessions need to be on-demand to accommodate their schedule, and to be available when needed to guide the decision-making process for a specific patient that may not present for several weeks or even months. There are specific areas of pain management or opioid use monitoring that a rural provider may not see frequently. On demand would allow providers the opportunity to "refresh" the information they learned during the learning session when necessary.

A virtual learning session series was developed, including nine topics that encompass the full spectrum of opioid therapy and chronic pain management, including: Managing Chronic Pain Naturally, Chronic Pain Management at a Family Medicine Residency Clinic, Developing a State Pain Guidance Document: Creating a Task Force and Selecting Tools; Naloxone and its Role in Prevention of Opioid Overdose Death; The Art and Science of Opioid Tapering; The Opiate

"Crisis": Physician Perspective and Opiate Stewardship; Medication Assisted Treatment for Opioid Use Disorder; and Project ECHO as a Tool to Address the Opioid Epidemic. All nine sessions were completed and qualitative analysis of attended numbers and demographics were used to evaluate the number/type of registrants (see below) and attendees for each session. While initially we saw momentum building in attendance numbers across our region, we never did realize increased participation by our targeted providers. Even as the SIP extension progressed, and the target area was expanded to include all of Kansas, participation in virtual learning sessions did not increase

Session Date	# of attendees	Attendees from targeted counties
01/09/2018	88	1
02/06/2018	50	0
03/13/2018	44	0
04/10/2018	144	0
05/24/2018	153	0
07/11/2018	61	0
08/07/2018	68	0
09/26/2018	42	0
12/04/2019	108	1
Session Date	**# of attendees**	**Attendees from targeted state**
03/27/2018	62	5

Technical Assistance: This assistance began with onsite visits and routine feedback is solicited from practices to determine the effectiveness of all interventions. Unfortunately, at report development time we only have one quarter of performance data available for analysis, so we were unable to evaluate for trends and patterns. However, the single quarter of performance data was evaluated at the target population level and compared to that of the entire state of Kansas to identify differences in trends between the two cohort groups from the quarter just prior to the project launch and the 4 months or 2 quarters (1 partial quarter and 1 full quarter) of performance data. Changes in prescribing patterns for the targeted counties when compared to the state-wide prescribing patterns was used to determine the correlation between our technical assistance interventions and any improvement or changes in prescribing habits. The feedback from providers regarding their barriers to implementing evidence-based pain management or opioid stewardship guidelines is summarized, evaluated and used to drive intervention selection, tool development, resource directories, and learning session content.

The second component of our technical assistance offering for prescribers includes the development of a Project ECHO series to meet the needs of resource challenged primary care providers in Rural Kansas. Project ECHO was developed by the University of New Mexico and its effectiveness in building the expertise of primary care clinicians through connecting them to specialists for mentoring through virtual technology is well established. A study published by the New England Journal of Medicine found that in hepatitis C patients, those cared for by a Project ECHO trained community provider result in outcomes equal to those provided by specialists at a university[18]. It is this validation that we are building on in the development of a pain management/opioid use Project ECHO group tailored to meet the financial and time-constraint

[18] Sanjeev Arora Karla Thornton, Glen Murata, et al., Outcomes of Treatment for Hepatitis C Virus Infection by Primary Care Providers. *N Engl J Med* 2011; 364:2199-2207

needs of rural providers. During the project performance period, a pain management ECHO series was provided under another funding source just after project launch. At least four clinic sites, one in each of our four targeted communities, participated in this project instance for at least one session. We heard from providers that lack of specialty access for pain management, addiction medicine, and behavioral health are severely lacking in Southeast Kansas. However, the ECHO model could be a valid alternative solution, building a community of practice around pain management, addiction medicine and behavioral health, but only if it is available and accessible. The refined and adapted version eliminates portions of project ECHO through the university that while important, are not essential to the successful delivery of the intervention (i.e. Continuing Medical Education) to bring the cost into alignment with a sustainable, delivery model going forward, making it easier for the university, communities and individual providers to access and fund the project. Beginning in October, after the conclusion of the SIP supported ECHO, Great Plains QIN Kansas staff joined the Opioid Use Disorder ECHO Advisory Team. Membership included the American Academy of Addiction Psychiatry Clinical Support System, family medicine providers, private payers, Addiction Treatment facilities, Kansas Department of Health and Environment's (KDHE) Bureau of Health Promotion, Substance Abuse and Mental Health Services Administration (SAMHSA) Region VII representatives, and the University of Kansas. This advisory team will serve to sustain the collaborative enhancements and feedback process used during this SIP to drive the content and format of future Opioid/Pain related ECHO programing.

Other technical assistance also included the sharing of Best or Promising practices that were gleaned from healthcare organizations across the country and shared on national or regional learning sessions. These practices included: policies/procedures regarding opioids/medication safety practices; pocket guides for CDC prescribing guidelines, CDC tapering guidelines and Pain Management developed by the University of Kansas' Pain Management program; Acute Pain Rx Pad for non-opioid management of pain; and the Opioid Risk Screening Tool.

Chronic Pain Self-Management: The Chronic Pain Self-Management Program (CPSMP) was developed by Stanford University and is based on the Chronic Disease Self-Management Program structure, for which there is a large body of evidence to support the program's efficacy. The Chronic Pain program has been independently evaluated in two randomized clinical trials which found that, on average, those consumers completing the 6-week program have more energy, less pain, greater independence, improved mental health, are more involved in activities of daily living, and are more satisfied with their lives[19]. We continue to evaluate the intervention in the rural environment based on feedback from participants and volunteer, lay-leaders alike. The program is well received by the participants in the workshops, and demand for the program is increasing throughout Kansas. One of the common themes heard from participating providers is that there are limited alternatives to opioids in rural areas. This layperson-led self-management program is an intervention that can be adopted in any community. During the entire project performance period, including the 12-month extension, we trained 15 Chronic Pain Master

[19] Self-Management Resource Center (2018). Chronic Pain Self-Management Program, retrieved from https://www.selfmanagementresource.com/programs/small-group/chronic-pain-self-management/

Trainers, 17 Pain Group Leaders and provided, or facilitated the provision of programming to 90 consumers through 15 completed workshops.

Qualitative Assessment of Implementation

While there were many measurable outcomes for this project, the qualitative evaluation is equally important in determining applicability of results to other settings, as well as future interventions that may enhance or complement existing efforts. At project initiation, we conducted kick-off site visits with participating providers, and the results of those visits include common themes that needed to be accommodated, when possible, in our project design. These same messages or themes continued to be apparent throughout the duration of the project, including the extension

- Must account for care coordination concerns:
  - Many rural patients come to provider offices or rural hospitals already taking opioid medications which were prescribed by other, out of area specialty physicians. In SE Kansas, these specialty physicians were often across the border in Missouri or Oklahoma, creating a unique set of challenges and care coordination concerns that were not part of the original project design. However, care coordination concerns with specialty providers and acute care facilities continues to be a challenge and priority area for future activities.
  - Many nursing home patients come back from the hospital on opioids. The comfort menu and alternative pain management pilot project initiated during the SIP extension provided promising results in Long Term Care and should be explored for further dissemination.
  - There is a need for a national PDMP. State-run PDMPs are limited when a practice is near a state border, and the limited information in a single state's PDMP may mislead a provider about the patient's actual prescription history. Additionally, without federal funding or initiatives, the sustainability and reliability of PDMP is in jeopardy. In the final 12-months of this project, much of the State Board of Pharmacy's time and attention was focused on securing permanent funding for the PDMP. Initial grant funding was set to expire at the beginning of 2020. Through a contentious legislative debate, temporary funding has been secured through 2022 through state general funds appropriations. The funding beyond 2022 remains uncertain and dependent on grant funding or legislatively appropriated general funds.
  - There is a shortage of pain management physicians to either treat patients or support primary care providers in treating patients with chronic or acute pain issues.
  - Specialists, especially orthopedists and oral surgeons, prescribe inappropriately (usually for too many pills / too many days' supply) leaving many unused pills available for diversion (transfer of any legally prescribed controlled substance from the individual for whom it was prescribed to another person for illicit use).
  - Many providers are interested in opioid stewardship but often don't consider themselves as part of the problem. Even those with high prescribing rates frequently feel justified in their reasons for prescribing opioids. Some are completely unaware of opioid-induced hyperalgesia and specific drug-to-disease interactions, and many primary care providers don't know how to appropriately de-prescribe opioids after patients receive a prescription from a surgeon or specialist.
  - A lack of local pain management and substance use disorder treatment resources was frequently mentioned and continues to be a problem disproportionately affecting rural primary care providers.
  - PDMP integration into Electronic Health Record (EHR) operability is highly desirable to reduce provider burden by preventing extra steps in the provider's workflow. PDMP utilization is a best practice for identifying patients that need treatment or may be

illegally diverting the medication they receive. However, PDMP use without a system for caring for those patients identified as having an opioid use disorder doesn't solve the problem.

- Must account for Perverse Incentives:
  - One copay for a prescription can provide a month or more of treatment (i.e. pain relief). Alternative treatments such as physical or massage therapy either are not covered by insurance at all or would require several copays in the same month or week for ongoing treatment, if they are even available for patients in rural parts of the country. Alternative treatments require a larger time commitment from the patient, which is an especially difficult barrier if the patient must take time off work to attend treatment. Missed work time increases the out-of-pocket cost to the patient and may not be feasible depending on the patient's job.
  - Patients with chronic pain are difficult to manage and treat. Specialty doctors want to perform revenue-increasing treatments such as expensive injections, but do not want to spend time on the lower paying work of ongoing patient counseling, alternative modalities and medication management of pain. These patients end up at their primary care physician's office already on opioids.
  - Manual labor jobs (i.e. miners, CNAs/Nurses, construction) are hard on the body. People in these jobs may need an opioid to experience the pain relief necessary to continue working. Similarly, the popularity of sports such as football and long-distance running are damaging to people's bodies. This damage can lead to the need for ongoing opioid prescriptions to maintain function and remain in the workforce. These may be reasons economically disparate areas seem disproportionally high in opioid prescribing rates.
  - Patient expectations for "NO PAIN" create a barrier for non-opioid pain management.
- Clinical Pharmacy Services:
  - Pharmacists are operating in a system that encourages them to "check the box" when offering counseling about opioid risks to patients. If the patient says, "no thanks" to education, there is no incentive for the pharmacy to spend more time on patient education.
- Lack of Accessible Behavioral Health/Substance Use Resources:
  - Nearest methadone clinic or other Medication Assisted Treatment (MAT) program may be up to two counties away or in another state, depending on geography. For this project, the nearest MAT program was in another state.
  - Some organizations can receive funding to support MAT, but comprehensive addiction treatment is lacking across Kansas. There is a lack of evidence-based mental health treatments and no funding to help high-functioning addicts (i.e Sober Living Programs).
  - There is limited access to substance use treatment in rural Kansas without traveling 30-60 minutes, which makes services inaccessible for those who work full time or have other economic challenges. If there are behavioral health resources, most providers do not want to treat addiction, and unlike some treatments for ongoing mental illnesses like schizophrenia, there is little funding to support addiction treatment.
  - Mental health providers and patients are resistant to MAT because they see it as substituting one drug for another. It is a general misperception that addiction is the result of personal failure or that MAT is an acute treatment. Addiction is a chronic illness and many people with Opioid Use Disorder (OUD) will need MAT for the rest of their lives.
  - Some law enforcement agencies are resistant to using Narcan/naloxone to reverse an overdose in the community because the community member frequently becomes aggressive in response to naloxone administration.

- Providers who want to prescribe buprenorphine or suboxone (Medication Assisted Treatment) must attend eight hours of education before they can prescribe these medications for use in medication assisted treatment for OUD. Many providers feel that the eight-hour education requirement is a barrier to being able to offer this to their patients; addiction specialists feel that the eight hours of education is insufficient to properly train a physician on how to treat addiction. Treatment for opioid use disorder must be tailored to the patient's needs and should include behavioral therapies even when medication is used to help transition a person off opioids. Most physicians outside of treatment facilities are not prepared to offer behavioral therapies in conjunction with MAT, so rural patients and providers are at a disadvantage.

Discussion

Summary

Rural and urban communities alike need to be realistic about the problems in their own communities. This will require targeted data feedback that is actionable, education and communication. Feedback data at the prescriber, patient, organization, and community level is essential for quantifying the problem and monitoring change for improvement. This Opioid Special Innovation project connected participating providers to the latest research, progress, and promising community efforts and partnerships working to address the opioid crisis. This project facilitated the development and distribution of best practices for opioid stewardship to providers and partners, and identification of barriers to implementation of these best practices in different settings while innovating adaptive solutions. In this project, providers benefited from receiving data analysis identifying their current prescribing practices, which included comparisons to average prescribing rates in their community, across the state, and nationally. Providers and prescribers received education about opioids and alternative pain management modalities being developed in partnership with the pain management specialists at KUMC. The education model adopted and adapted for use with this project is the Project ECHO model, which goes beyond didactic learning, and serves to enhance the primary care providers' competence and confidence in appropriately managing patients with both acute and chronic pain. Healthcare providers must also educate patients on the adverse effects of prolonged opioid use at the time of initiation of opioid therapy and facilitate an Informed Consent process. Additionally, there are evidence based, consumer engagement and education programs (i.e. the Stanford Chronic Pain Self-Management Program) that provide more than just notification about alternative pain management options. Prescriber notification and education is required as well. At the conclusion of this project, we found that feedback and quality improvement efforts specifically targeted at prescribing behavior, when coupled with clinical education and clinical decision support tools to improve evidence-based pain management and opioid therapy monitoring is strongly correlated with reductions in unsafe prescribing behavior and ineffective pain management. The control charts included in the Appendix demonstrate this correlation with project efforts.

Interpretation

Process Measures

For each of seven of the process measures, an assessment of participating providers was conducted at the beginning of the project performance period and was reassessed at the end of the base performance period to determine if there was improvement in the adoption of know best

practices that may have contributed to improvements in outcome measures that were observed. Great Plains QIN has experienced challenges in achieving improvement in the identified process measures due to the accelerated performance period. These seven process measures require leadership buy-in and support and workflow redesigns to ensure interventions are fully integrated into care processes. We experienced many delays in initial implementation and therefore elected to hold re-measurement until into the extension performance period, and included all participating providers into the remeasurements, since gaps in performance were not pre-requisites for recruitment through the extension. Those measures assessed are included in the table below:

Measure	Baseline			Remeasurement		
	Num	Den	Rate	Num	Den	Rate
Participants who have a policy in place to conduct a comprehensive exam comprehensive exam (physical, pain history, pre/post intervention, functional)	3	37	8.11%	*937*	1,035	*90.53%*
Participants who have adopted clinical practice guidelines to consider non-opioid medications and non-pharmacological interventions prior to initiation of opioid therapy	23	37	62.16%	*612*	1,035	*59.13%*
Participants who have an established relationship with a pain management specialist for direct consultation	22	37	59.46%	*837*	1,035	*80.87%*
Participants who have adopted clinical practice guidelines to ensure prescribers prescribe the lowest effective dose	23	37	62.16%	*858*	1,035	*82.9%*
Participants who utilize an Informed Consent Process for opioid therapy	20	37	54.05%	*631*	1,035	*60.97%*
Participants who have an established referral process for Self-Management interventions to assist with pain management and tolerance	18	37	48.65%	*247*	1,035	*23.86%*
Participants who have a policy in place to monitor and screen patients for Opioid Use Disorder	2	37	5.41%	*582*	1,035	*56.23%*

Through the SIP extension performance period, specific goals regarding dissemination of the Chronic Pain Self-Management programming were established and those process measures, reflecting training and infrastructure development, are reflected in the table below:

Measure	Goal	Actual (as of 06/30/19)	Goal Met?
Number of Chronic Pain Master Trainers	8 Total Trainers	15	Yes
Number of Chronic Pain Group Leaders		17	Yes
Number Workshops Complete	12	15	Yes
Number of Participants Completing Workshops	Not Set	90	n/a

Outcome Measures: In addition to the outcome data included below, control charts for each of the outcome measures are included in Appendix A. For this report, interpretation of performance is based on comparisons between rates within the targeted counties as compared to statewide rates, as well as analysis of data trends prior to project initiation compared to trends post intervention.

Prescribing Rates: Prescribing rates were analyzed at two different levels; Participating Providers (A) and Targeted Counties (B). For Participating providers, this improvement project worked with two cohorts of providers. Cohort 1 represents the original 37 recruited providers whose performance period began in August of 2017 (Quarter 3) and Cohort 2, which represents the statewide cohort of 1,035 prescribers whose performance period began August of 2018 (Quarter 3). These rates were then compared to the statewide rates to determine differences in performance both pre and post project initiation:

Opioid Prescribing Rates - A												
	Participating Providers - Cohort 1				Participating Providers - Cohort 2				State of Kansas			
	# of Claims				# of Claims				# of Claims			
	N	D	Rate	RIR*	N	D	Rate	RIR*	N	D	Rate	RIR*
1Q 2017	728	5763	12.6%		19035	191589	9.9%		153700	1622118	9.5%	
2Q 2017	634	5386	11.8%		19346	190125	10.2%		155120	1599968	9.7%	
3Q 2017	642	5463	11.8%		19056	190092	10.0%		152043	1582221	9.6%	
4Q 2017	578	6019	9.6%	18.3%	19054	196958	9.7%		149869	1618735	9.3%	3.7%
1Q 2018	550	6382	8.6%	26.7%	18539	208472	8.9%		147005	1704263	8.6%	10.2%
2Q 2018	480	5546	8.7%	26.4%	18419	205036	9.0%		145980	1674930	8.7%	9.3%
3Q 2018	431	4638	9.3%	20.9%	17895	202733	8.8%	1.7%	142618	1648398	8.7%	10.0%
4Q 2018	403	4603	8.8%	25.5%	18415	211579	8.7%	3.1%	142368	1685224	8.4%	12.1%
1Q 2019	359	4926	7.3%	38.0%	17534	217012	8.1%	10.1%	135215	1708016	7.9%	17.6%

**Relative Rate of Improvement from project start period*

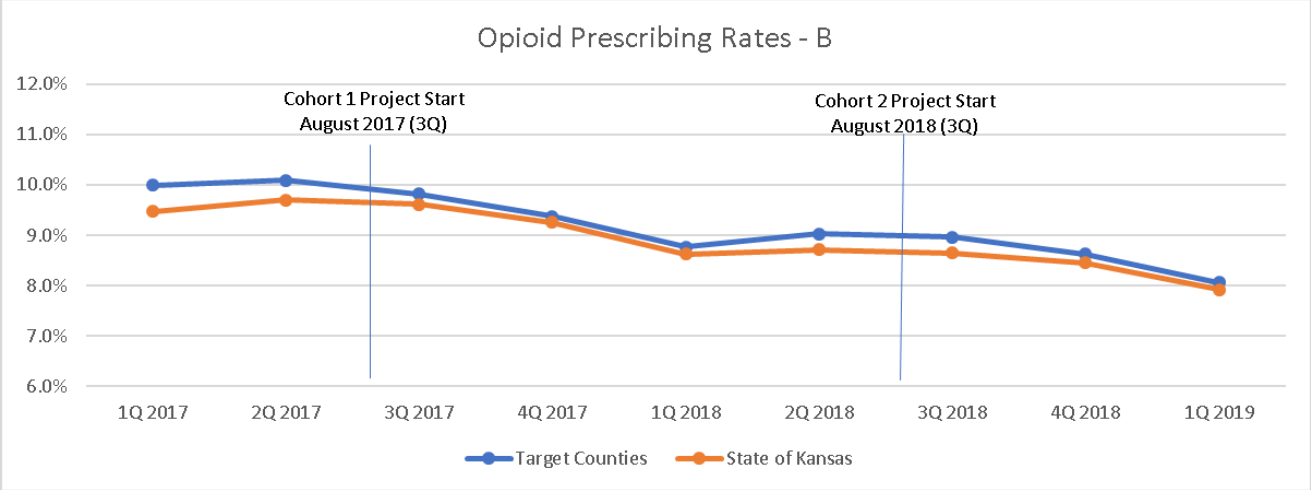
In reviewing performance data and trends, both prior to and after project initiation, the data reveals that prior to this SIP, the participant prescribing rates for Cohort 1 were higher than the state rate. After project initiation, the trend immediately began to decrease at a rate much faster than the state rate. The second cohort, which started nearly 12 months after the initial cohort, also saw a relative improvement in prescribing rates, albeit at a rate that more closely matched the state rate. For Cohort 1, which had a much longer performance period, the relative rate of improvement from pre-project initiation was significant at 38.1%. Both improvement rates for Cohort 1 and 2 (20.6%) were accelerated when compared to the state rate.

A similar trend is seen when reviewing the targeted counties as whole, including rates for providers not actively working in the project. Since Great Plains QIN's interventions targeted the community of healthcare providers, including hospitals, long term care providers, and consumers directly, it's important to determine if the initiative created a ripple effect across the community.

Opioid Prescribing Rates - B									
	Target Counties				State of Kansas				Absolute Difference
	# of Claims				# of Claims				
	N	D	Rate	RIR*	N	D	Rate	RIR*	
1Q 2017	8869	88769	10.0%		153700	1622118	9.5%		0.5%
2Q 2017	8742	86605	10.1%		155120	1599968	9.7%		0.4%
3Q 2017	8456	86106	9.8%		152043	1582221	9.6%		0.2%
4Q 2017	8262	88131	9.4%	7.1%	149869	1618735	9.3%	4.5%	0.1%
1Q 2018	7938	90569	8.8%	13.2%	147005	1704263	8.6%	11.0%	0.2%
2Q 2018	7935	87883	9.0%	10.6%	145980	1674930	8.7%	10.1%	0.3%
3Q 2018	7738	86317	9.0%	11.2%	142618	1648398	8.7%	10.8%	0.3%
4Q 2018	7617	88261	8.6%	14.5%	142368	1685224	8.4%	12.9%	0.2%
1Q 2019	7145	88589	8.1%	20.1%	135215	1708016	7.9%	18.3%	0.2%

**Relative Rate of Improvement from project start period*

The pattern at the community level is consistent with the observed pattern at the prescriber level. Prior to the initiation of this SIP, the targeted county prescribing rates were increasing, albeit slightly, and were higher than the state rate. After project initiation, the trend reversed, and the targeted communities initially closed the disparity in their rate compared to the state rate by narrowing the difference between the two rates. While the absolute difference narrowed during the initial project performance period, the difference increased slightly as attention shifted to expanding the project beyond the targeted communities but then stabilized.



Number of Days Prescribed: The 2016 CDC Prescribing Guidelines recommend that Opioids are not appropriate as routine therapy for chronic pain and that three days or less of opioids for acute pain should be enough; more than seven days will rarely be needed. Additionally, part of this special innovation project was to decrease the use of opioid pain management for chronic pain. Therefore, we assessed the total days supplied, per prescription, and sought to shift prescriptions written into the 1 to 7-day duration category and reduce the number of prescriptions written for >30 days. Within the 1-7 -day supply from baseline to remeasurement, a relative rate

increase is seen for the targeted counties (48.8%) and the Kansas rate also saw a relative rate increase (34.9%). Both the targeted county rates and state-wide rates also saw a significant decrease in the percent of prescriptions written for >30 days (54.4% decrease in targeted counties and 59.3% for the state of Kansas).

Opioid Prescription Days Supplied								
	Target Counties : 1-7 Days				State of Kansas: 1-7 Days			
	# of Claims				# of Claims			
	N	D	Rate	RIR	N	D	Rate	RIR
1Q 2017	1246	8869	14.0%		29792	153700	19.4%	
2Q 2017	1264	8742	14.5%		29193	155120	18.8%	
3Q 2017	1235	8456	14.6%		28530	152043	18.8%	
4Q 2017	1228	8262	14.9%	2.8%	27676	149869	18.5%	-1.9%
1Q 2018	1243	7938	15.7%	8.3%	28210	147005	19.2%	2.0%
2Q 2018	1288	7935	16.2%	12.3%	28175	145980	19.3%	2.6%
3Q 2018	1381	7738	17.8%	23.4%	29077	142618	20.4%	8.3%
4Q 2018	1327	7617	17.4%	20.5%	29539	142368	20.7%	10.2%
1Q 2019	1537	7145	21.5%	48.8%	34335	135215	25.4%	34.9%
	Target Counties: >1 Month				State of Kansas: >1 Month			
1Q 2017	127	8869	1.4%		3293	153700	2.1%	
2Q 2017	126	8742	1.4%		3462	155120	2.2%	
3Q 2017	132	8456	1.6%		3272	152043	2.2%	
4Q 2017	127	8262	1.5%	6.6%	3189	149869	2.1%	-4.7%
1Q 2018	91	7938	1.1%	-20.5%	2078	147005	1.4%	-36.7%
2Q 2018	86	7935	1.1%	-24.8%	2052	145980	1.4%	-37.0%
3Q 2018	83	7738	1.1%	-25.6%	1815	142618	1.3%	-43.0%
4Q 2018	74	7617	1.0%	-32.6%	1852	142368	1.3%	-41.7%
1Q 2019	47	7145	0.7%	-54.4%	1229	135215	0.9%	-59.3%

*Removal of part D claims beneficiaries receiving Palliative Care or Cancer Treatment occurred through matching part A and part B claims

The "Days Supplied" data (above) provides the percentage of total dispensed opioid claims that account for each supply range. A beneficiary may be counted for multiple supply ranges (therefore multiple times in the denominator) when calculating the rates for the "Patient's Days' Supply" (above), since each beneficiary may be prescribed different opioids supplies. The "Patient's Prescribed Days' Supply" (below) provides the percentage of opioids dispensed to beneficiaries that have been dispensed in each of the supply ranges or categories. By comparing the two data sets, one can view if high claim counts can be attributed to a large or small number of beneficiaries within the same day supply range, and vice versa. Specifically looking at the data in the following table, there is not a disproportionate number of patients accounting for either of the targeted supply ranges or categories.

Patients' Prescribed Days Supply of Opioids								
	Target Counties : 1-7 Days				State of Kansas: 1-7 Days			
	# of Claims				# of Claims			
	N	D	Rate	RIR	N	D	Rate	RIR
1Q 2017	914	4289	21.3%		20326	76994	26.4%	
2Q 2017	884	4141	21.3%		19823	76717	25.8%	
3Q 2017	862	4011	21.5%		19366	74935	25.8%	
4Q 2017	845	3959	21.3%	0.0%	18793	73484	25.6%	-1.0%
1Q 2018	872	3912	22.3%	4.4%	19208	72778	26.4%	2.1%
2Q 2018	887	3858	23.0%	7.7%	19421	72065	26.9%	4.3%
3Q 2018	971	3811	25.5%	19.4%	19966	70009	28.5%	10.4%
4Q 2018	942	3669	25.7%	20.3%	19999	69138	28.9%	11.9%
1Q 2019	1150	3609	31.9%	49.3%	24053	67701	35.5%	37.5%
	Target Counties: >1 Month				State of Kansas: >1 Month			
1Q 2017	106	4289	2.5%		2749	76994	3.6%	
2Q 2017	106	4141	2.6%		2877	76717	3.8%	
3Q 2017	113	4011	2.8%		2732	74935	3.6%	
4Q 2017	110	3959	2.8%	8.5%	2646	73484	3.6%	-4.0%
1Q 2018	71	3912	1.8%	-29.1%	1697	72778	2.3%	-37.8%
2Q 2018	68	3858	1.8%	-31.1%	1697	72065	2.4%	-37.2%
3Q 2018	63	3811	1.7%	-35.4%	1491	70009	2.1%	-43.2%
4Q 2018	60	3669	1.6%	-36.1%	1535	69138	2.2%	-40.8%
1Q 2019	39	3609	1.1%	-57.8%	1037	67701	1.5%	-59.2%

*Removal of part D claims beneficiaries receiving Palliative Care or Cancer Treatment occurred through matching part A and part B claims

As with the "Days Supplied" data, both the targeted county rates and state-wide rates also saw a significant decrease in the "Patients' Days Supplied" for >30 days (57.8% decrease in targeted counties and 59.2% for the state of Kansas).

Appropriate Dose Prescribed: Following the CDC Prescribing Guidelines, clinicians should carefully evaluate and reassess the evidence of benefits and risks to the patient when considering a dosage greater than or equal to 50 MME and should avoid dosages greater than or equal to 90 MME[20]. Therefore, we assessed the number of days that a harmful morphine equivalence level was available to the patient.

[20] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2016). Guidelines for Prescribing Opioids for Chronic Pain. Retrieved from https://www.cdc.gov/drugoverdose/pdf/Guidelines_Factsheet-a.pdf

Patients Supplied a Daily MME At or Above 50								
	Target Counties: 0 Days				State of Kansas: 0 Days			
	# of Claims				# of Claims			
	N	D	Rate	RIR from Project Start	N	D	Rate	RIR from Project Start
2017Q1	2241	3686	60.8%		39228	65296	60.1%	
2017Q2	2307	3683	62.6%		40656	65665	61.9%	
2017Q3	2212	3535	62.6%		40114	64469	62.2%	
2017Q4	2202	3487	63.1%	0.81%	39410	63266	62.3%	0.6%
2018Q1	2193	3448	63.6%	1.54%	38770	62865	61.7%	-0.4%
2018Q2	2258	3436	65.7%	4.91%	39599	62456	63.4%	2.4%
2018Q3	2287	3410	67.1%	7.07%	39762	61157	65.0%	5.0%
2018Q4	2189	3293	66.5%	6.12%	39204	60271	65.0%	5.1%
2019Q1	2132	3193	66.8%	6.60%	38410	58655	65.5%	5.8%
	rget Counties: Harmful Dose Availa				tate of Kansas: Harmful Dose Availabl			
2017Q1	1445	3686	39.2%		26068	65296	39.9%	
2017Q2	1376	3683	37.4%		25009	65665	38.1%	
2017Q3	1323	3535	37.4%		24355	64469	37.8%	
2017Q4	1285	3487	36.9%	-1.36%	23856	63266	37.7%	0.93%
2018Q1	1255	3448	36.4%	-2.58%	24095	62865	38.3%	2.59%
2018Q2	1178	3436	34.3%	-8.24%	22857	62456	36.6%	-2.04%
2018Q3	1123	3410	32.9%	-11.85%	21395	61157	35.0%	-6.36%
2018Q4	1104	3293	33.5%	-10.27%	21067	60271	35.0%	-6.44%
2019Q1	1061	3193	33.2%	-11.06%	20245	58655	34.5%	-7.62%

*Removal of part D claims beneficiaries receiving Palliative Care or Cancer Treatment occurred through matching part A and part B claims

The rate of patients within the targeted counties (33.7%) with dispensed opioid prescriptions in 2019Q1 having a daily MME of 50 or more for even one day is slightly less than that of Kansas (34.5%) as a whole. When compared with the rates of 2017Q3, the target counties show a decrease in percentage resulting in a relative rate increase of 6.94% while Kansas also sees a relative rate increase but at a lesser rate, 5.8%.

Patients Supplied a Daily MME At or Above 50								
	Target Counties: 0 Days				State of Kansas: 0 Days			
	# of Claims				# of Claims			
	N	D	Rate	RIR from Project Start	N	D	Rate	RIR from Project Start
2017Q1	2651	4407	60.2%		39228	65296	60.1%	
2017Q2	2720	4388	62.0%		40656	65665	61.9%	
2017Q3	2620	4234	61.9%		40114	64469	62.2%	
2017Q4	2590	4179	62.0%	-0.02%	39410	63266	62.3%	0.6%
2018Q1	2570	4097	62.7%	1.20%	38770	62865	61.7%	-0.4%
2018Q2	2629	4054	64.8%	4.62%	39599	62456	63.4%	2.4%
2018Q3	2672	4040	66.1%	6.70%	39762	61157	65.0%	5.0%
2018Q4	2587	3918	66.0%	6.52%	39204	60271	65.0%	5.1%
2019Q1	2525	3809	66.3%	6.94%	38410	58655	65.5%	5.8%
	Target Counties: Harmful Dose Available				State of Kansas: Harmful Dose Available			
2017Q1	1756	4407	39.8%		26068	65296	39.9%	
2017Q2	1668	4388	38.0%		25009	65665	38.1%	
2017Q3	1614	4234	38.1%		24355	64469	37.8%	
2017Q4	1589	4179	38.0%	0.03%	23856	63266	37.7%	-0.80%
2018Q1	1527	4097	37.3%	-1.95%	24095	62865	38.3%	0.83%
2018Q2	1425	4054	35.2%	-7.53%	22857	62456	36.6%	-3.72%
2018Q3	1368	4040	33.9%	-10.92%	21395	61157	35.0%	-7.97%
2018Q4	1331	3918	34.0%	-10.63%	21067	60271	35.0%	-8.05%
2019Q1	1284	3809	33.7%	-11.32%	20245	58655	34.5%	-9.20%

*Removal of part D claims beneficiaries receiving Palliative Care or Cancer Treatment occurred through matching part A and part B claims

The rate of patients within the targeted counties (15.5%) with dispensed opioid prescriptions in 2019Q1 having a daily MME of 90 or more for even one day is less than that of Kansas (18.4%) as a whole. When compared with the rates of 2017Q3, the target counties show a decrease in percentage resulting in a relative rate decrease of 20% while Kansas shows a decrease as well (7.8%), albeit a much smaller decrease.

Mitigation of Risks of Harms of Opioid Use: CDC Prescribing Guidelines recommend that prescribers should avoid concurrent benzodiazepine and opioid prescribing[21]. Concurrent opioids and benzodiazepines may increase the euphoric effect of opioids leading to potential misuse and co-abuse with other medications and concurrent prescribing is associated with an increased risk of suicidal attempt[22].

[21] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2016). Guidelines for Prescribing Opioids for Chronic Pain. Retrieved from https://www.cdc.gov/drugoverdose/pdf/Guidelines_Factsheet-a.pdf

[22] Association between concurrent use of prescription opioids and benzodiazepines and overdose: retrospective analysis. BMJ 2017; 356 doi: https://doi.org/10.1136/bmj.j760 (Published 14 March 2017) retrieved from https://www.bmj.com/content/356/bmj.j760/rr-5

Patients Supplied Concurrent Opioids and Benzodiazepines								
	Target Counties: 0 Days				State of Kansas: 0 Days			
	# of Claims				# of Claims			
	N	D	Rate	RIR from Project Start	N	D	Rate	RIR from Project Start
2017Q1	3871	4827	80.2%		70964	84486	84.0%	
2017Q2	3856	4805	80.2%		71141	84705	84.0%	
2017Q3	3740	4654	80.4%		70538	83552	84.4%	
2017Q4	3713	4563	81.4%	1.4%	69693	82546	84.4%	0.5%
2018Q1	3739	4554	82.1%	2.3%	70072	82552	84.9%	1.1%
2018Q2	3717	4524	82.2%	2.4%	69789	81964	85.1%	1.4%
2018Q3	3738	4498	83.1%	3.6%	69115	80748	85.6%	1.9%
2018Q4	3637	4360	83.4%	3.9%	68428	79711	85.8%	2.2%
2019Q1	3564	4250	83.9%	4.5%	67830	78465	86.4%	2.9%
	Target Counties: Harmful Dose Available				State of Kansas: Harmful Dose Available			
2017Q1	956	4827	19.8%		13522	84486	16.0%	
2017Q2	949	4805	19.8%		13564	84705	16.0%	
2017Q3	914	4654	19.6%		13014	83552	15.6%	
2017Q4	850	4563	18.6%	-5.7%	12853	82546	15.6%	-2.8%
2018Q1	815	4554	17.9%	-9.4%	12480	82552	15.1%	-5.6%
2018Q2	807	4524	17.8%	-9.7%	12175	81964	14.9%	-7.2%
2018Q3	760	4498	16.9%	-14.4%	11633	80748	14.4%	-10.0%
2018Q4	723	4360	16.6%	-16.0%	11283	79711	14.2%	-11.6%
2019Q1	686	4250	16.1%	-18.3%	10635	78465	13.6%	-15.4%

*Removal of part D claims beneficiaries receiving Palliative Care or Cancer Treatment occurred through matching part A and part B claims

The rate of patients within the targeted counties (16.1%) with concurrently dispensed opioid and benzodiazepine prescriptions for even one day is higher than that of Kansas (13.6%) as a whole. When compared with the rates of 2017Q3, the target counties all showed a decrease in percentage resulting in a relative rate decrease of 18.3% while Kansas also shows an decrease resulting in a relative rate decrease of 15.4%.

Appropriate Pain Management: The discontinuation of Chronic Opioid prescriptions, without relapse, can also be used as an indicator that chronic pain is more appropriately managed within the CDC Prescribing Guidelines for Chronic Pain. A Chronic Opioid User is identified as those beneficiaries holding opioid prescriptions for 60 or more consecutive days during the quarter from dispensing within or prior to the quarter.

		Eligible Benes	New Chronic		Relapsed Chronic		New or Relapsed		No more Chronic		
Region	**Period**		**Count**	**Rate**	**Count**	**Rate**	**Count**	**Rate**	**Count**	**Rate**	**Ratio**
Kansas	2017Q1	424691	2075	0.5%	2149	0.5%	3832	0.9%	4741	1.1%	123.721%
Kansas	2017Q2	426612	2057	0.5%	2671	0.6%	4258	1.0%	4134	1.0%	97.088%
Kansas	2017Q3	429734	1938	0.5%	2485	0.6%	3983	0.9%	4224	1.0%	106.051%
Kansas	2017Q4	432666	1845	0.4%	2499	0.6%	3933	0.9%	4184	1.0%	106.382%
Kansas	2018Q1	429529	1734	0.4%	2172	0.5%	3582	0.8%	4846	1.1%	135.288%
Kansas	2018Q2	431013	1758	0.4%	2613	0.6%	3946	0.9%	4364	1.0%	110.593%
Kansas	2018Q3	433564	1565	0.4%	2496	0.6%	3617	0.9%	4177	1.0%	115.482%
Kansas	2018Q4	435932	1518	0.4%	2341	0.6%	3519	0.8%	4141	1.0%	117.675%
Kansas	2019Q1	430260	1310	0.3%	1991	0.5%	3015	0.7%	4566	1.1%	151.443%
Relative Rate Since Project Start											56.0%
Targeted Counties	2017Q1	22151	125	0.6%	135	0.6%	234	1.1%	290	1.3%	123.932%
Targeted Counties	2017Q2	22171	113	0.5%	190	0.9%	277	1.2%	238	1.1%	85.921%
Targeted Counties	2017Q3	22309	112	0.5%	148	0.7%	228	1.0%	260	1.2%	114.035%
Targeted Counties	2017Q4	22375	85	0.4%	149	0.7%	207	0.9%	286	1.3%	138.164%
Targeted Counties	2018Q1	21860	100	0.5%	155	0.7%	222	1.0%	313	1.4%	140.991%
Targeted Counties	2018Q2	21772	96	0.4%	159	0.7%	233	1.1%	273	1.3%	117.167%
Targeted Counties	2018Q3	21747	84	0.4%	144	0.7%	196	0.9%	262	1.2%	133.673%
Targeted Counties	2018Q4	21776	85	0.4%	125	0.6%	199	0.9%	256	1.2%	128.643%
Targeted Counties	2019Q1	21320	63	0.3%	119	0.6%	173	0.8%	271	1.3%	156.647%
Relative Rate Since Project Start											82.3%

The relative change between 2017Q2 and 2019Q1of the ratios of stopped chronic users to new and relapsed chronic users shows a relative rate increase at both the state level and in the targeted counties of 82.3%. The rate of chronic opioid users stopping chronic usage as a percentage of Medicare beneficiaries for the targeted counties (1.5%) is higher than that of the state (1.1%).

Therapeutic Outcomes: The therapeutic outcome measure is intended to measure any peripheral impact observed in the LTC setting as a result of working directly with prescribers in the same community. This measure is calculated using a subset of Nursing Home Quality Initiative (NHQI) quarterly data based on the 21 nursing homes that are located within Cherokee, Crawford, Labette, and Montgomery counties. Aggregation of two NHQI/MDS measures provides the performance rate that is included in the table below with 2016Q4 data as the baseline rate. The aggregated measures include both a short-term and long-term measure for resident reported pain. To be included in the numerator for the short- or long-stay resident with a selected target assessment must meet one or both of two conditions. The first condition is met by the resident reporting constant or frequent pain with at least one of those episodes being able to be classified as moderate to severe pain. The second condition is met by the resident reporting very severe/horrible pain of any frequency. The denominator for this measure includes all long- and short-stay residents with a selected target assessment, except those meeting one of the measures' exclusions.

In evaluating this measure, specifically looking at long-stay residents, most of the 21 nursing homes included in this measure are part of the statewide efforts to reduce antipsychotic (AP)

medications. Great Plains QIN is seeing trends where resident reported pain is increasing alongside a reduction in AP meds. Some of the homes that make up this measure have similar data trends. For example, one home had a long-stay pain measurement go from 0 to 8 while AP rates went from 19 to 7. AP trends do not explain all of the results. Additionally, this measure includes both short- and long-stay residents' rating of pain, meaning the negative RIR could be a result of an increased proportion of short-stay residents entering LTC to recover from surgery or other procedures where increased pain is expected. There is no measurement of opioid use or diagnosis connected with this outcome, and we are not specifically targeting nursing homes in the baseline performance period of this Opioid SIP, but we did intend to include analysis of this measure as it is the only proxy measurement of patient reported pain that we have available.

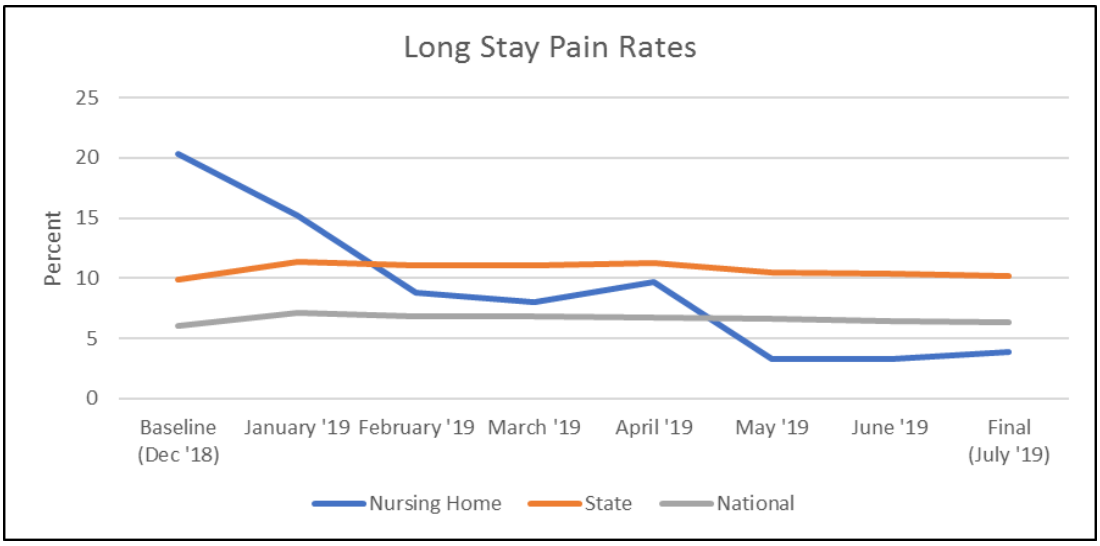
Therapeutic Outcome Measures				
	Target County LTC Facilities			
	# of Residents			
	N	D	Rate	RIR
Baseline	153	1077	14.21%	
2017Q1	162	1070	15.14%	-6.58%
2017Q2	151	1038	14.55%	-2.40%
2017Q3*	149	1021	14.59%	-2.73%
2017Q4	170	1007	16.88%	-18.83%
2018Q1	165	1037	15.91%	-12.00%
2018Q2	170	1005	16.92%	-19.07%
2018Q3	190	1012	18.77%	-32.16%
2018Q4	176	1012	17.39%	-22.42%
2019Q1	178	1019	17.47%	-22.96%

Long Term Care Pilot Project: Recognizing that peripheral effect was not being realized when interventions were implemented in the community, during the 12-month extension period, a single long-term care community was recruited to conduct a targeted pilot improvement project. The project deployed a three-tiered approach to education including leadership education, direct care team education, and direct elder and family education on non-pharmacological interventions and the introduction of comfort menus. The community's long-stay and short-stay pain quality measures were monitored for the 6-month duration of the project.

For long-stay measures, the data is as follows:

LS Pain Rates	Nursing Home	State	National
Baseline (Dec '18)	20.30%	9.90%	6%
January '19	15.20%	11.40%	7.10%
February '19	8.80%	11.10%	6.80%
March '19	8%	11.10%	6.80%
April '19	9.70%	11.30%	6.70%
May '19	3.30%	10.50%	6.60%
June '19	3.30%	10.40%	6.40%
Final (July '19)	3.90%	10.20%	6.30%

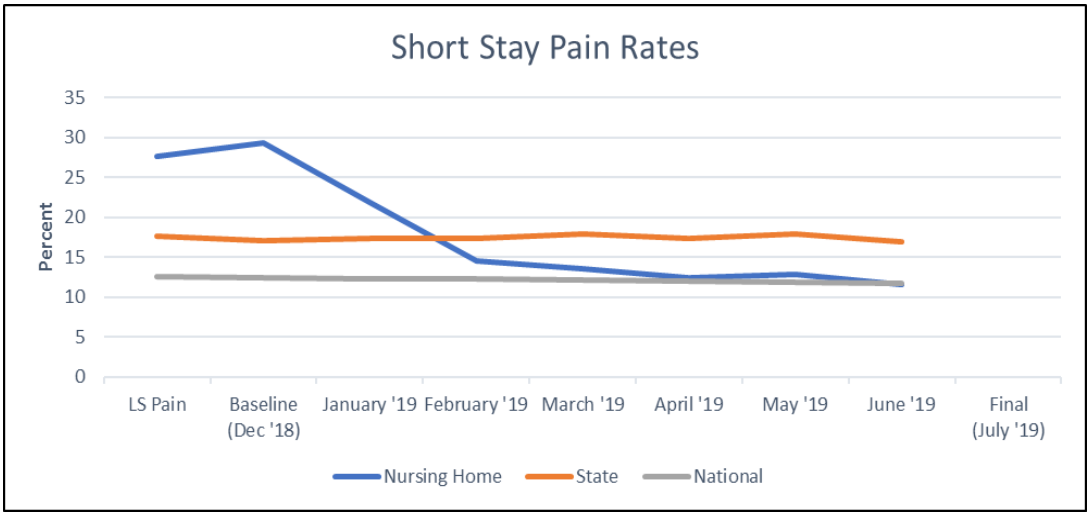
The visual representation of the improvement rates for Long-Stay Pain Rates, and comparison to state and national rates is displayed in the following graph:



For the short-stay pain measure, the data is as follows:

SS- Pain	Nursing Home	State	National
Baseline (Dec '18)	27.6	17.7	12.6
January '19	29.3	17.1	12.5
February '19	21.9	17.3	12.3
March '19	14.5	17.3	12.3
April '19	13.6	17.9	12.2
May '19	12.5	17.4	12
June '19	12.8	17.9	11.9
Final (July '19)	11.6	17	11.7

The visual representation of the improvement rates for Short-Stay Pain Rates, and comparison to state and national rates is displayed in the following graph:



To determine impact for this component of the special innovation project, MDS and/or CASPER data was used to demonstrate significant improvement. In the single long-term care community, one with a pain rate much higher than both the national and state average, significant improvement was realized in the percent of short-stay and long-stay residents who reported moderate to severe pain, improving rates for both measures to better than the state average and equal to or better than the national average.

Analysis of Potential Adverse Effects: As it relates to outcomes, it's not just enough to fix the prescribing habits if we're adversely affecting beneficiaries, we needed to achieve better management of Chronic Pain. Therefore, we analyzed the ED Utilization rates with a primary diagnosis of pain in our targeted communities to ensure that those rates didn't increase. We saw, in fact, that they decreased at a rate consistent with the statewide rate.

Kansas Beneficiaries							
	Beneficiary Count	Total Claim Count	Claims listing Principal Dx of Pain	Rate	RIR Since Project Start	Claim Count with Poisoning by Opioids	Rate
2017Q1	424691	52214	7685	14.72%		128	0.25%
2017Q2	426612	51933	8057	15.51%		126	0.24%
2017Q3	429734	54077	8227	15.21%		138	0.26%
2017Q4	432666	51280	7404	14.44%	-6.9%	109	0.21%
2018Q1	429529	51826	6944	13.40%	-13.6%	99	0.19%
2018Q2	431013	51498	7568	14.70%	-5.3%	108	0.21%
2018Q3	433564	51805	7749	14.96%	-3.6%	101	0.19%
2018Q4	435932	48784	7076	14.50%	-6.5%	92	0.19%
2019Q1	430260	46994	6433	13.69%	-11.8%	76	0.16%
Targeted Counties							
	Beneficiary Count	Total Claim Count	Claims listing Principal Dx of Pain	Rate	RIR Since Project Start	Claim Count with Poisoning by Opioids	Rate
2017Q1	22151	3151	455	14.44%		5	0.16%
2017Q2	22171	3163	465	14.70%		11	0.35%
2017Q3	22309	3426	527	15.38%		12	0.35%
2017Q4	22375	3180	439	13.81%	-6.1%	10	0.31%
2018Q1	21860	3228	401	12.42%	-15.5%	5	0.15%
2018Q2	21772	3117	440	14.12%	-4.0%	7	0.22%
2018Q3	21747	3232	484	14.98%	1.9%	6	0.19%
2018Q4	21776	3047	443	14.54%	-1.1%	3	0.10%
2019Q1	21320	2813	371	13.19%	-10.3%	7	0.25%

Return on Investment: Attribution of improvements realized was difficult since everyone is working on some form of opioid stewardship with one or multiple project partners. ROI was only calculated for measures where there was very strong correlation with project interventions. ROI was also calculated for each Cohort of prescribers separately. This was a very data heavy project, one which evaluated and analyzed a lot of data and one set of metrics analyzed was the discontinuation of chronic prescriptions without relapse. As it relates to outcomes, it's not just enough to fix the prescribing habits if we're adversely affecting beneficiaries, success would be achieved through better management of Chronic Pain. The goal or aim was not complete withdrawal of opioids for the sake of reducing prescriptions but sought for the reduction to be a proxy measure to determine if targeted prescribers were providing better, alternative care for chronic pain. This is extremely difficult using claims data, and participating providers certainly weren't capturing any data that could answer this question, therefore proxy measures were used, by first calculating a ratio using the beneficiaries who had discontinued a chronic prescription, chronic defined as >60 days duration, and remained off. This population was compared to those beneficiaries who initiated a new or relapsed chronic prescription. An assumption was applied that this discontinuation must be the result of better alternative management and therefore calculated that those patients might save approximately 10% of the total cost to Medicare to manage their chronic pain in the year of the project. The 49.5% relative improvement in the ratio of discontinued to relapsed chronic scripts resulted in 139 beneficiaries with assumed better management of their chronic pain. Second, ED visits with a primary diagnosis of pain in targeted communities were analyzed to ensure that those rates didn't increase. A decrease in the rate was observed and ROI was then calculated for 48 less ER visits related to pain in targeted communities during the duration of our project. The savings of $29,461.44 was estimated using only the cost to Medicare by calculating actual Medicare payment rates from the claims data. Therefore, additional savings to private payers, patients and providers (related to uncompensated care) would be much higher than what is reflected in the following tables:

Cohort 1: Includes 37 recruited providers in four specific Kansas counties

Specific Interventions/ Best Practices Attributing Most to Successful Outcomes	Baseline Data* (2017Q2)	Improvement/ Outcomes Data* (2019Q1)	Return on Investment (ROI)
1. Provider Feedback Reports	8,742 Opioid Scripts/86,605 Any Script 10.1% Prescribing Rate	7,145 Opioid Scripts/88,589 Any Script 8.1% Prescribing Rate 20.1% Relative Improvement Rate from Project Start	$149,889.67[1]
2. Better Management of Chronic Pain (Project ECHO Support, Pain Management Pocket Guides, Chronic Pain Self- Management Programming, Acute Pain Script Pads)	238 Dc'd Chronic Opioid Script/277 New or Relapse Chronic Scripts Ratio of .859	271 Dc'd Chronic Opioid Script/173 New or Relapse Chronic Scripts Ratio of 1.57 82.3% Relative Improvement Rate from Project Start	$189,385.00[2]
	465 ER Claims listing principal dx as pain/3,163 ER Claims 14.70% of ER Claims related to pain	371 ER visits listing principal dx as pain/2,813 ER Claims 13.19% of ER Claims related to pain 10.3% Relative Reduction in ER claims related to pain	$29,461.44[3]

1. Calculated at a cost of $85.31 per script (Aroke H, Buchanan A, Wen X, Ragosta P, Koziol J, Kogut S. (2018). Estimating the Direct Costs of Outpatient Opioid Prescriptions: A Retrospective Analysis of Data from the Rhode Island Prescription Drug Monitoring Program. J Manag Care Spec Pharm; 24(3):214-224. doi.org/10.18553/jmcp. 2018.24.3.214)
2. Calculated at a cost of $966.25 (10% of estimated annual direct healthcare cost to treat patients with severe pain) for each patient discontinuing chronic prescription, assuming better management reduces but does not eliminate cost. (Gaskin, D. J., Richard, P. (2012). The Economic Costs of Pain in the United States. The Journal of Pain, Volume 13, Issue 8, 715-724. (230 patients with assumed better chronic pain management)
3. Calculated at Average Medicare Payment Cost for ER claims with Pain as the primary diagnosis for 2017-2018 ($613.78/claim); 48 less visits

The previous table calculates the observed improvements, as costs saved. There were benefits and improvements in safe prescribing practices that are not easily quantified in costs. Those beneficiaries receiving safer prescriptions are outlined in the table below:

Specific Interventions/ Best Practices Attributing Most to Successful Outcomes	Baseline Data* (2017Q2)	Improvement/ Outcomes Data* (2019Q1)	Benefit
3. Opioid Prescribing & Pain Management Education & Training	2,307 benes with 0 days dose >50MME/3,683 benes receiving Opioids 62.6% Safe Dosing	2,132 benes with 0 days dose >50MME/3,193 benes receiving Opioids 66.8% Safe Dosing 6.60% Relative Increase in Safe Dosing	152 more beneficiaries receiving safer dose
	3,856 benes with 0 days opioid & benzo concurrent/4,805 benes receiving opioids or benzo 80.2% without dangerous co-prescribing	3,564 benes with 0 days opioid & benzo concurrent/4,250 benes receiving opioids or benzo 83.9% without dangerous co-prescribing 4.5% Relative Increase in Safe Dosing	174 more beneficiaries receiving safer prescriptions
4. Therapeutic education to leadership, staff and residents/family on non-pharmacological interventions	SS: 16 residents reporting moderate or severe pain/58 SS residents (27.6%) LS: 8 residents reporting moderate or severe pain/32 risk-adjusted LS residents (20.3%)	SS: 10 residents reporting moderate or severe pain/86 SS residents (11.6%) - 57.97% Relative improvement in pain control LS: 2 residents reporting moderate or severe pain/19 risk-adjusted LS residents (3.9%) – 80.79% Relative Improvement in pain control	16% (9) of SS residents and 20% (6) of LS residents have better pain control in 6 months and a single LTC community

Cohort 2: Includes 1,035 recruited prescribers across the state of Kansas

Specific Interventions/ Best Practices Attributing Most to Successful Outcomes	Baseline Data* (2018Q2)	Improvement/ Outcomes Data* (2019Q1)	Return on Investment (ROI)
1. Provider Feedback Reports	18,419 Opioid Scripts/205,036 Any Script 9.0% Prescribing Rate	17,534 Opioid Scripts/217,012 Any Script 8.1% Prescribing Rate 10.1% Relative Improvement Rate from Project Start	$158,676.60[1]

1. Calculated at a cost of $85.31 per script (Aroke H, Buchanan A, Wen X, Ragosta P, Koziol J, Kogut S. (2018). Estimating the Direct Costs of Outpatient Opioid Prescriptions: A Retrospective Analysis of Data from the Rhode Island Prescription Drug Monitoring Program. J Manag Care Spec Pharm; 24(3):214-224. doi.org/10.18553/jmcp. 2018.24.3.214)

Summary of Cost Savings: As it relates to the return, for only the metrics we calculated costs against, we saw a 58% return above the investment that CMS made in the SIP activities.

ROI Summary	Initial Investment/ Funding	Return on Investment (ROI)	Indicate Lessons Learned if any
Total Cost of Project - Base SIP (2016)	$202,746.00	$368,736.11	Represents cost alone, no cost assigned to safer prescribing
Total Cost of Project – Extension Period	$130,163.00	$158,676.60	
Total	$332,909.00	$527,412.71 (158%)	

Limitations

Our study had several limitations. Our study of patterns in prescribing behavior compared performance to the same time period of performance across the state of Kansas. Analysis focused on deviations in pattern or trend from pre-intervention implementation to post intervention implementation. Additionally, we learned that these participating providers were hungry for data. While the feedback reports were viewed as a valuable intervention tool, providers really needed additional data to start to address their role in adverse opioid events. For example, there were limitations in our ability to share data with prescribers for ED visits, or multi-fills of Opioid prescriptions when those services were tied to other providers. The limitation on QIN-QIO data sharing, specifically as it relates to gap analysis in care coordination and communication issues, was a significant limitation in taking this feedback process to the next level to start to address adverse events that reached the patient, beyond the prescribing data. Finally, we learned that any intervention solution needed to be provided piece-meal, allowing communities to select the interventions that matched their identified need. Each rural community is drastically different; the available resources vary, the dynamic of the healthcare provider community are different, and the decision makers are different, even in communities separated by less than 10 miles. The intervention design we used was tailored to these specific communities and would need additional tailoring to be applicable to other communities.

Conclusions

Data feedback was the most effective intervention deployed in this project. Much of the improvement that was realized in adherence with CDC Prescribing Guidelines was likely the direct result of provider awareness of their personal prescribing rates, and how they matched current guidelines and recommendations. This intervention was effective in motivating immediate improvement. To continue improvement, in a sustainable way, additional considerations would need to be given to the following recommendations, which are in response to the feedback received directly from providers regarding their experienced challenges in addressing the opioid crisis. One specific conclusion is that a discussion about addressing Opioid Use cannot be had without also discussing Appropriate Pain Management. However, feedback is only the first step. Addressing the opioid crisis is going to require a concerted effort, across all federal entities, and across all care delivery and community support settings. A comprehensive, multi-agency plan to address opioids and pain management is necessary. There are many organizations that are now receiving money to address the crisis, but these organizations don't

know what to do with the money. The opioid prevention work is disjointed and there is not a consensus among the experts about the best way to effectively change prescribing patterns long term. Specific considerations should include:

Policy Considerations
Ultimately, prevention is the best solution. Removing the prescription opioids does not address the propensity for misuse or abuse, as simply withdrawing or removing access to prescription opioids in one fail swoop can drive those addicted or exposed to opioids to illicit suppliers, which are more dangerous. Only using opioids when necessary, and only for the minimum recommended duration is the first step to turning the tide. Controlling the supply available for use/misuse/diversion and supporting Americans with dependence or addiction issues is also a part of this process. Any policy solution will require collaboration between federal, state, and local governments, community-based organizations and non- profits, healthcare providers and other community partners. The solutions must be community driven, as it will require that all the players are on the same team.

Eliminate Separate Funding Streams
Connecting with existing coalitions working on prescription drug overdose or opioid stewardship maximizes the effect that the project has on an entire community and connects provider partners to other sources of support that are outside of the Medicare funding streams. Opioid stewardship is best implemented at the community level. For example, having one provider implement practices that reduce the likelihood of a person receiving an improper opioid prescription is a good start, but it does not prevent a patient from moving to a different doctor in their community or "doctor shopping". The Topeka (KS) Pain Coalition is a good example of this community effort. Despite being competitors, the three major healthcare systems came together, along with the mental health community to create a consistent approach to pain management, enacting consistent treatment protocols, deprescribing guidelines, consistent pain contracts and informed consent processes to ensure that no matter where a patient presents for treatment, the approach to pain management and opioid prescribing is the same. However, conversely there are much smaller communities that have created competitive environments for funding based on how the federal government has allocated resources to address this issue. Allen County Kansas (population 13,000, with one hospital) has two active community coalitions working simultaneously and sometimes against each other, to receive federal funding (one is funded by CDC and one is funded by HRSA). Any resources allocated to this work must be coordinated and support improvement not competition. (CMS = funding for prescribers; CDC = public health funding; HRSA = safety net funding; SAHMSA = behavioral health and substance use funding). Any federal policy must be able to bring all these resources together.

Overprescribing/Data Tracking
Current payment polices have inadvertently created some perverse incentives for continued prescribing of opioids. In our community work to address Adverse Drug Events across Kansas (including those associated with Opioids) and our Opioid Special Innovation Project, a lack of coverage for alternative treatment modalities also creates a perverse incentive to continue prescribing Opioids to provide relief to their patients. Lack of access to alternative modalities and reimbursable processes forces providers to rely on prescribing only. The VA health system has good examples of success with funding of alternate modalities that could be translated into

Medicare payment policy (i.e. Stepwise Approach to Chronic Pain Management). Blanket policies like "fill limits" (either at second fill or hard stops at 7 days) may unnecessarily burden those patients (and their providers) that have a legitimate medical reason to be on long term opioids (traumatic injuries that require long-term rehab processes, cancer pain, etc.). Additionally, in our focused SE Kansas project we heard mixed reviews from providers about their sense of value with hard limits on prescribing. Some echoed the sentiment that it may make it more difficult for patients who need pain medication, and others said it would make it very easy for them to say "no" when it is their small-town mayor asking for a refill. Opioids have a valid place in medicine when used appropriately. Additionally, it takes time to wean patients who have used opioids long term. Rushing this process or restricting access to opioids during the weaning process can drive long term opioid users to obtaining illicit forms that are more dangerous.

Prescription Drug Monitoring Program (PDMPs)
PDMPs are a powerful tool to prevent opioids misuse or abuse, but there are barriers to implementation. The funding of PDMPs varies from state-to-state and many state-based programs are in various iterations or versions of the tracking process. There is inconsistency in the data being collected and monitored from state-to state and there is no consistent or effective cross-state sharing of data. Federal policy should consider how to support increased utilization of data sharing from PDMP with specific consideration for how to support required review of PDMP data PRIOR to prescribing opioids. Pharmacies are required to report data on filled prescriptions; no one is required to review the data prior to prescribing and data is geographically limited. In our special innovation project, we identified beneficiaries with significant and concerning anomalies in their opioid prescription claims that indicate PDMP data is not always being used as it is intended. As an example, we identified one Medicare beneficiary who in 12 months, based on Medicare Part D claims data, received 1200+ days of opioids (based on how prescriptions were written) from 17 different prescribers, filled at 21 different pharmacies in 5 states. Federal policy should avoid addressing outlier prescribers, however, as this is better addressed at the state level since states already monitor licensing, credentialing and corrective action.

Medication Assisted Treatment (MAT) is only effective if there are treatment services the patient can access while being "Medication Assisted" (methadone or buprenorphine). Nationally, only 11% of patients seeking addiction treatment can access treatment. Recidivism rates with addiction are naturally high, but when there are no local treatment facilities, people don't even try. There is also a significant barrier to MAT or Opioid Treatment Programs (OTPs) being successful due to expensive co-pays or geographic challenges in accessing high frequency services like group after-care sessions. Additionally, we are not seeing a large uptake in primary care providers obtaining waivers to provide MAT which is necessary to make accessible in rural areas. Figuring out how to incentivize primary care doctors to provide this service is key, and likely hinges on the ability to promote team-based care in areas where the team is located (i.e. via telemedicine). Medicare does not currently cover Methadone in the outpatient setting which is a reimbursement barrier. Additionally, 20% copays for behavioral health creates a barrier to access when the service is necessary several times a month or even week to be successful, compared to a once/per month copay for an opioid prescription. This copay issue is the same for some alternative therapies like physical therapy if they are covered at all. These Medicare coverage issues would be the same for many other private insurance carriers and Medicaid programs following Medicare payment policy. The Veterans Health System has developed a comprehensive treatment processes

for chronic pain that have been very successful that can be translated into other reimbursement programs. The VA's program (Stepwise Approach to Chronic Pain) provides coverage for alternatives to opioid therapy and requires evaluation of alternative therapies prior to initiating opioid therapy.

Increased reimbursement/incentives for **integration of behavioral health** into the primary care setting are necessary. Alternative payment models are designed to move practices toward integration and comprehensiveness of primary care, but most of the provider population receives no reimbursement or incentives to integrate behavioral health and/or substance use treatment. Nearly half of all Americans will experience a mental health or substance use disorder some time in their life and most will go to their primary care doctor for care. Federal policy that accelerates the adoption of integrated behavioral health would benefit rural and urban providers struggling to take care of their patients with opioid use disorders.

Telemedicine has helped rural communities access better care for some time; but there is still an opportunity to expand rural patient's access to telemedicine to address opioid addiction in rural parts of the country. Telemedicine can be leveraged to allow substance abuse care team (medical assistant, counselor, psychiatrist, and primary care physician) to coordinate the best possible care for the patient, while allowing rural patients access to frequent after-care services without needing to travel distances to treatment facilities. Currently, in Kansas there is only one substance use rehabilitation center that provides virtual options for after care group therapy sessions. However, this provide is private-pay only and does not accept insurance. Additionally, there are reimbursement gaps in appropriately reimbursing providers who leverage telemedicine, specifically when the patient is not at a third-party site. ***This is probably the single change that if made, could have the greatest impact in providing access to specialty care for rural or underserved beneficiaries.***

Project ECHO (Extension for Community Healthcare Outcomes) is a collaborative model of medical education and care management that empowers clinicians to provide better care to more people, right where they live. The ECHO model™ does not actually "provide" care to patients. Instead, it dramatically increases access to specialty treatment in rural and underserved areas by providing primary care clinicians the knowledge and support they need to manage patients with complex conditions such as: hepatitis C, HIV, tuberculosis, chronic pain, endocrinology, behavioral health disorders, and many others. It does this by engaging clinicians in a continuous learning system and partnering them with specialist mentors at an academic medical center or hub. The ECHO project is being touted as the solution to empower rural providers to address chronic pain and addiction issues, but there are gaps in reimbursement that make this model un-sustainable for rural providers. The cost of this model is high because the mentoring physician (providing education to primary care physicians) does not receive any reimbursement or incentives to provide the education and the receiving physician receives no reimbursement or incentives to justify or assist in covering the cost

Health Information Technology (IT) and Clinical Decision Support (CDS) tools have the ability of revolutionizing chronic pain management in rural primary care settings. Health IT and CDS can help improve prescriber adherence to treatment protocols (i.e. utilization of smartphone apps at the point of care), increase the safety of prescribing for controlled substances (ePrescribing), enhance clinician access to prescription drug monitoring programs (PDMPs)

through EHR system integration, expand access to addiction treatment and recovery supports (Telehealth), and much more. However, these solutions are very expensive and the push toward technology has created a booming business for HIT vendors. Federally, to improve access to evidence-base improvement technology, incentives to fund technology adoption and enhancements are necessary if privatization of this market continues. Rural providers struggling to keep their doors open do not have excess capital to purchase expensive technology that requires routine updates and modifications requiring ongoing support and maintenance fees. This same dilemma is what drove the Regional Extension Center projects through the Office of the National Coordinator as part of the American Recovery and Reinvestment Act (ARRA). However, after the conclusion of that program, priority primary care providers lost support for their technology systems and are stalled at the same point of implementation they were when the program's incentives for implementation, adoption and utilization expired.

Other Information

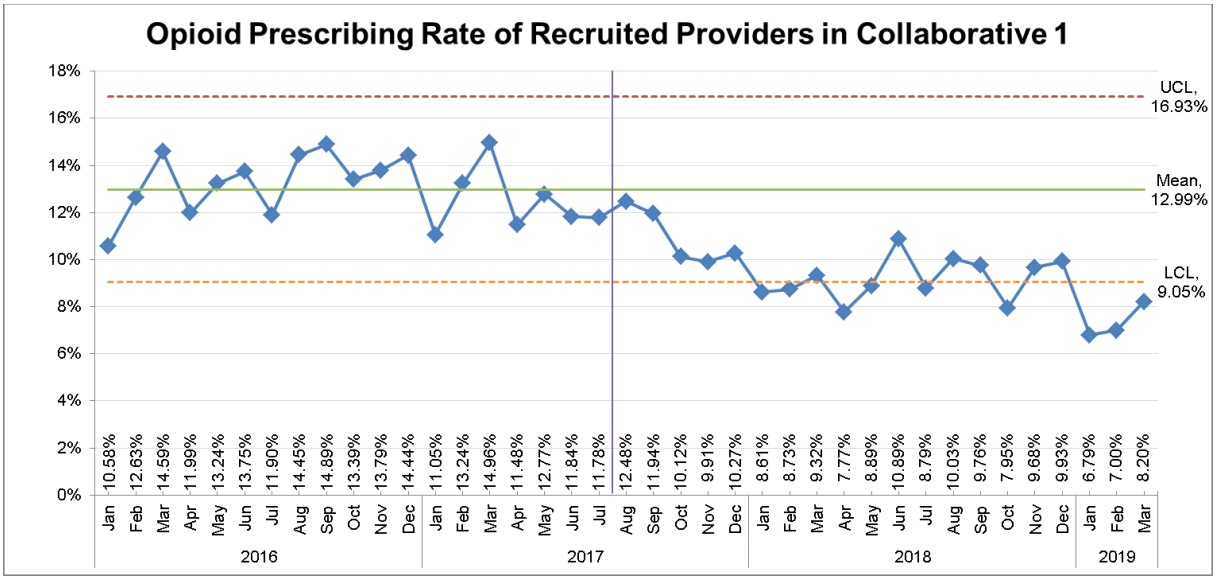
Funding

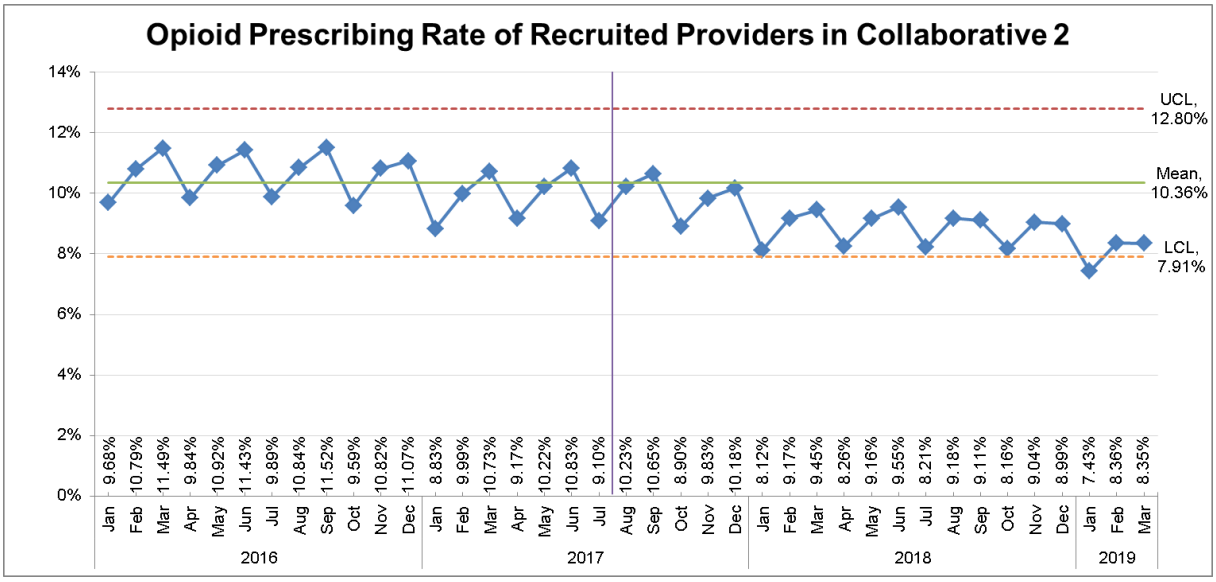
Funding for the Opioid-SIP initiative was provided by the Centers for Medicare & Medicaid Services.

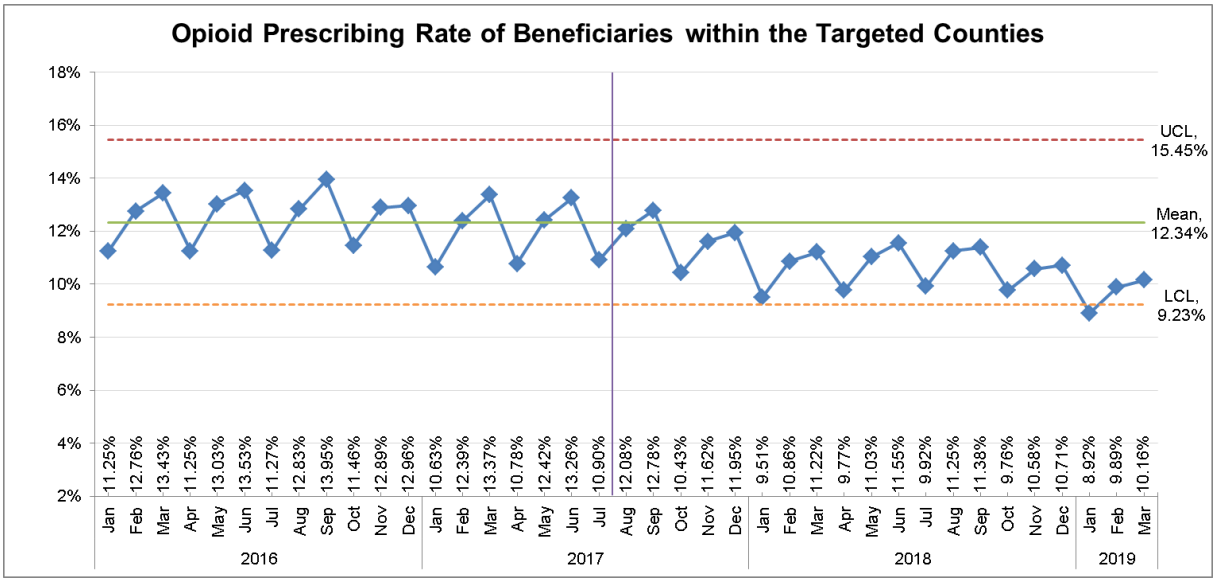
Appendix A: Control Charts

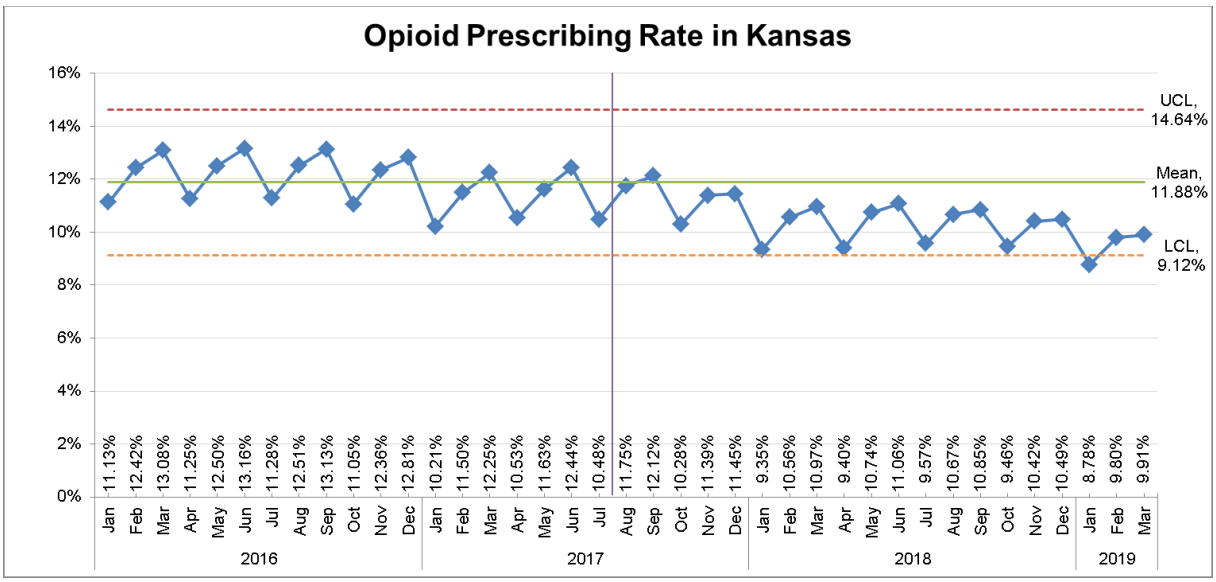
State's Medicare population: No Beneficiary Exclusions

Opioid Prescribing Rates

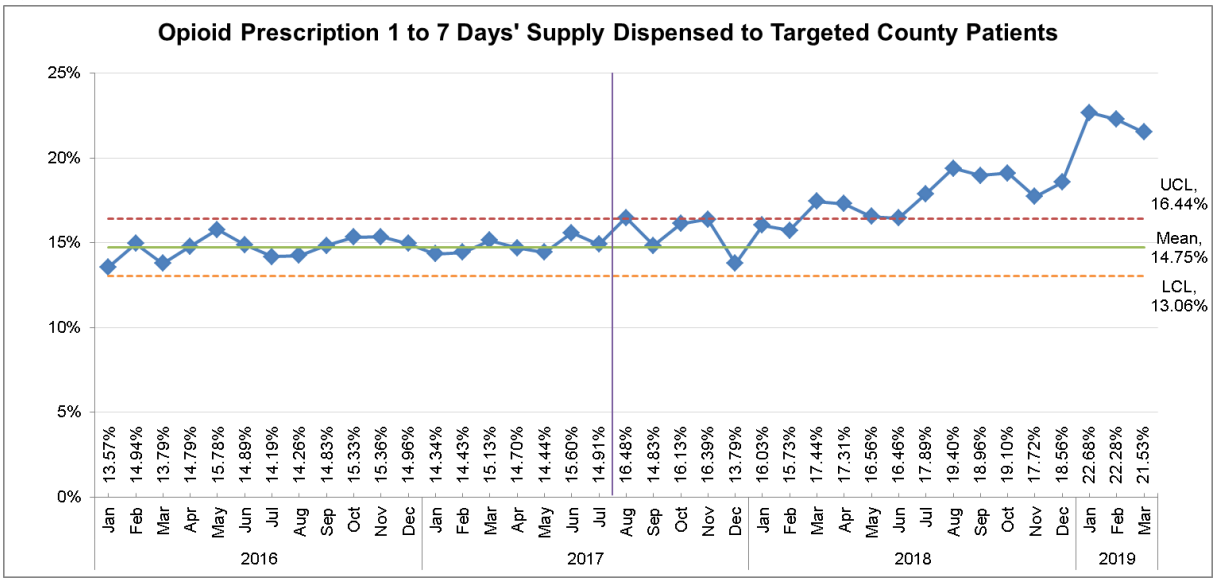


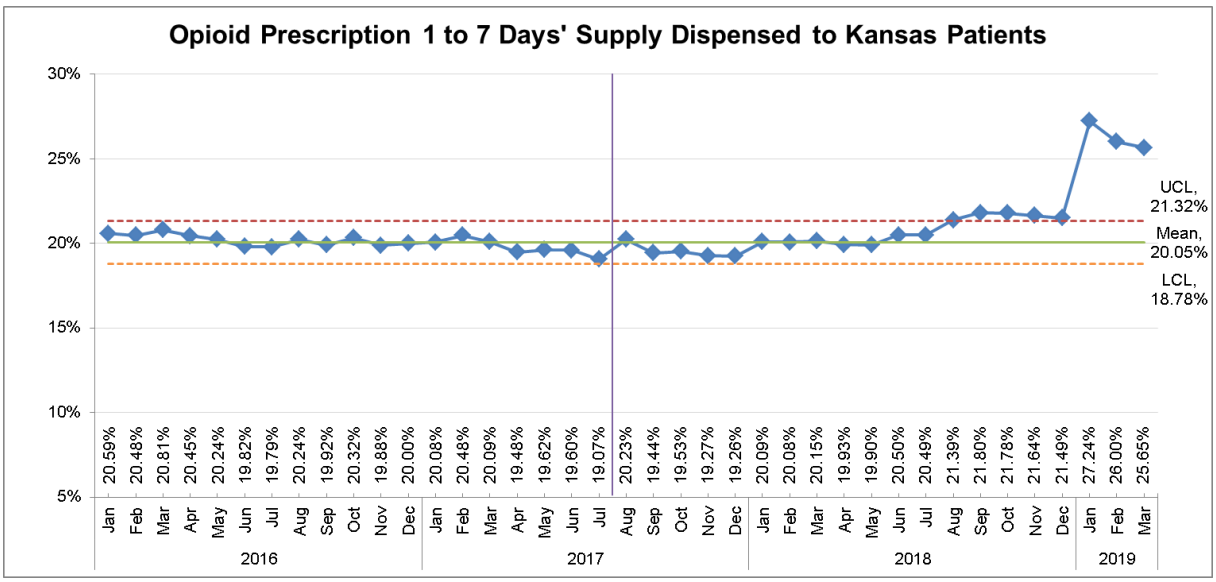



Opioid Prescribing Rate of Beneficiaries within the Targeted Counties
18%
16%
14%
12%
10%
8%
6%
4%
2%
UCL, 15.45%
Mean, 12.34%
LCL, 9.23%
11.25% 12.76% 13.43% 11.25% 13.03% 13.53% 11.27% 12.83% 13.95% 11.46% 12.89% 12.96%
10.63% 12.39% 13.37% 10.78% 12.42% 13.26% 10.90% 12.08% 12.78% 10.43% 11.62% 11.95%
9.51% 10.86% 11.22% 9.77% 11.03% 11.55% 9.92% 11.25% 11.38% 9.76% 10.58% 10.71%
8.92% 9.89% 10.16%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2016
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2018
Jan Feb Mar
2019

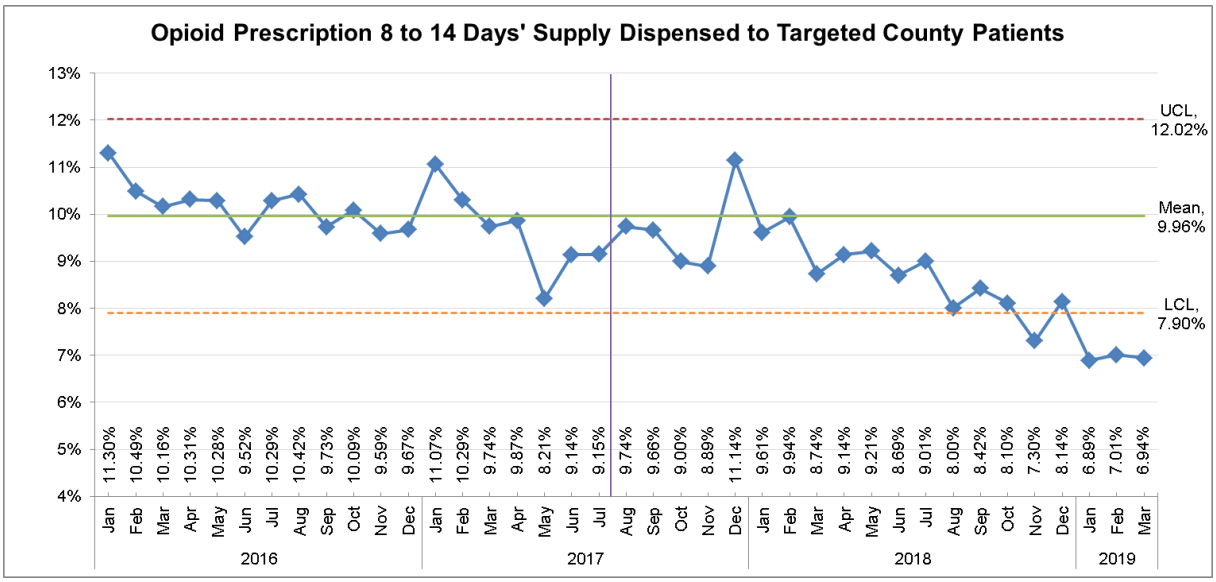

Opioid Prescribing Rate in Kansas
16%
14%
12%
10%
8%
6%
4%
2%
0%
UCL, 14.64%
Mean, 11.88%
LCL, 9.12%
11.13% 12.42% 13.08% 11.25% 12.50% 13.16% 11.28% 12.51% 13.13% 11.05% 12.36% 12.81%
10.21% 11.50% 12.25% 10.53% 11.63% 12.44% 10.48% 11.75% 12.12% 10.28% 11.39% 11.45%
9.35% 10.56% 10.97% 9.40% 10.74% 11.06% 9.57% 10.67% 10.85% 9.46% 10.42% 10.49%
8.78% 9.80% 9.91%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2016
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2018
Jan Feb Mar
2019

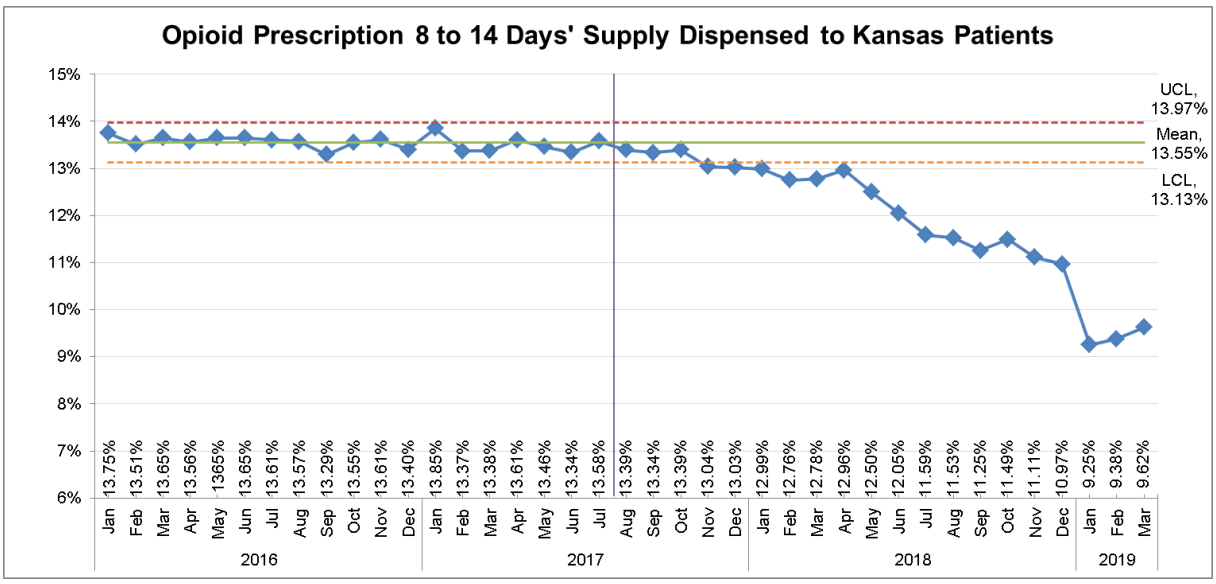
Opioid Prescription – 1 to 7 Days



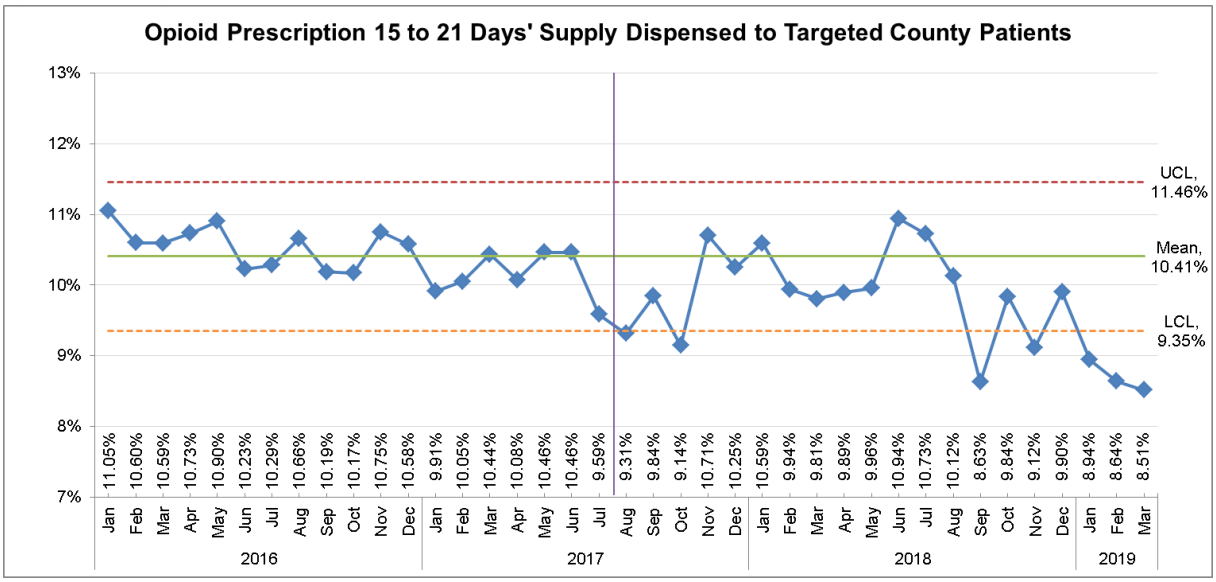


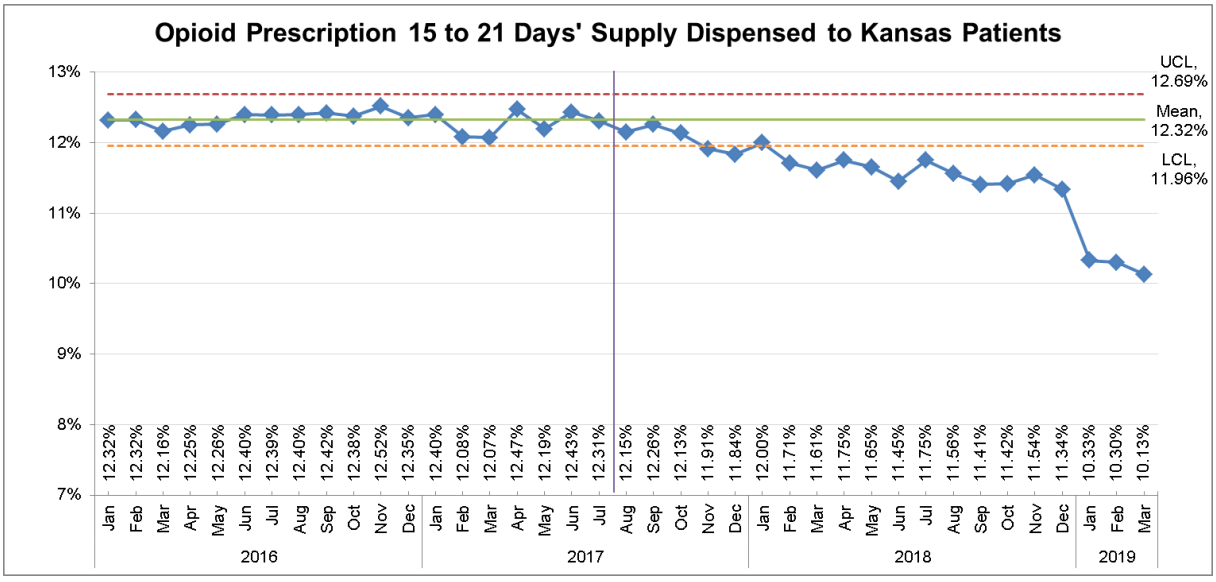
Opioid Prescription – 8 to 14 Days



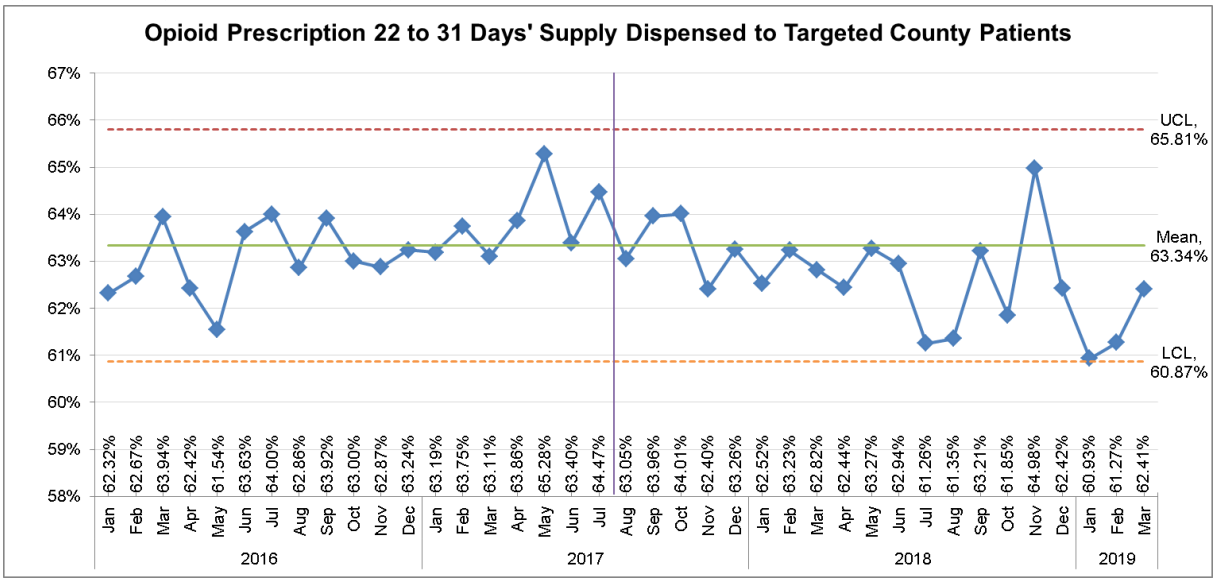


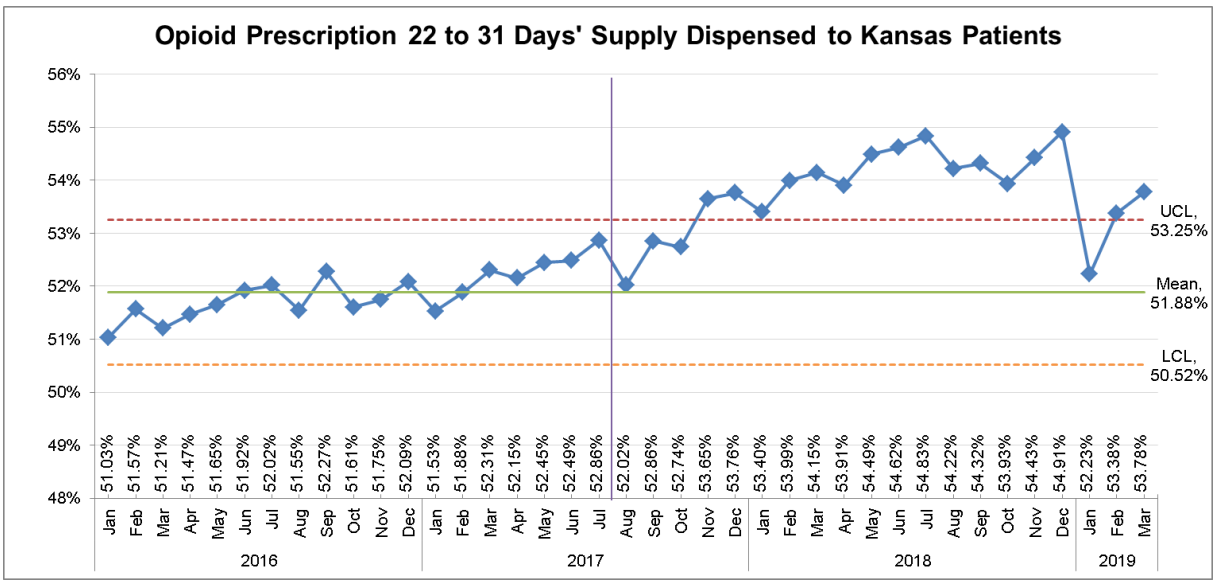
Opioid Prescription – 15 to 21 Days



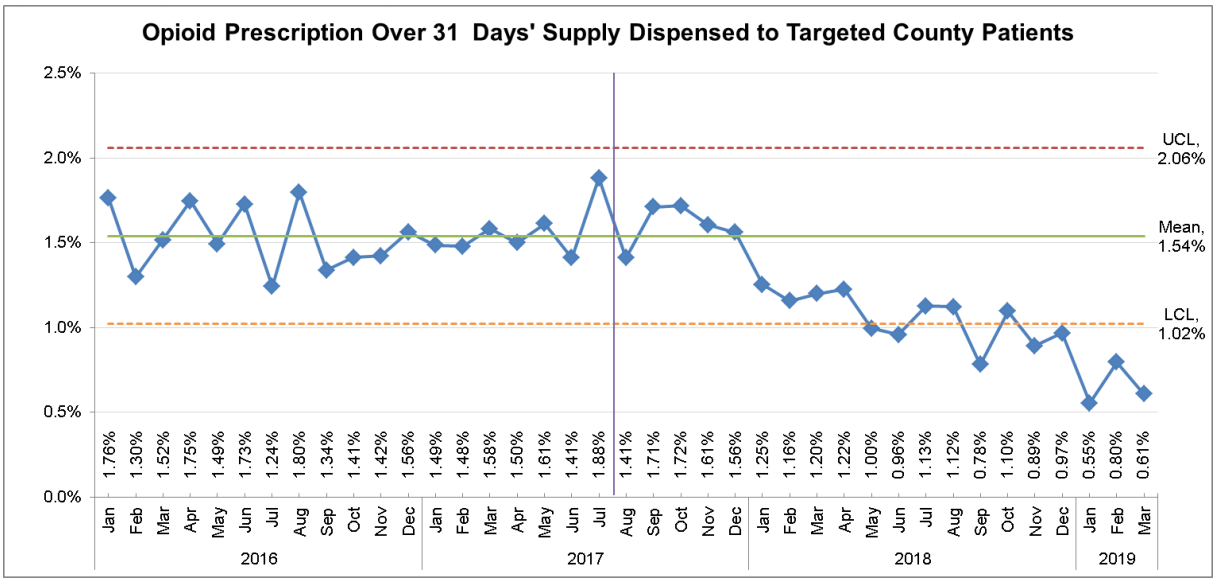


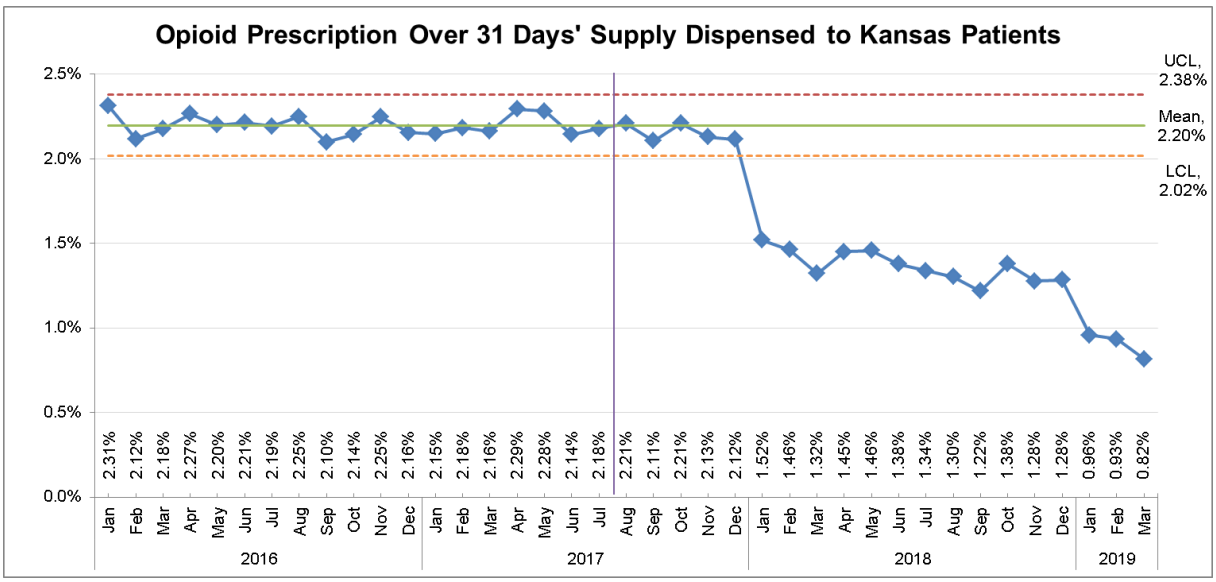
Opioid Prescription – 22 to 31 Days



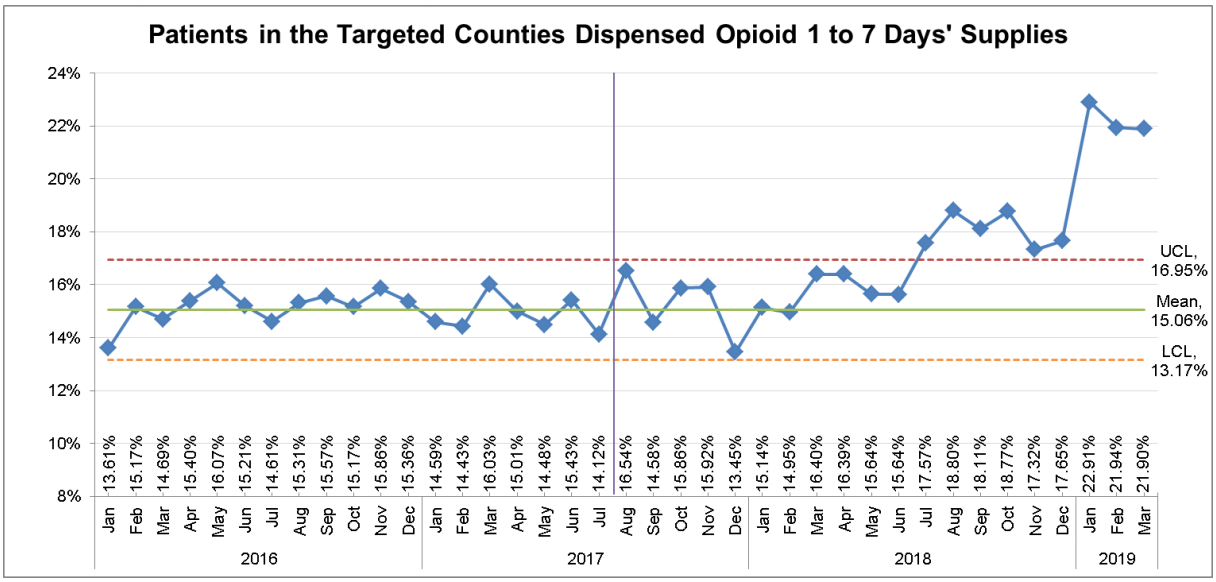


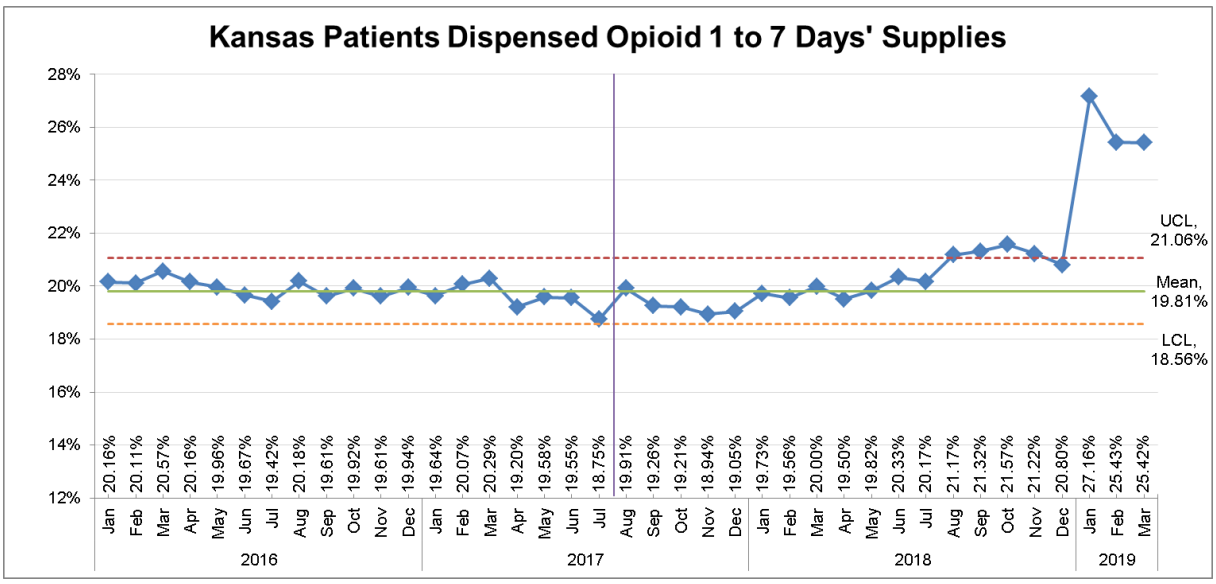
Opioid Prescription – Over 31 Days



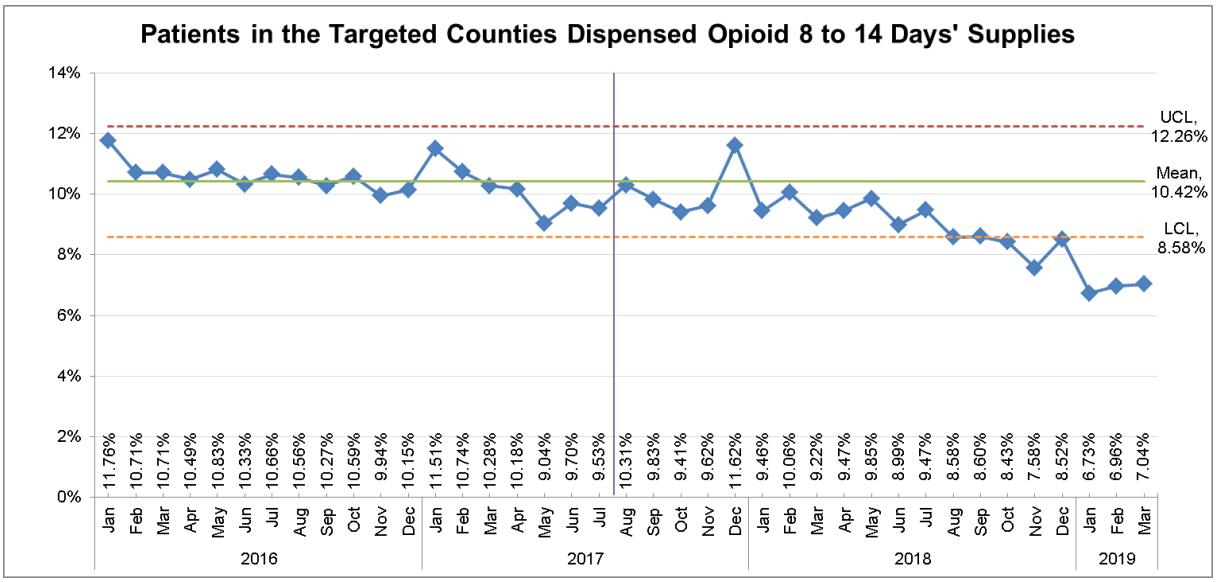


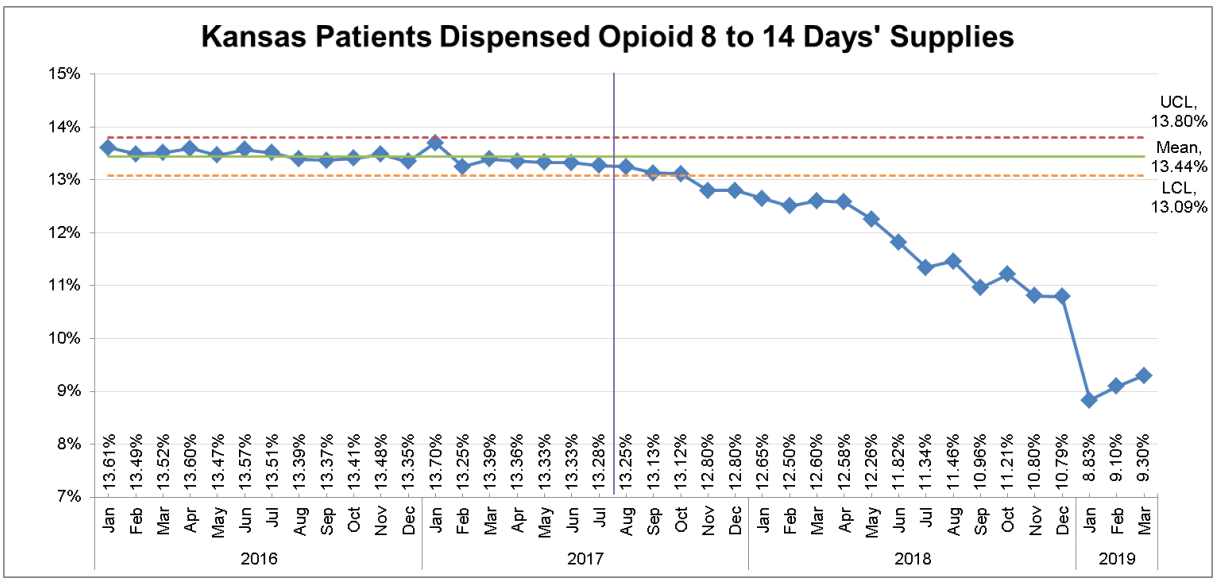
Patients Dispensed – 1 to 7 Days' Supply



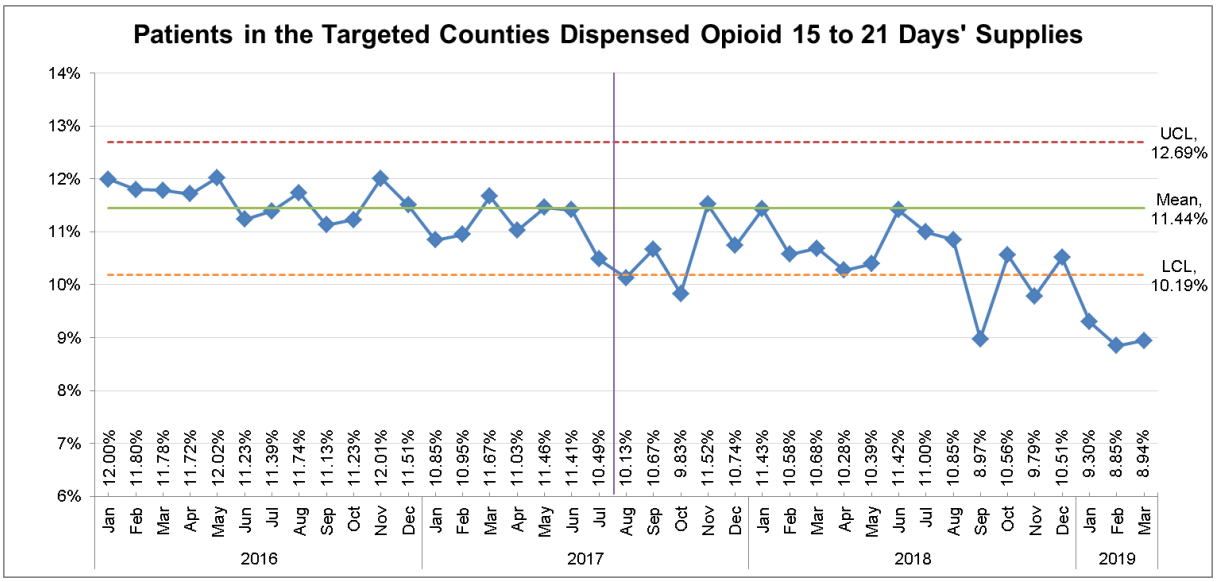


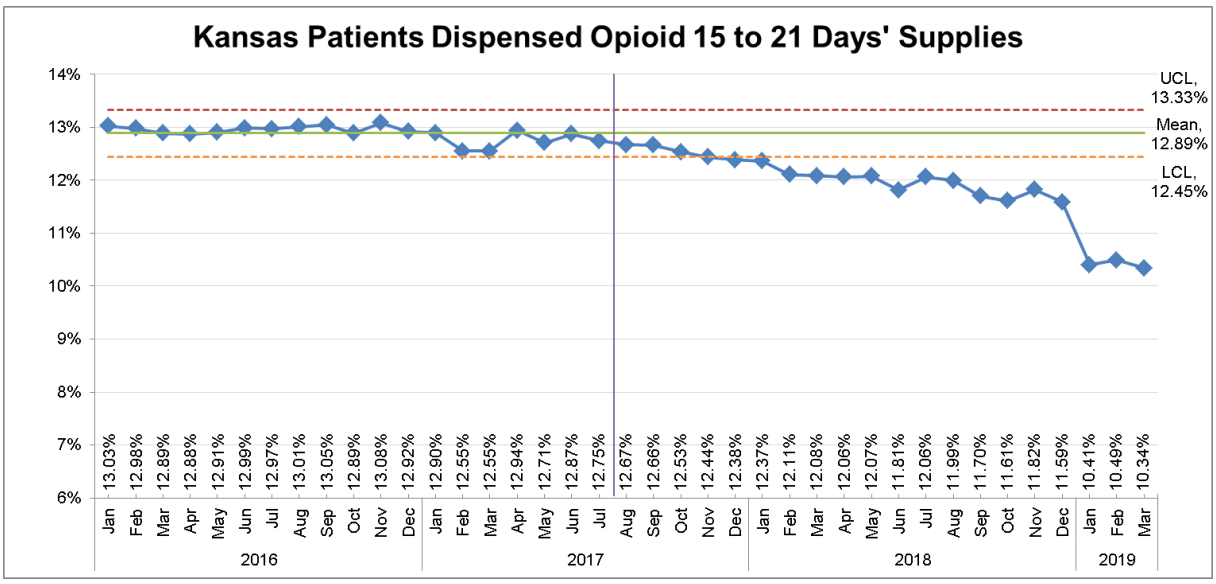
Patients Dispensed – 8 to 14 Days' Supply



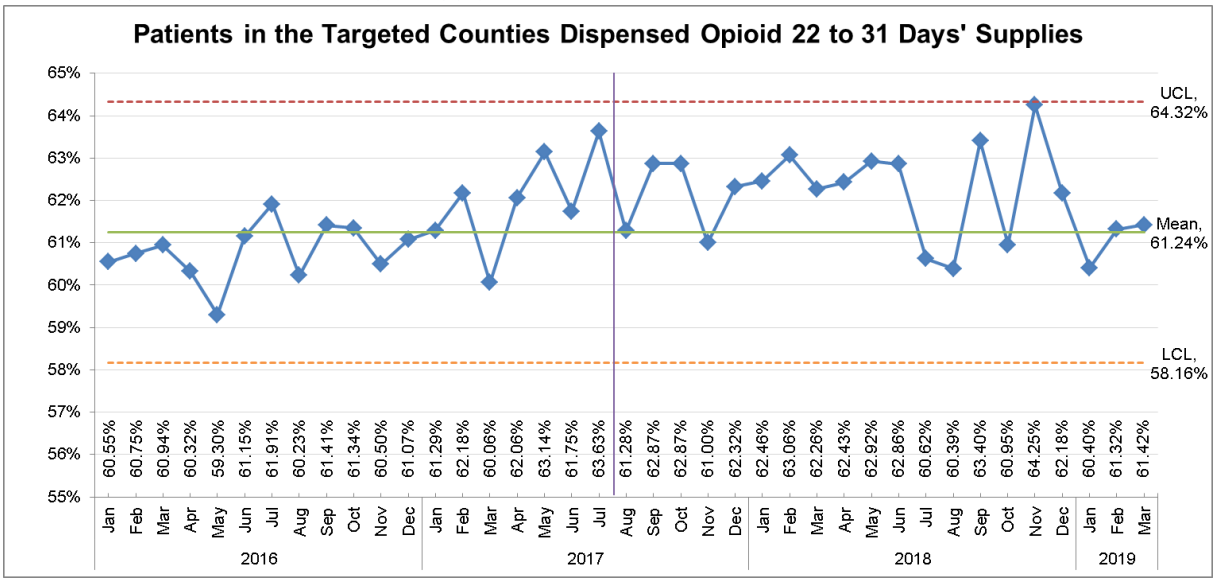


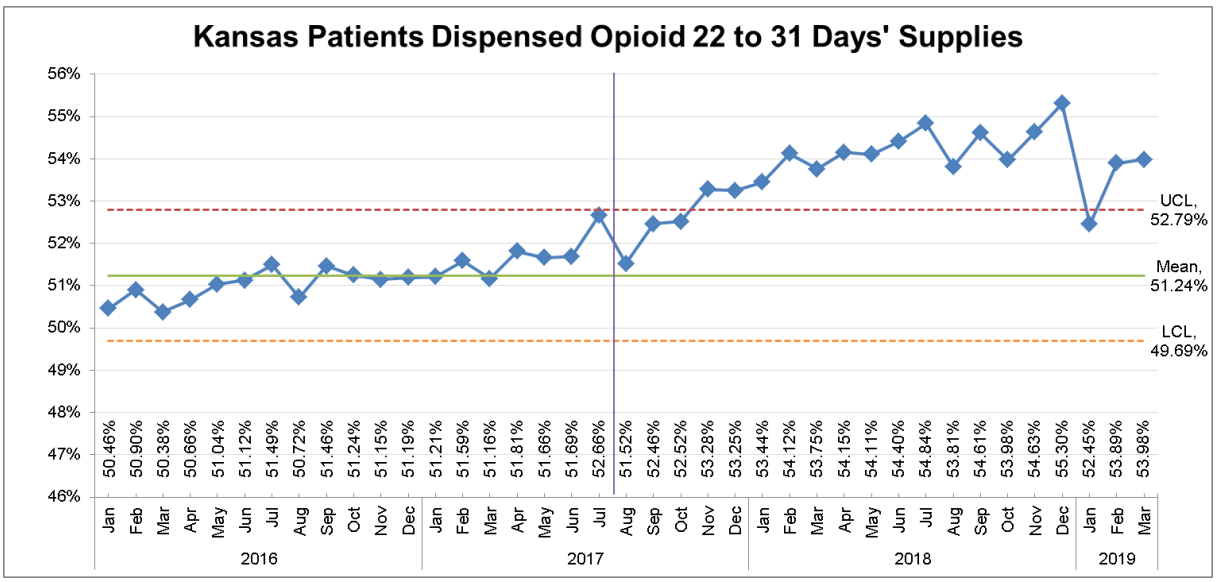
Patients Dispensed – 15 to 21 Days' Supply



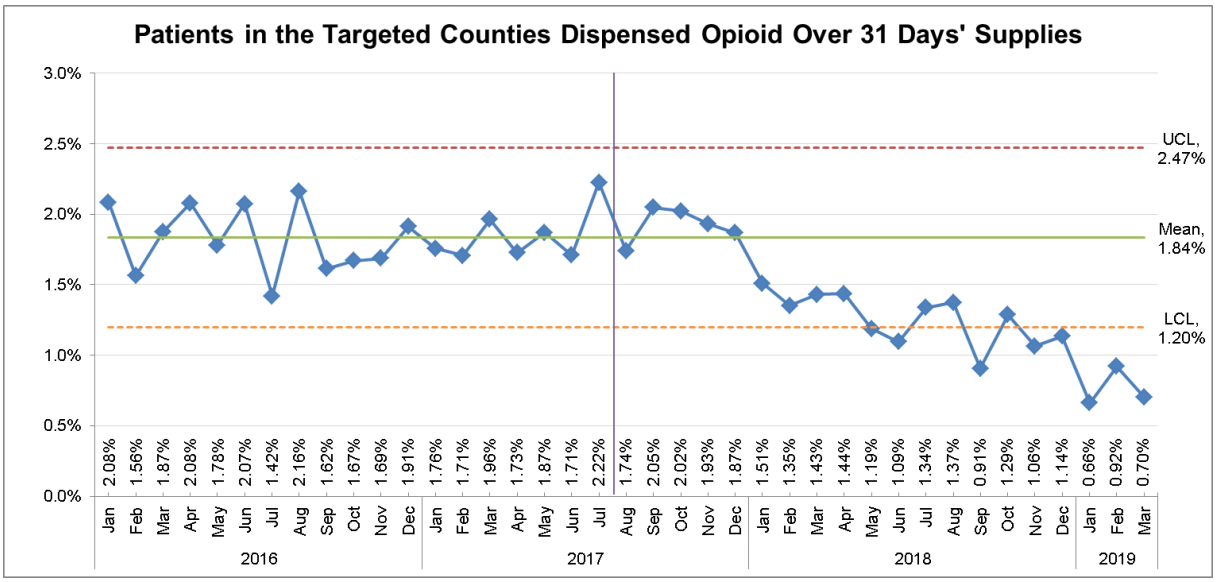


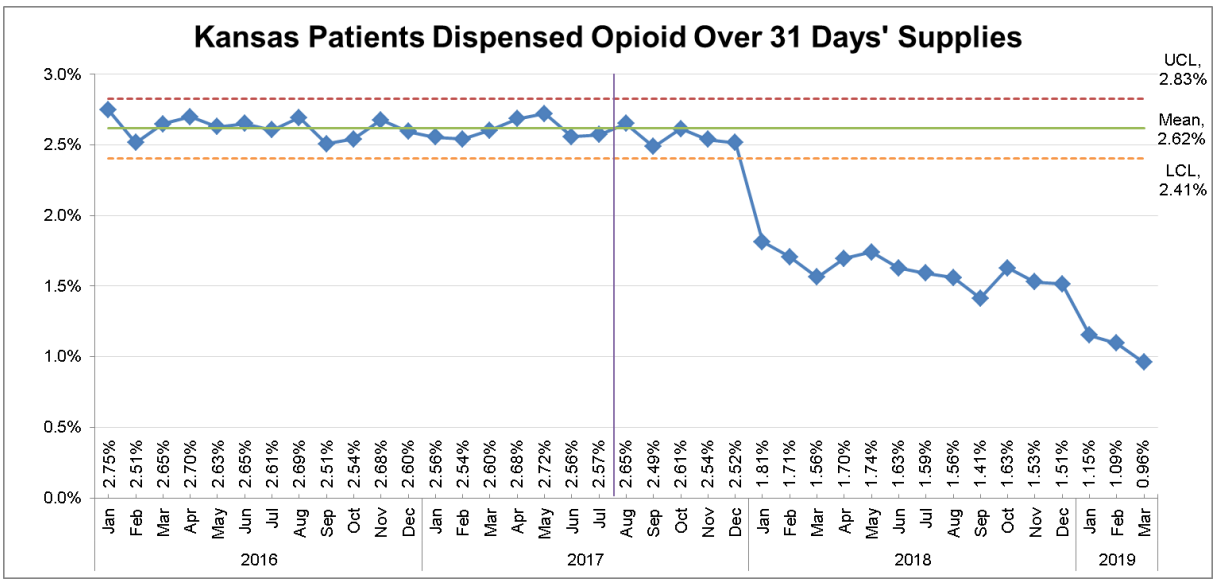
Patient Dispensed – 22 to 31 Days' Supply



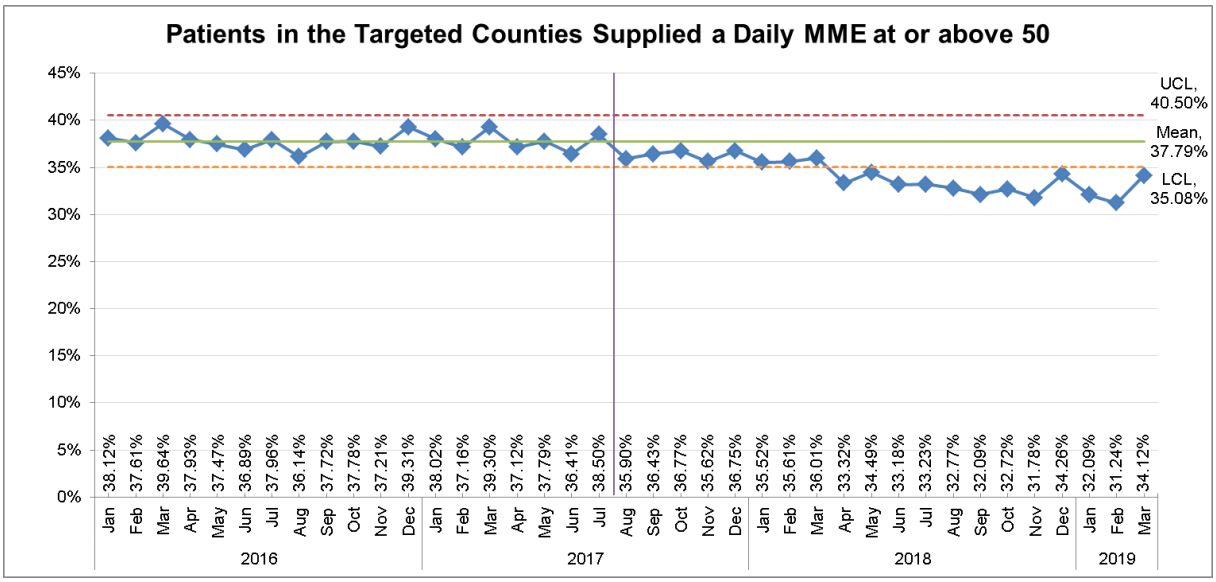


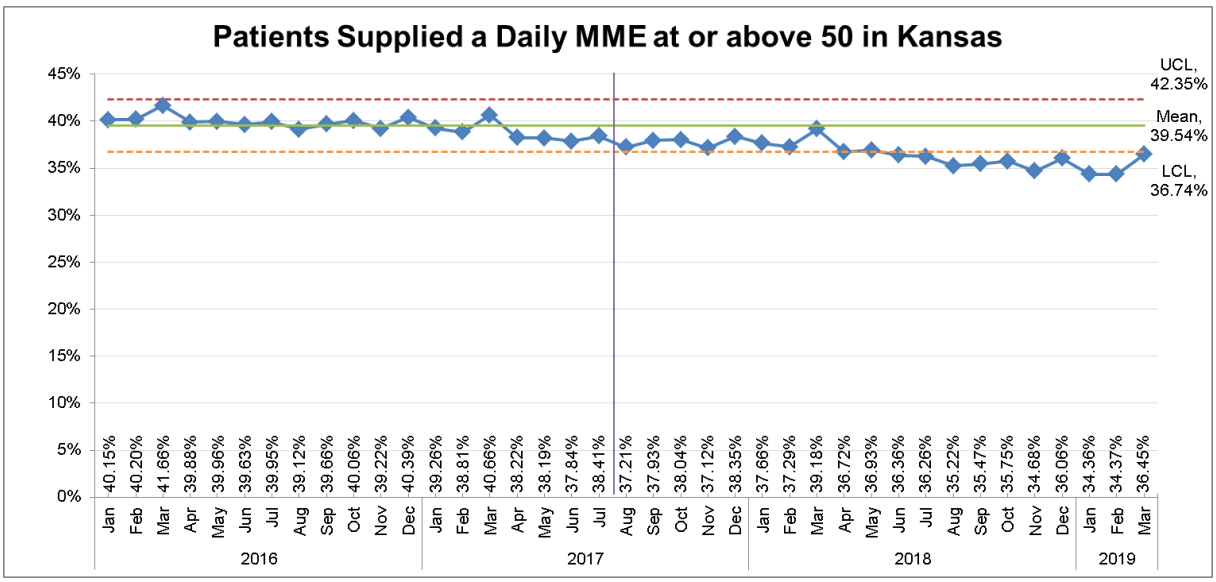
Patient Dispensed – Over 31 Days' Supply



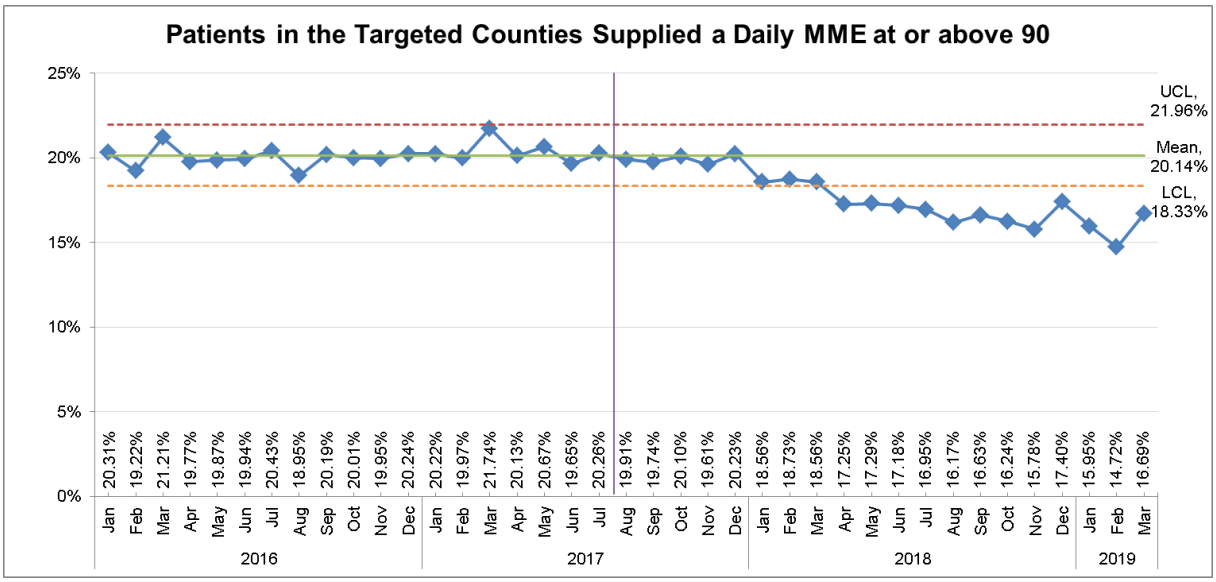


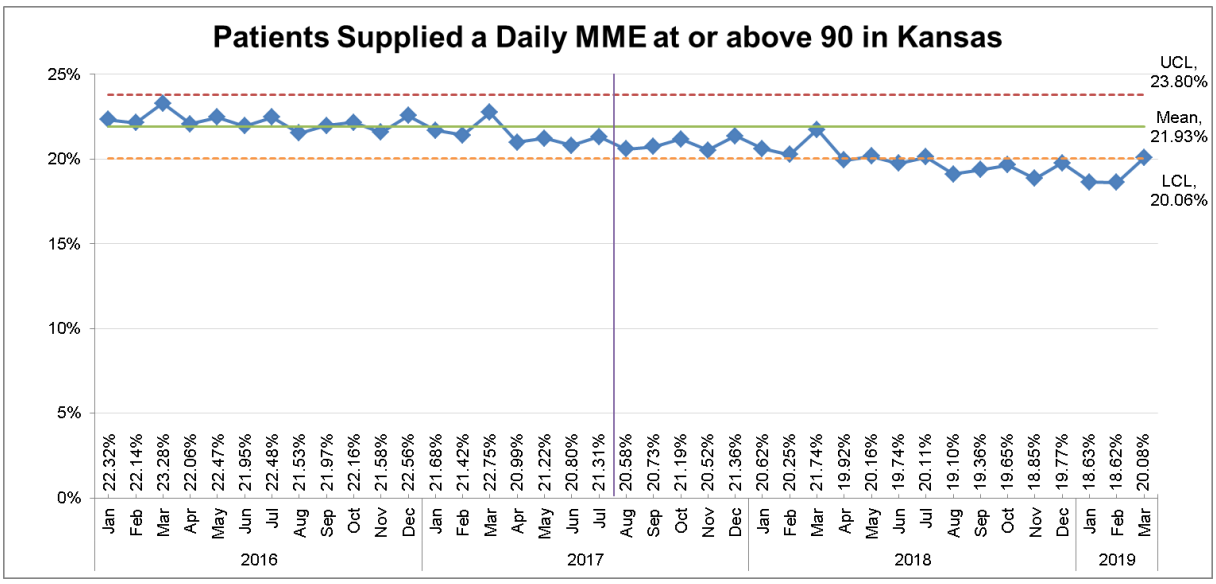
MME50 and Above



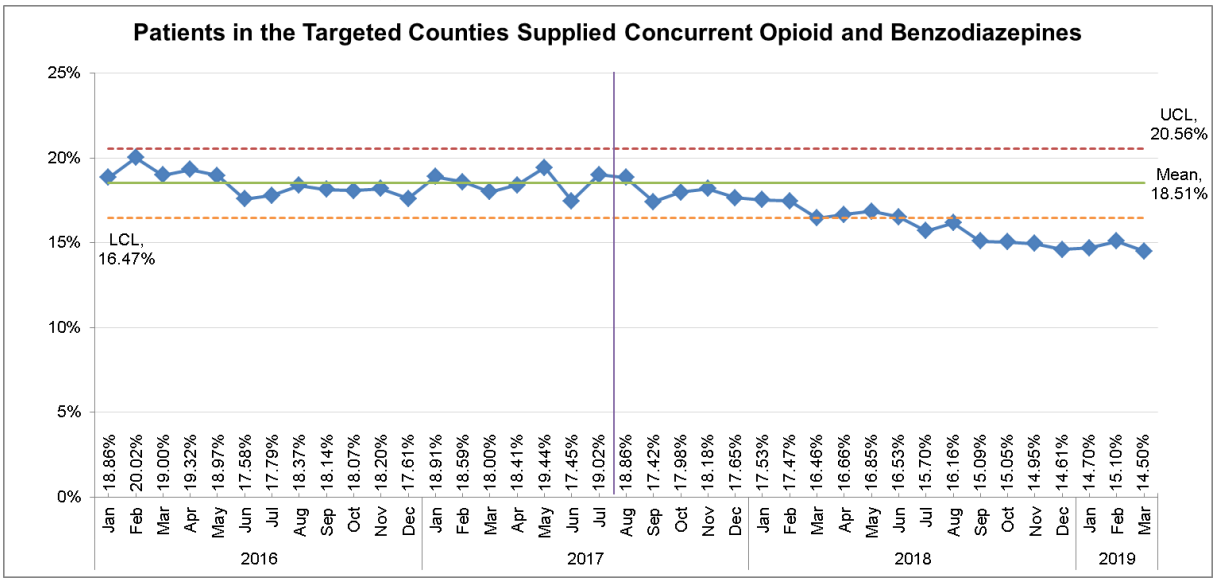


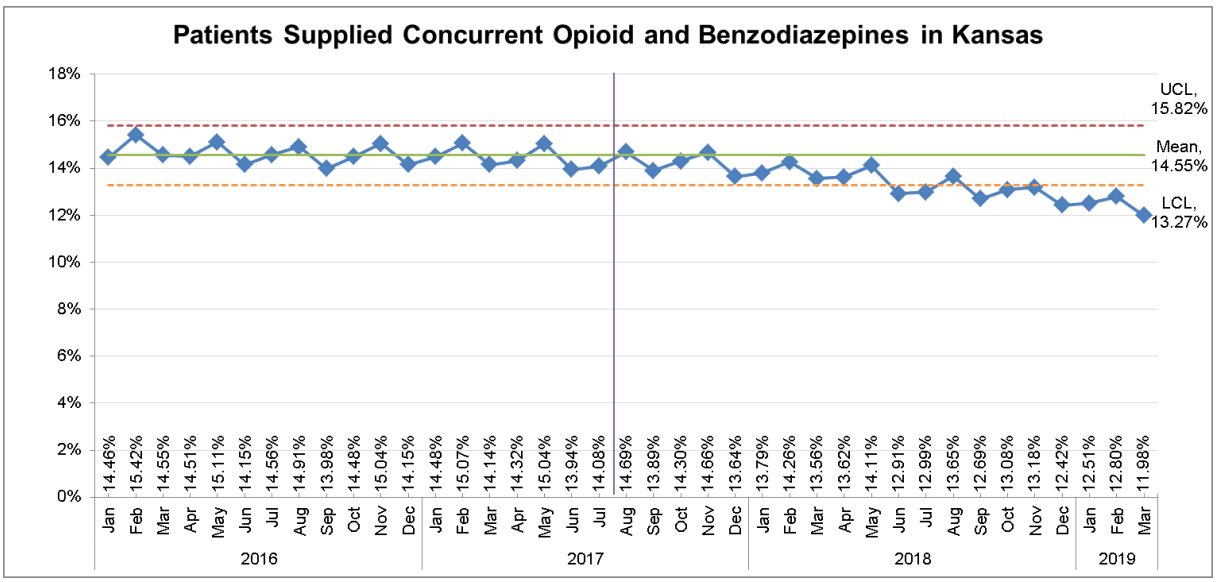
MME90 and Above



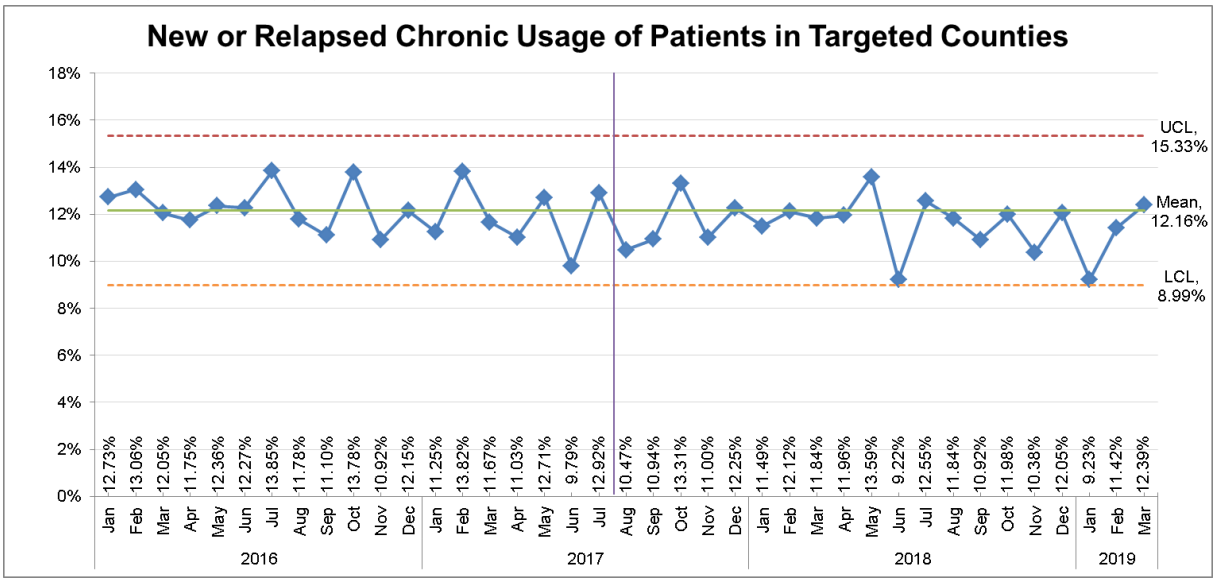


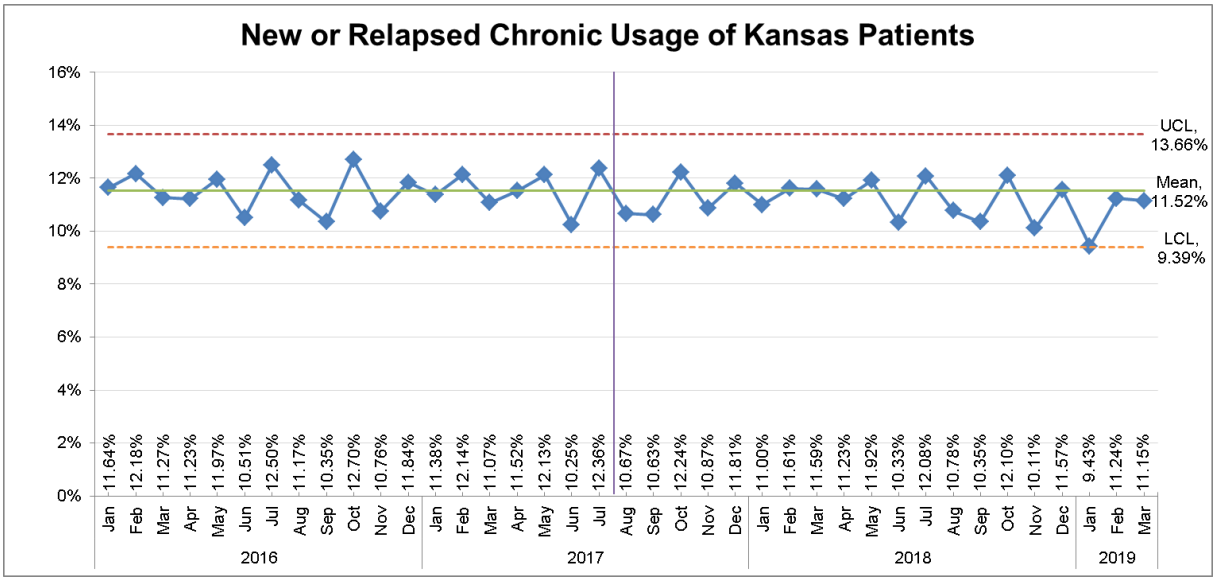
Concurrent Opioid and Benzo Supplies



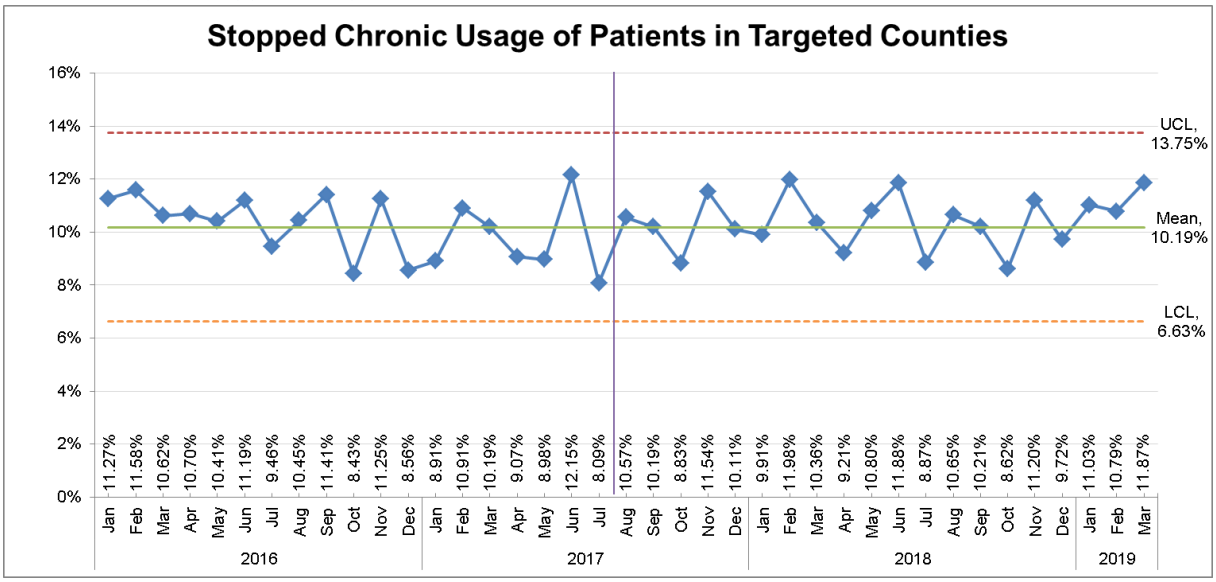


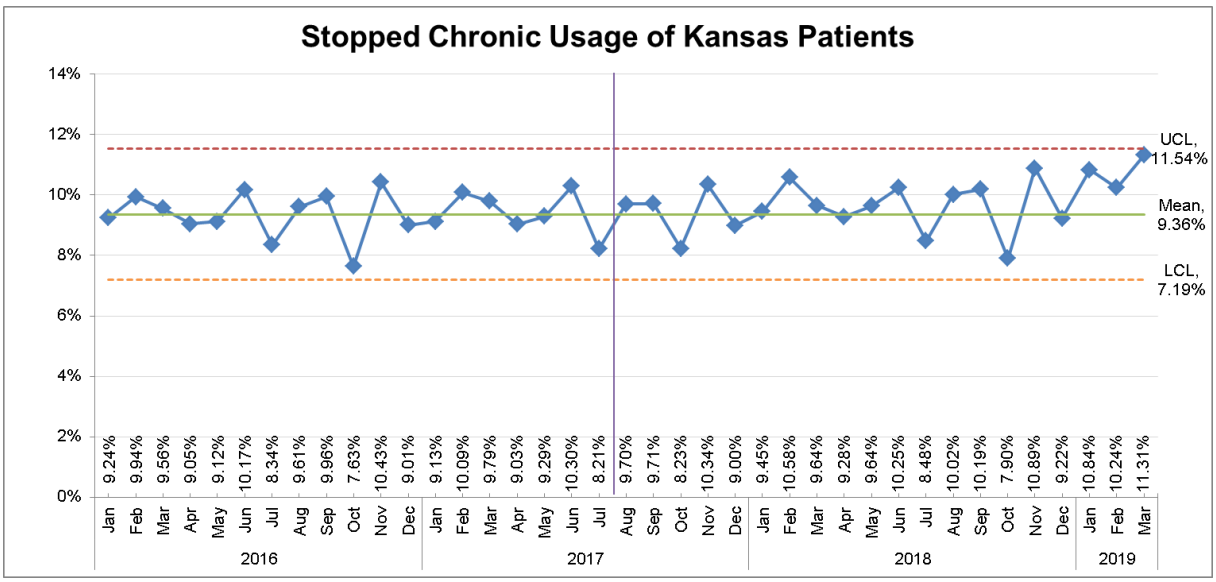
Chronic Usage – New/Relapsed Usage



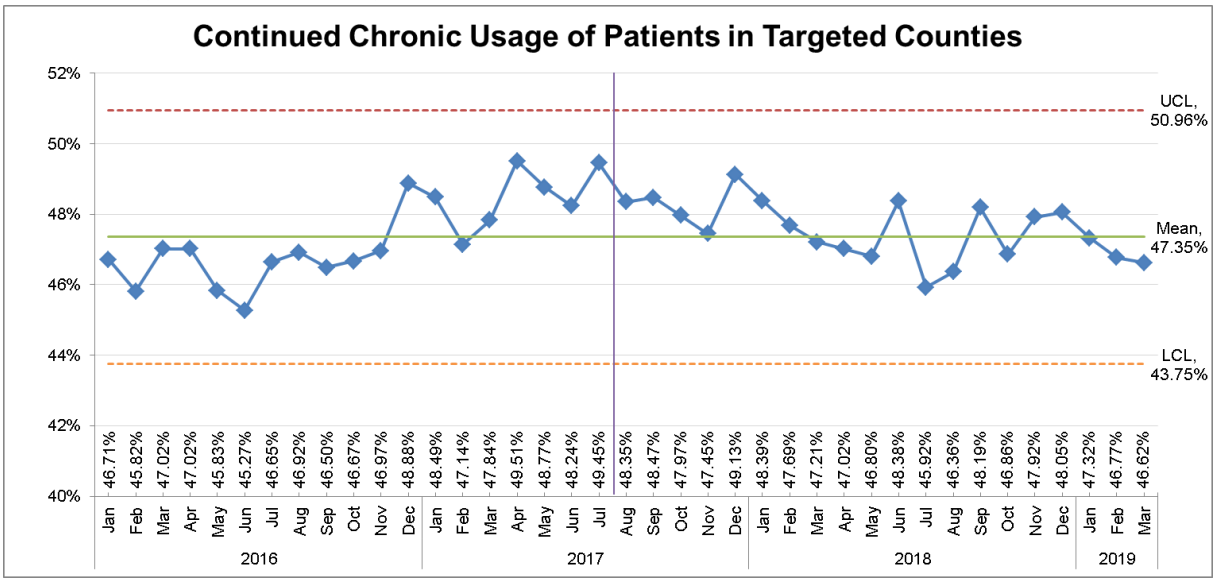


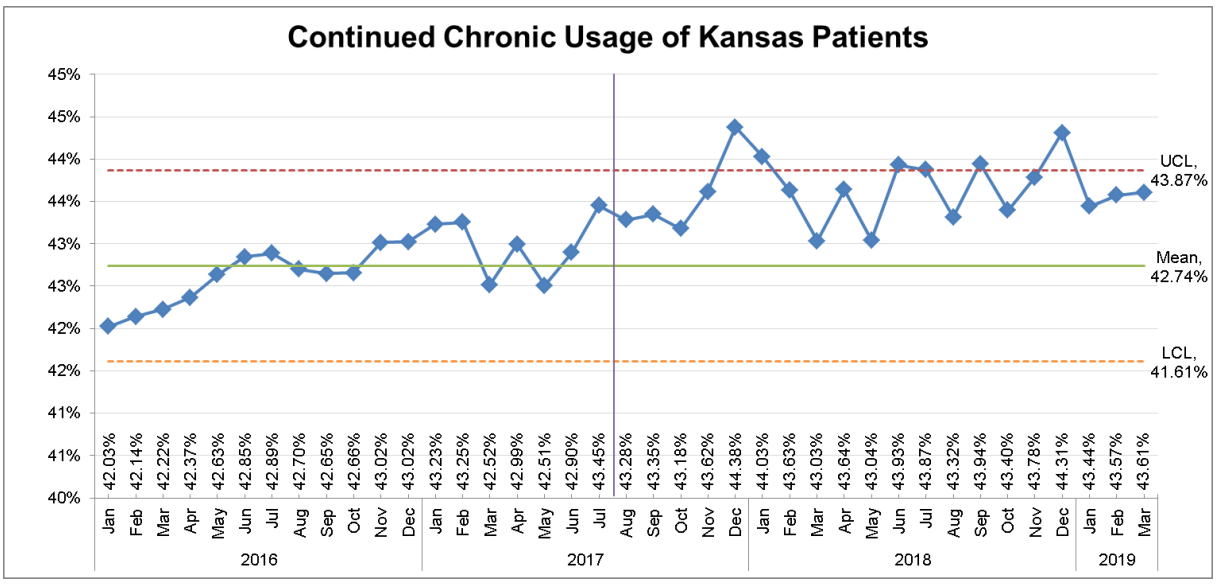
Chronic Usage – Stopped Usage



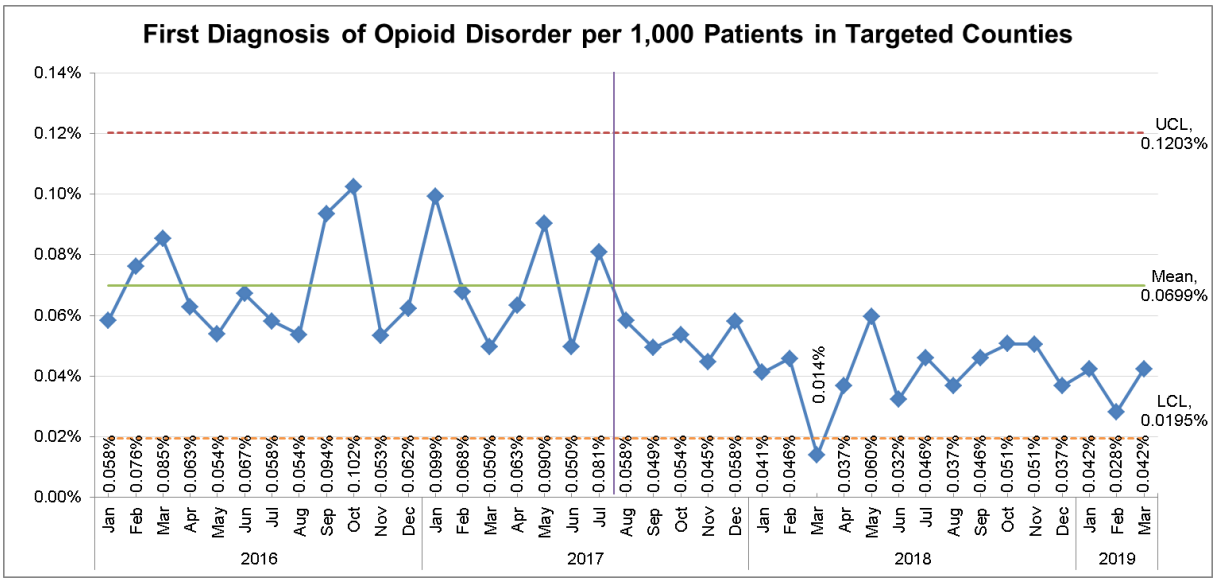


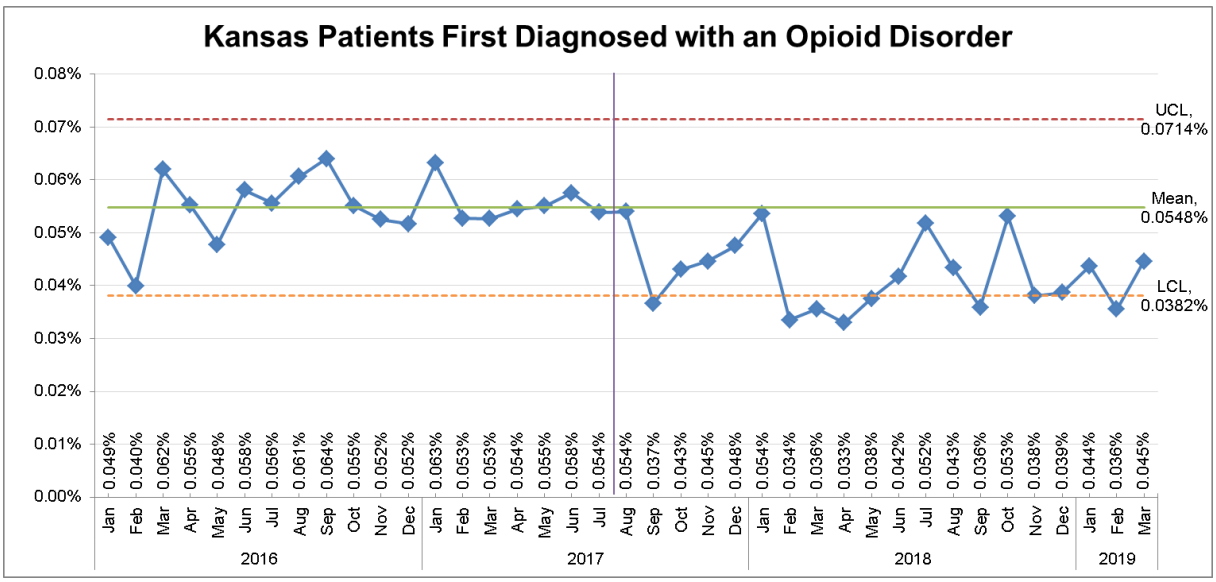
Chronic Usage – Continued Usage



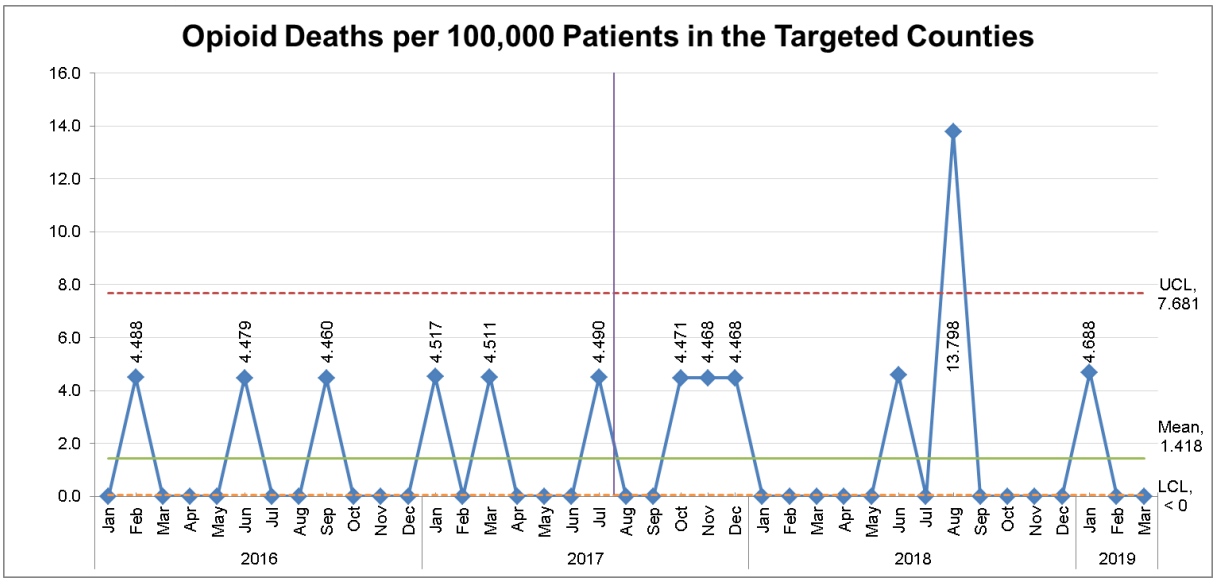


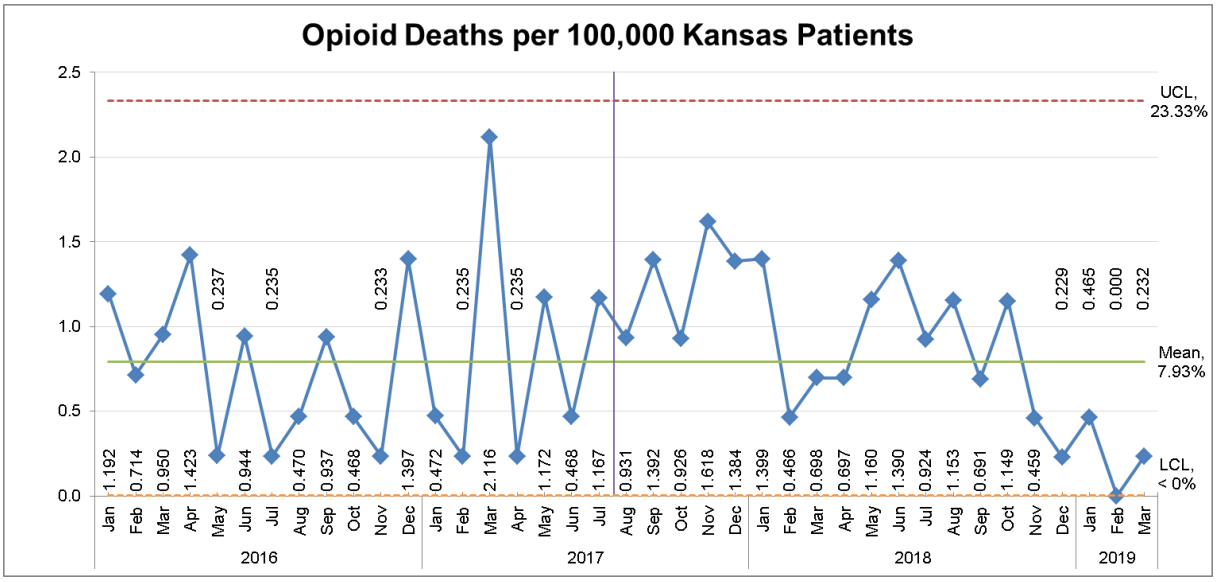
First Opioid Disorder



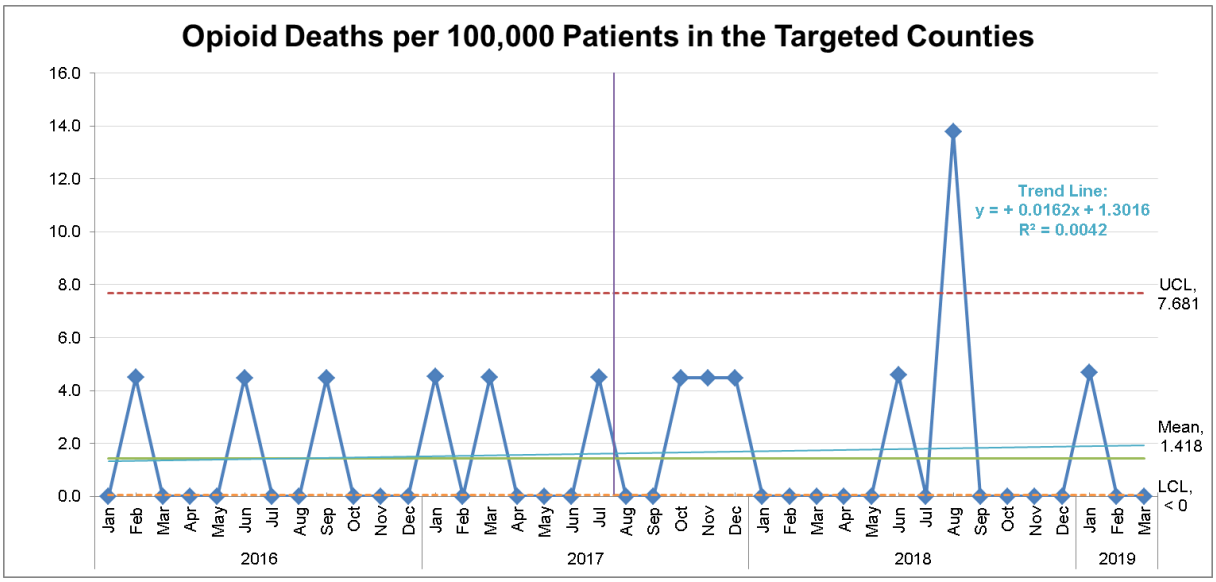


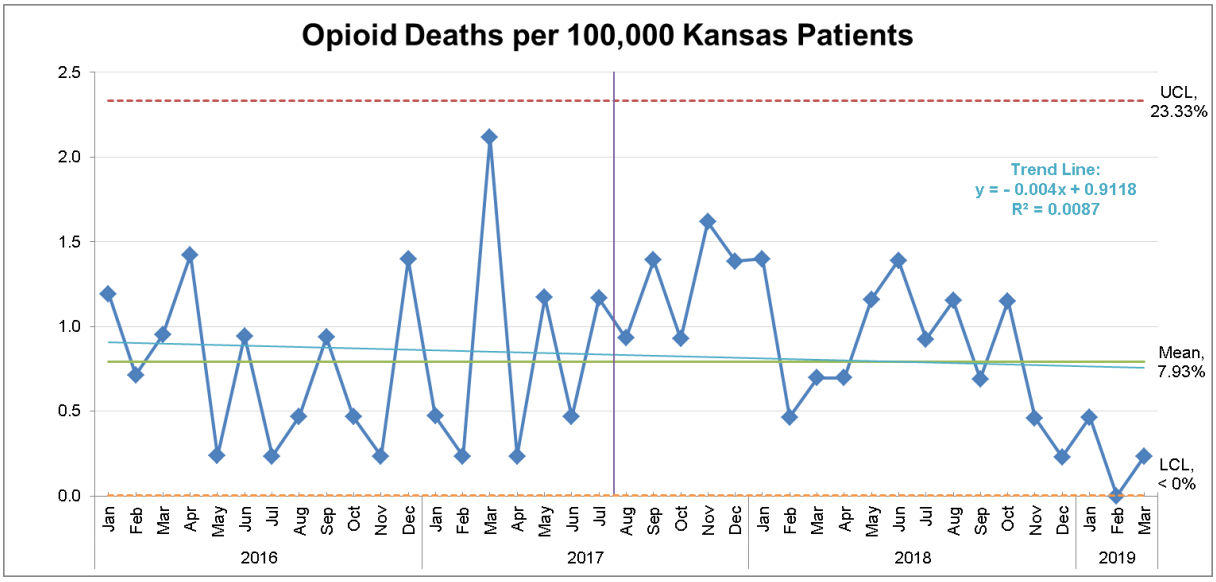
Opioid Deaths per 100,000



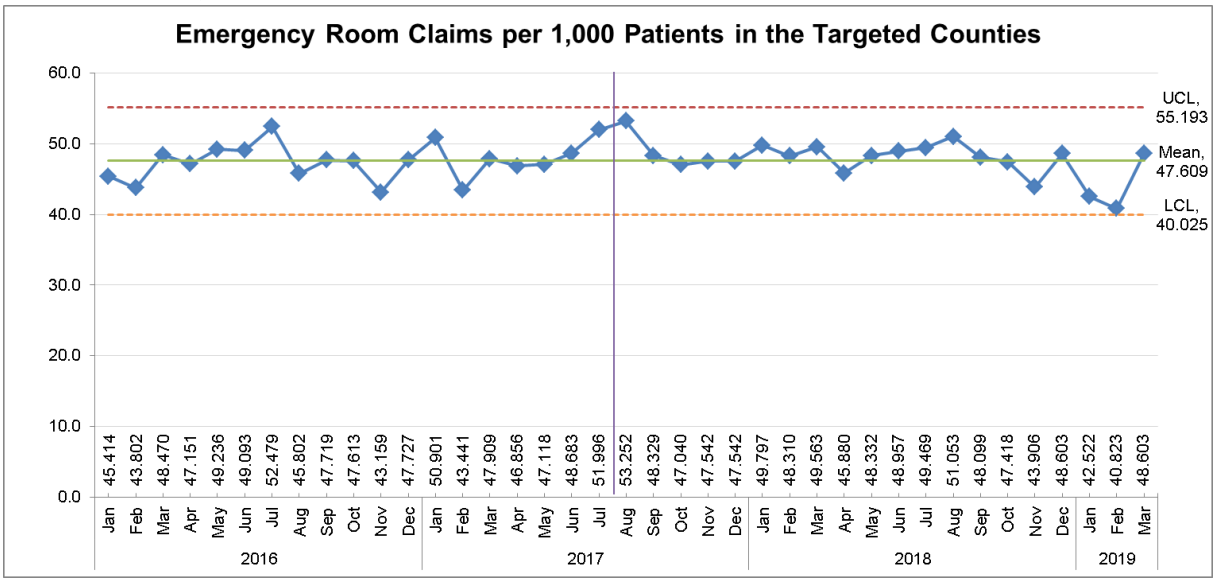


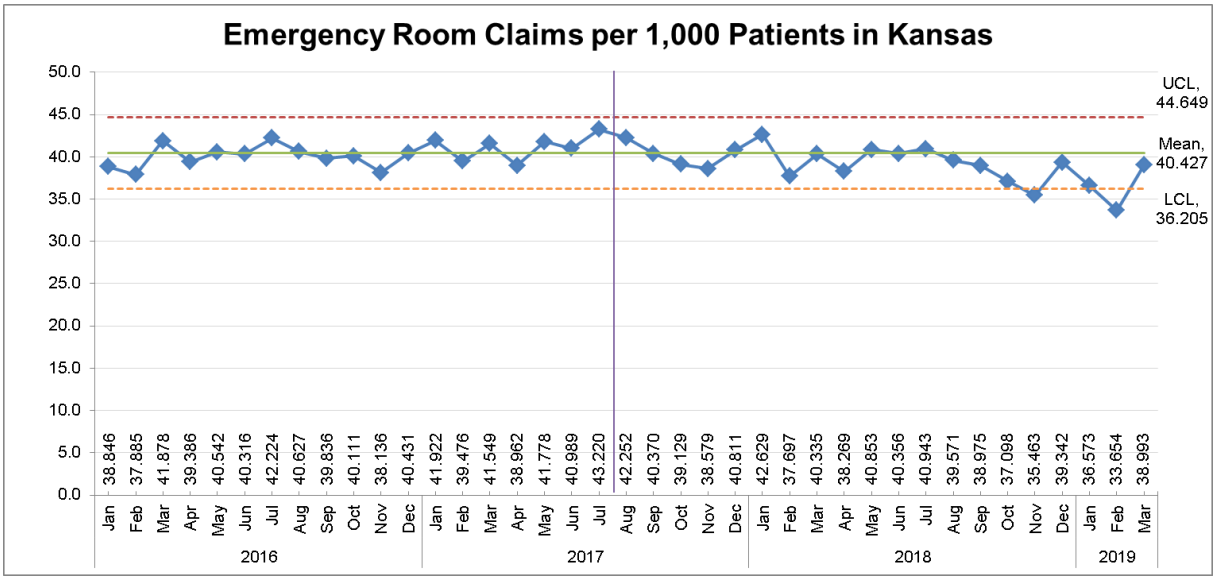
Opioid Deaths per 100,000 - Trend line



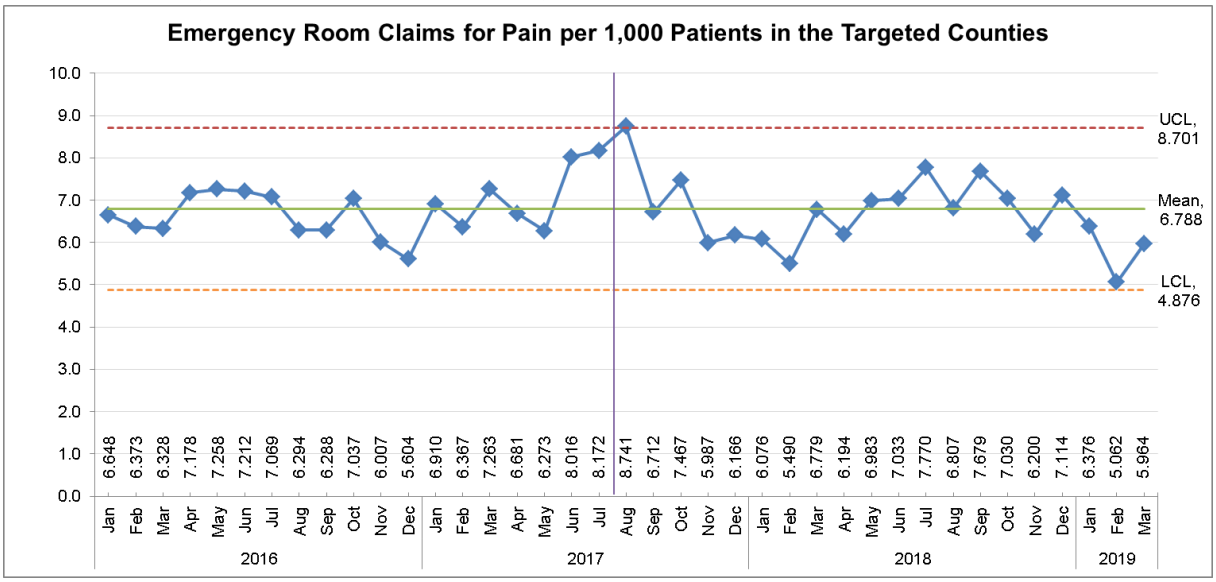


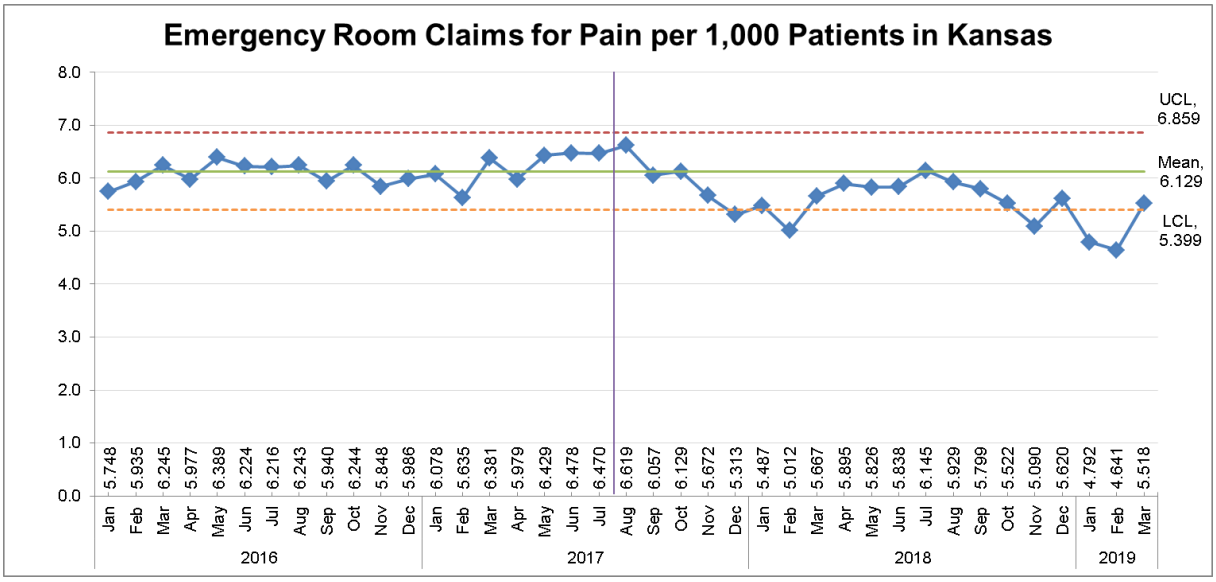
ER Claim Counts per 1,000 Patients



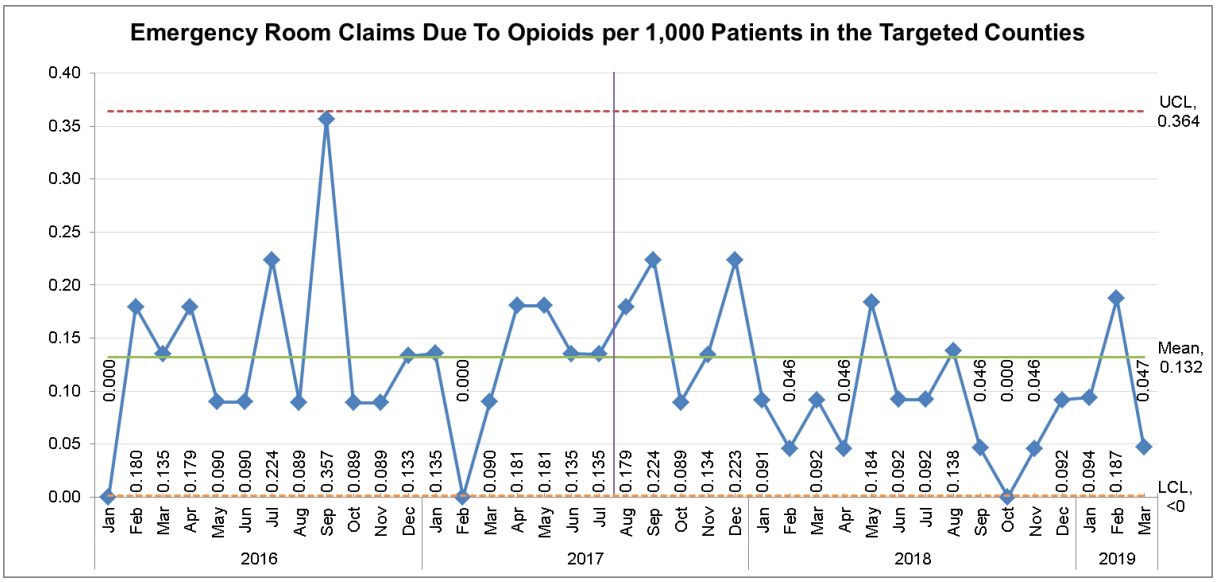


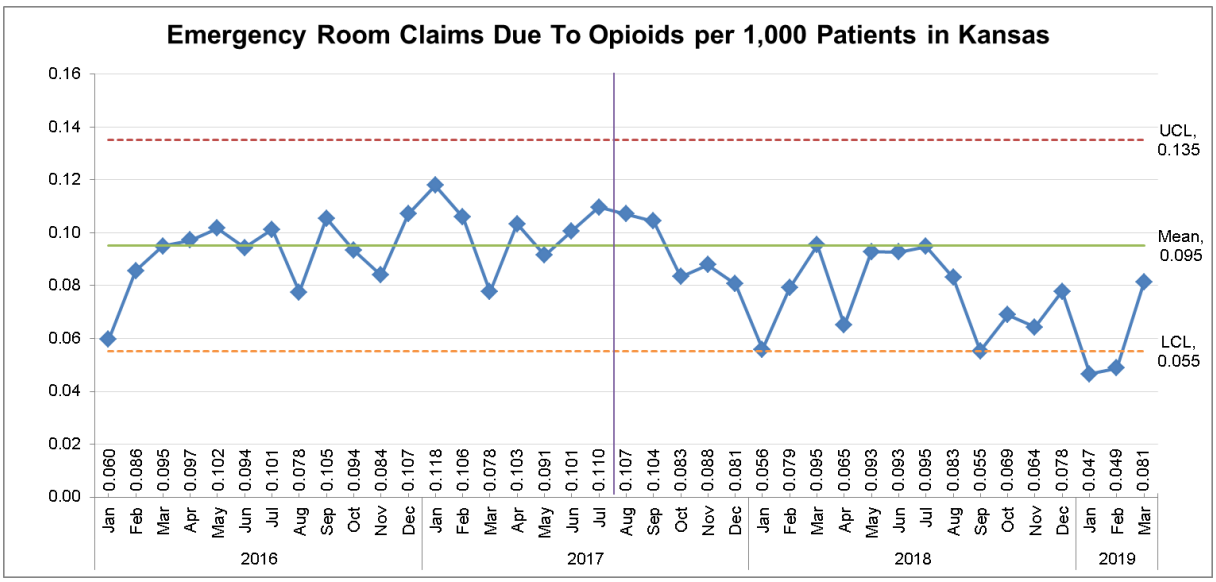
ER Claim Counts per 1,000 Patients – Pain Diagnosis



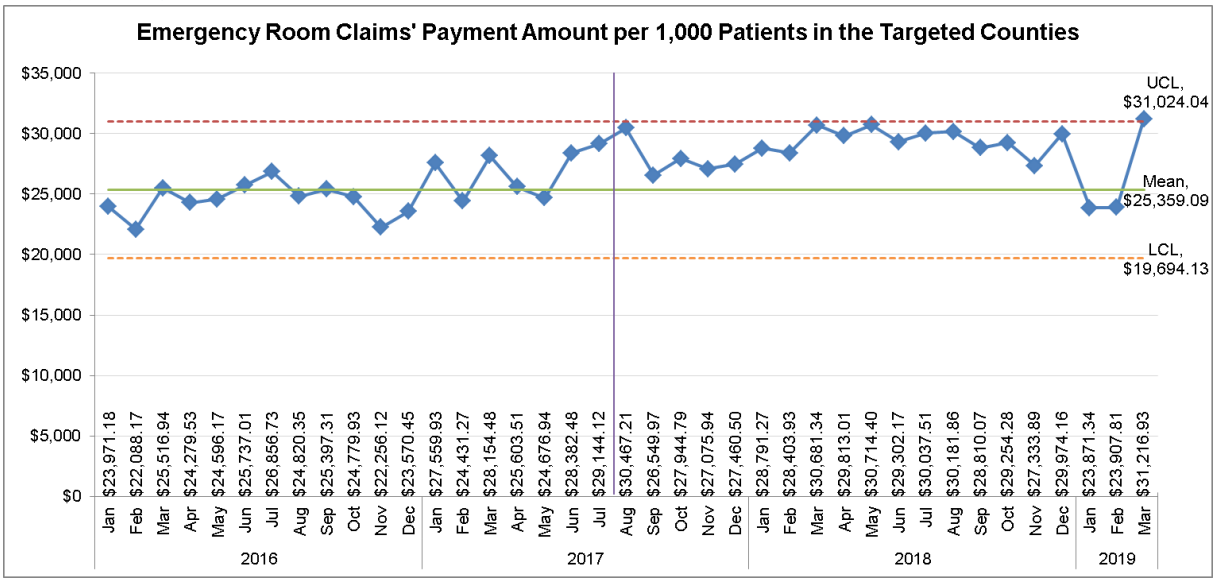


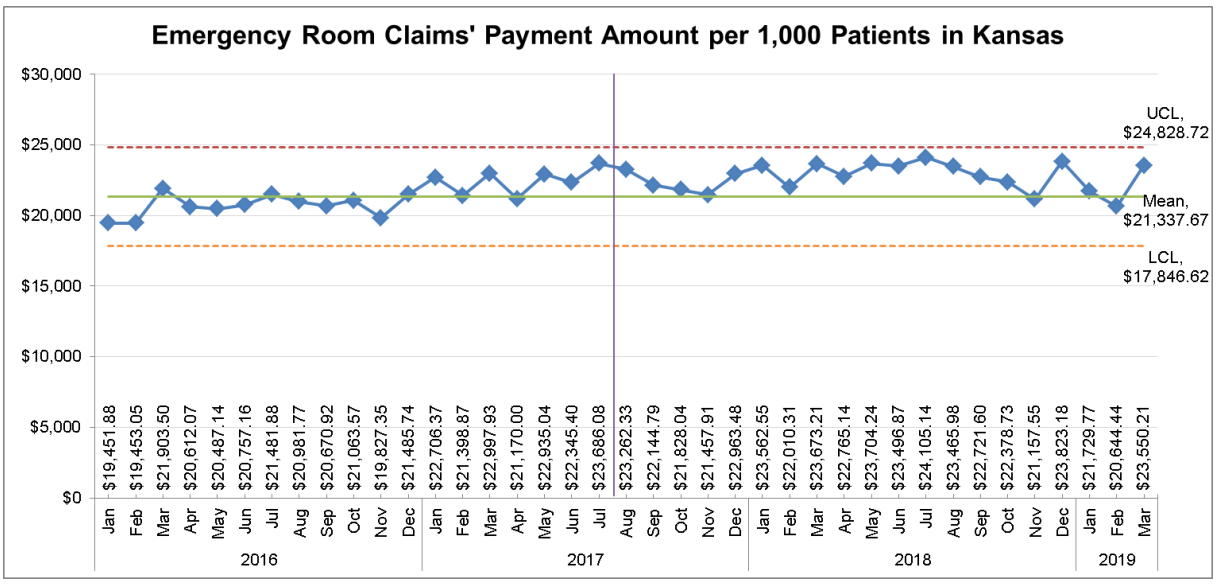
ER Claim Counts per 1,000 Patients – Opioid Poisoning



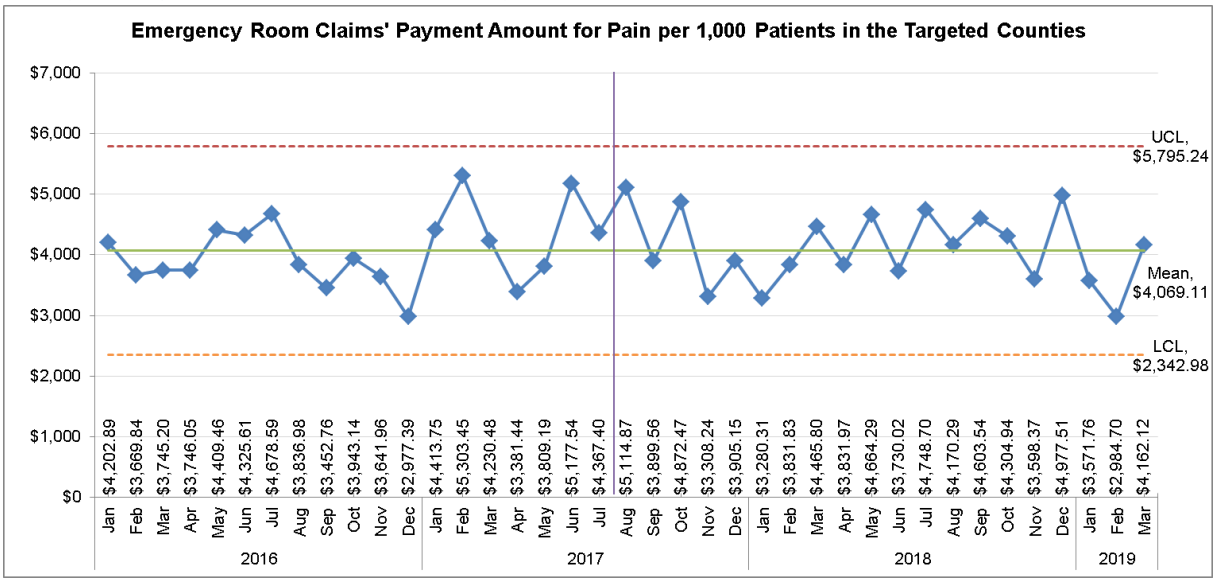


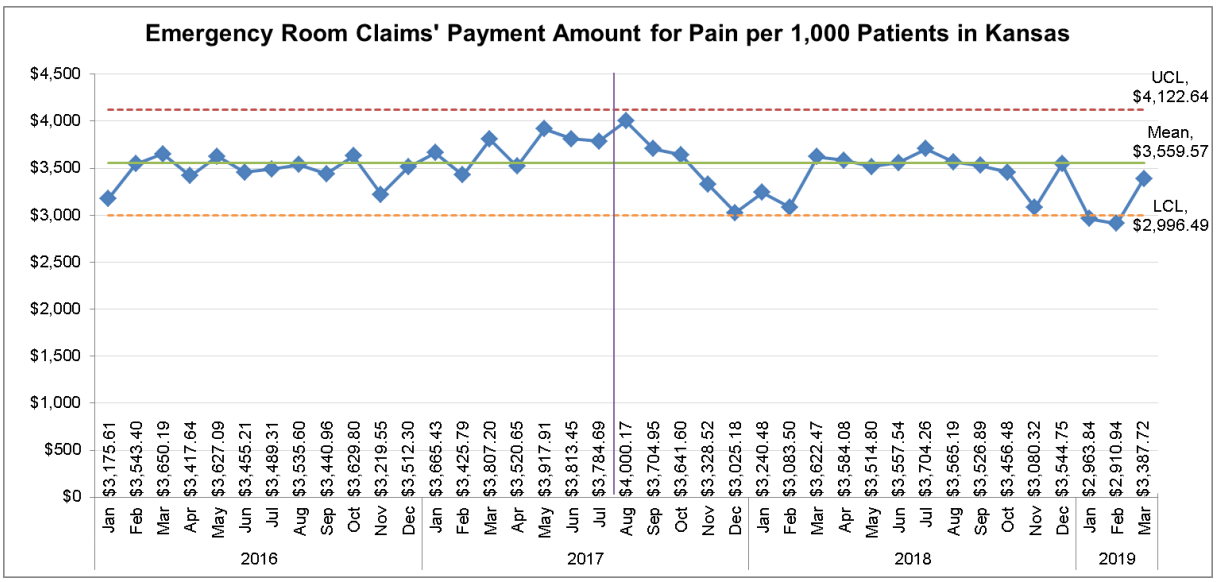
ER Payments per 1,000 Patients



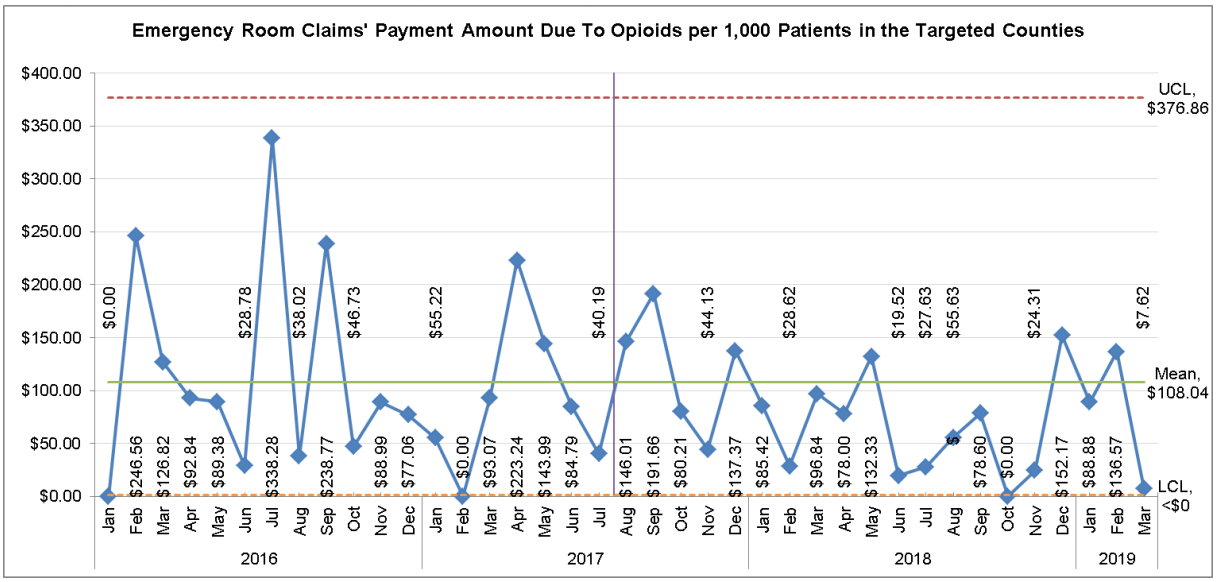


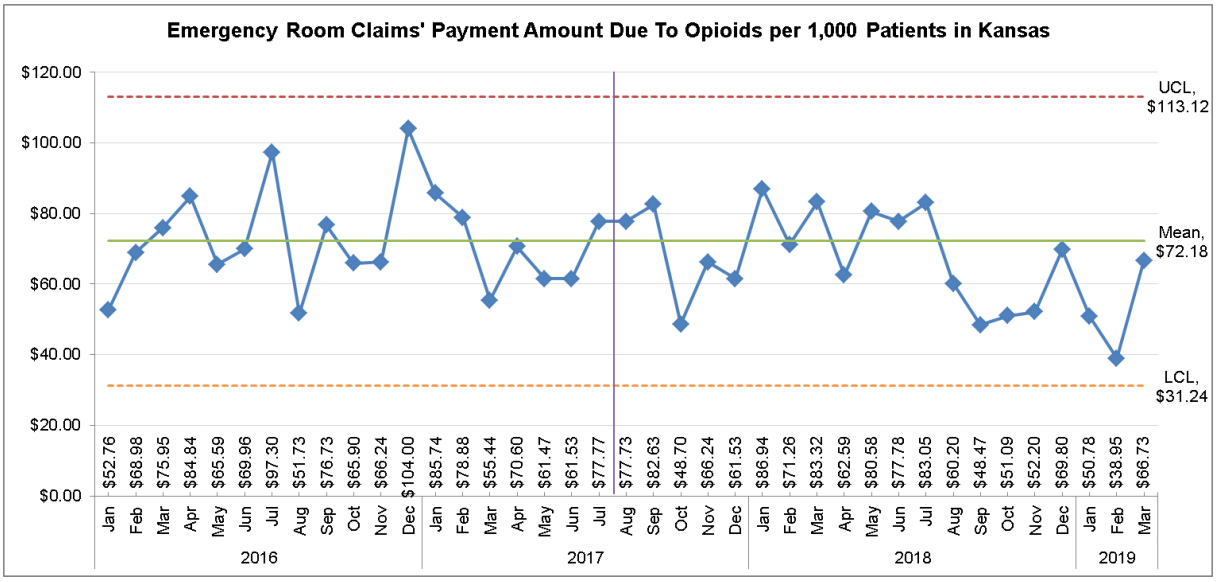
ER Payments per 1,000 Patients – Pain Diagnosis





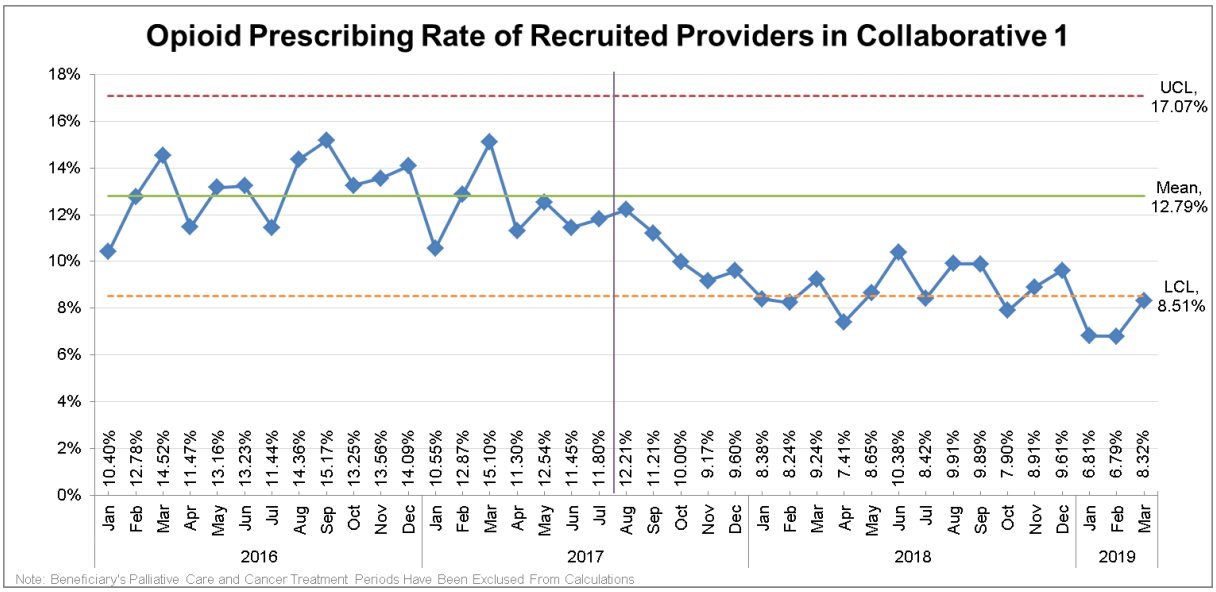
ER Payments per 1,000 Patients – Opioid Poisoning

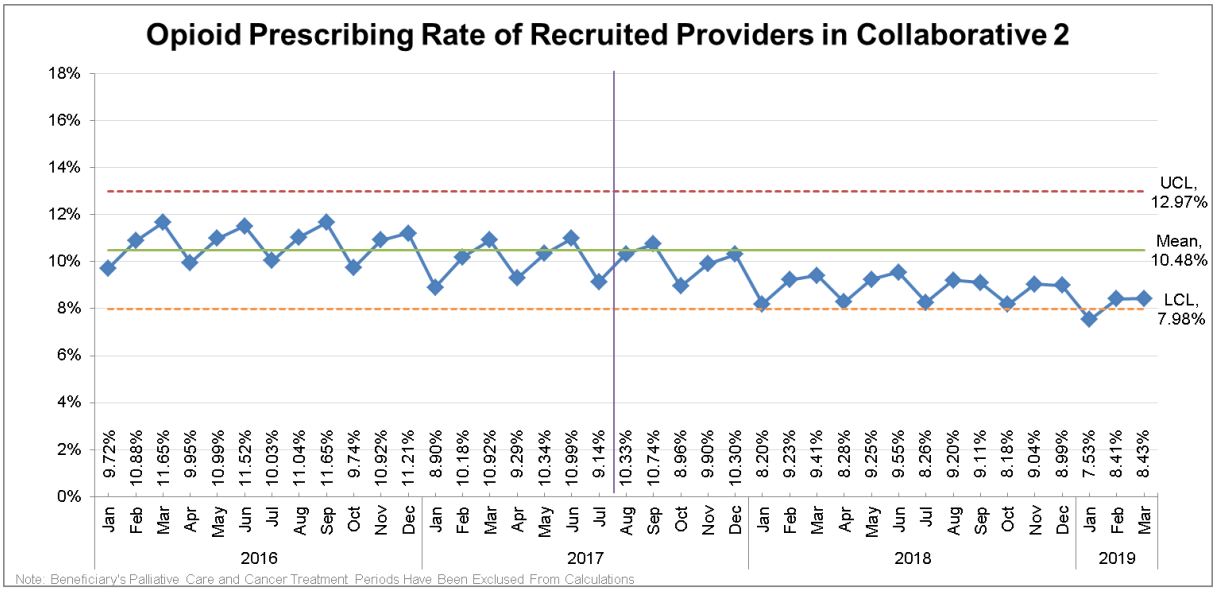


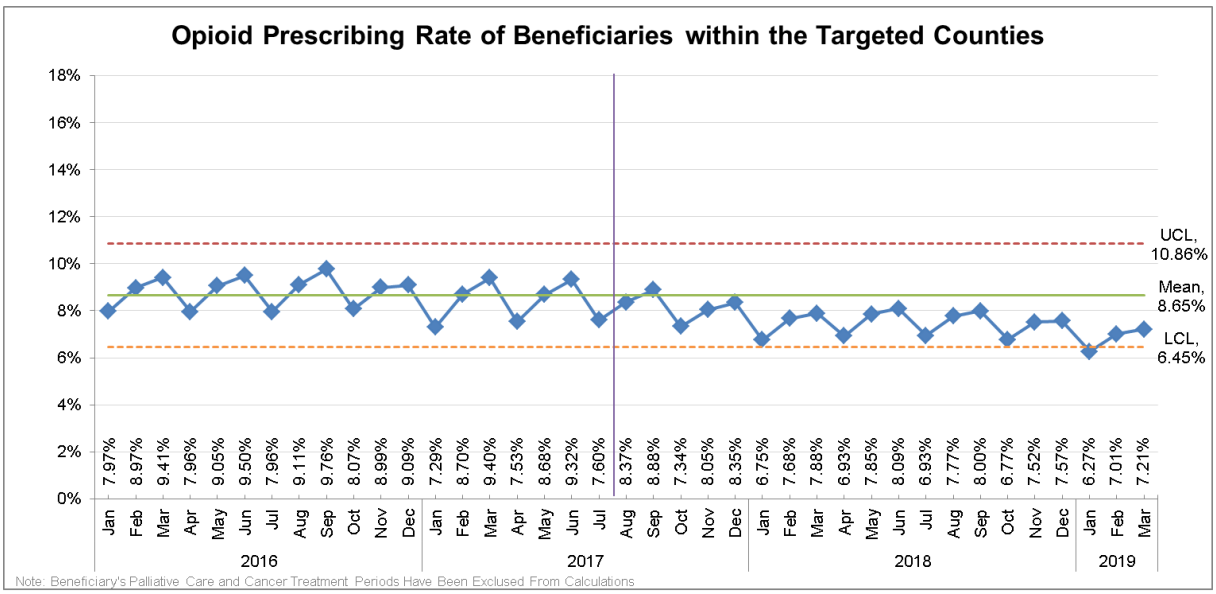


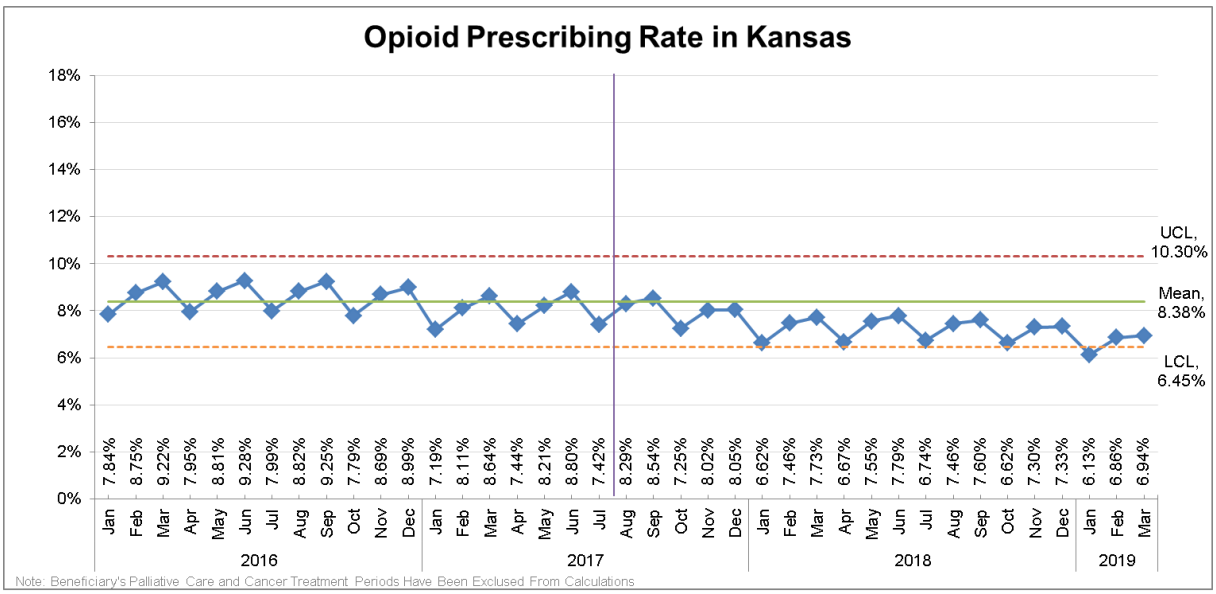
Beneficiary's Palliative Care and Cancer Treatment Periods Excluded

Opioid Prescribing Rates

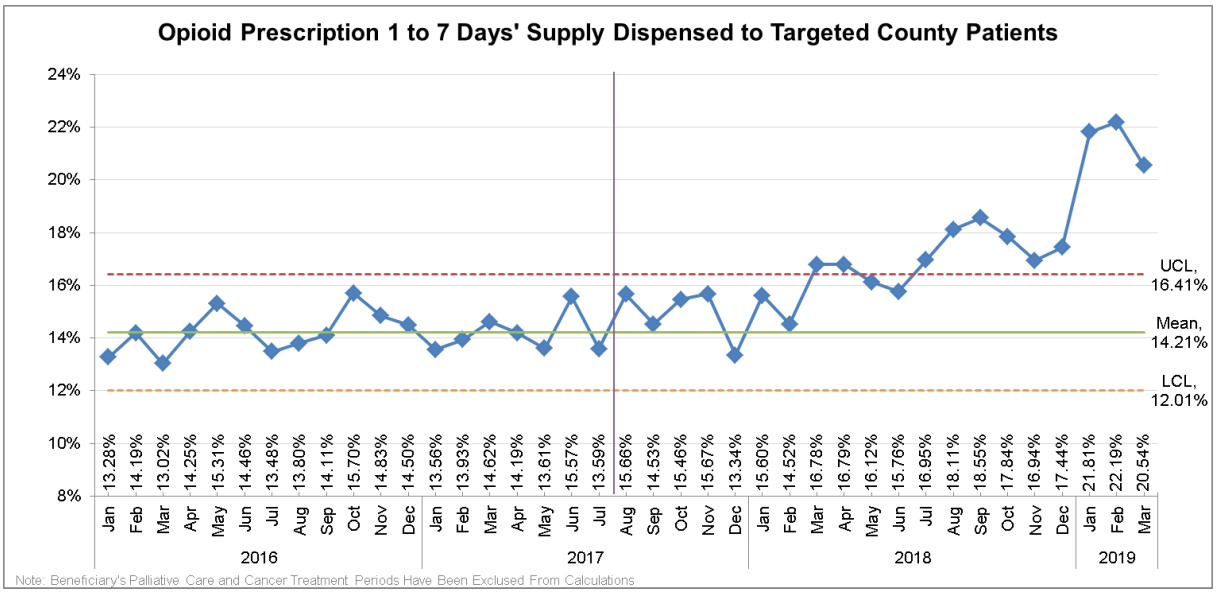


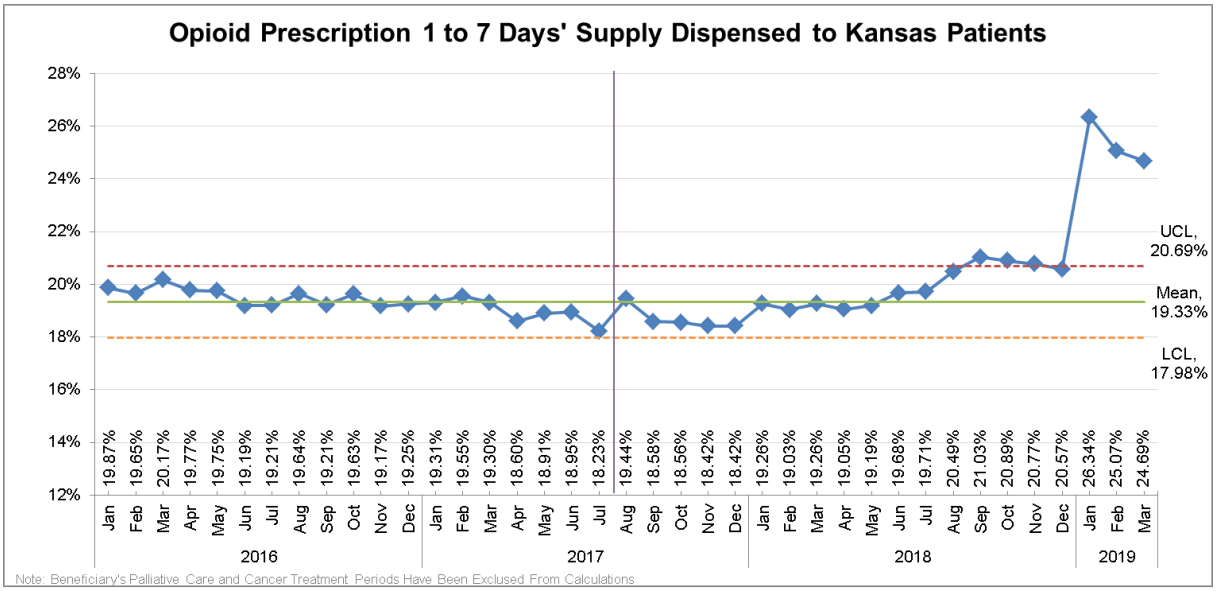



Opioid Prescribing Rate of Beneficiaries within the Targeted Counties
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
UCL, 10.86%
Mean, 8.65%
LCL, 6.45%
7.97% 8.97% 9.41% 7.96% 9.05% 9.50% 7.96% 9.11% 9.76% 8.07% 8.99% 9.09%
7.29% 8.70% 9.40% 7.53% 8.68% 9.32% 7.60% 8.37% 8.88% 7.34% 8.05% 8.35%
6.75% 7.68% 7.88% 6.93% 7.85% 8.09% 6.93% 7.77% 8.00% 6.77% 7.52% 7.57%
6.27% 7.01% 7.21%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2016
2017
2018
2019
Note: Beneficiary's Palliative Care and Cancer Treatment Periods Have Been Exclused From Calculations

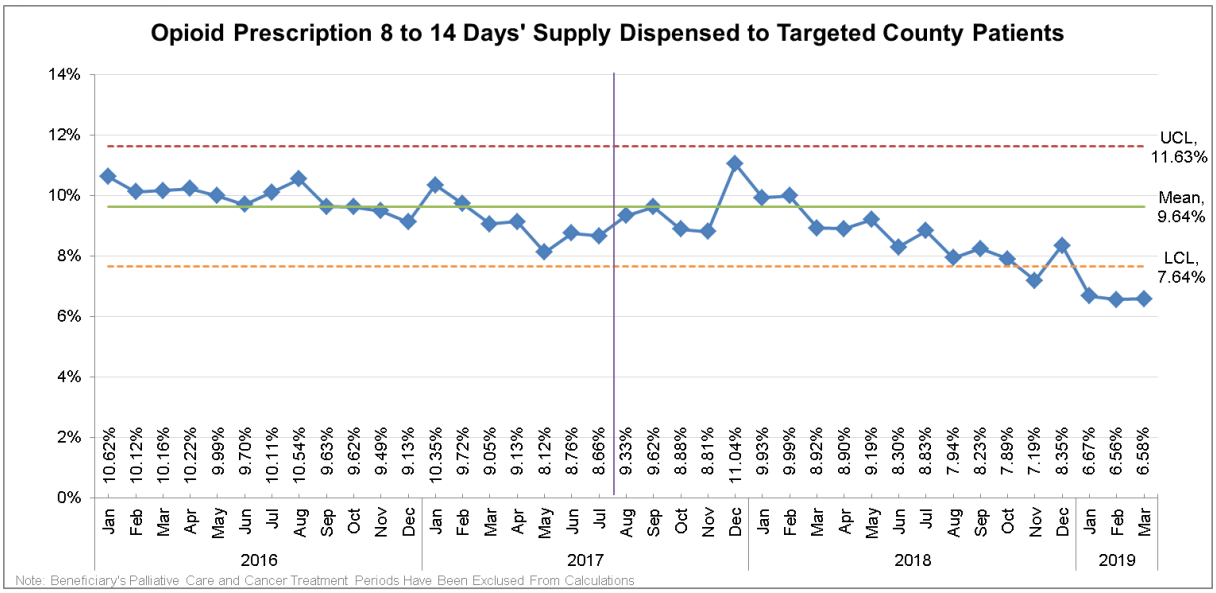

Opioid Prescribing Rate in Kansas
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
UCL, 10.30%
Mean, 8.38%
LCL, 6.45%
7.84% 8.75% 9.22% 7.95% 8.81% 9.28% 7.99% 8.82% 9.25% 7.79% 8.69% 8.99%
7.19% 8.11% 8.64% 7.44% 8.21% 8.80% 7.42% 8.29% 8.54% 7.25% 8.02% 8.05%
6.62% 7.46% 7.73% 6.67% 7.55% 7.79% 6.74% 7.46% 7.60% 6.62% 7.30% 7.33%
6.13% 6.86% 6.94%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2016
2017
2018
2019
Note: Beneficiary's Palliative Care and Cancer Treatment Periods Have Been Exclused From Calculations

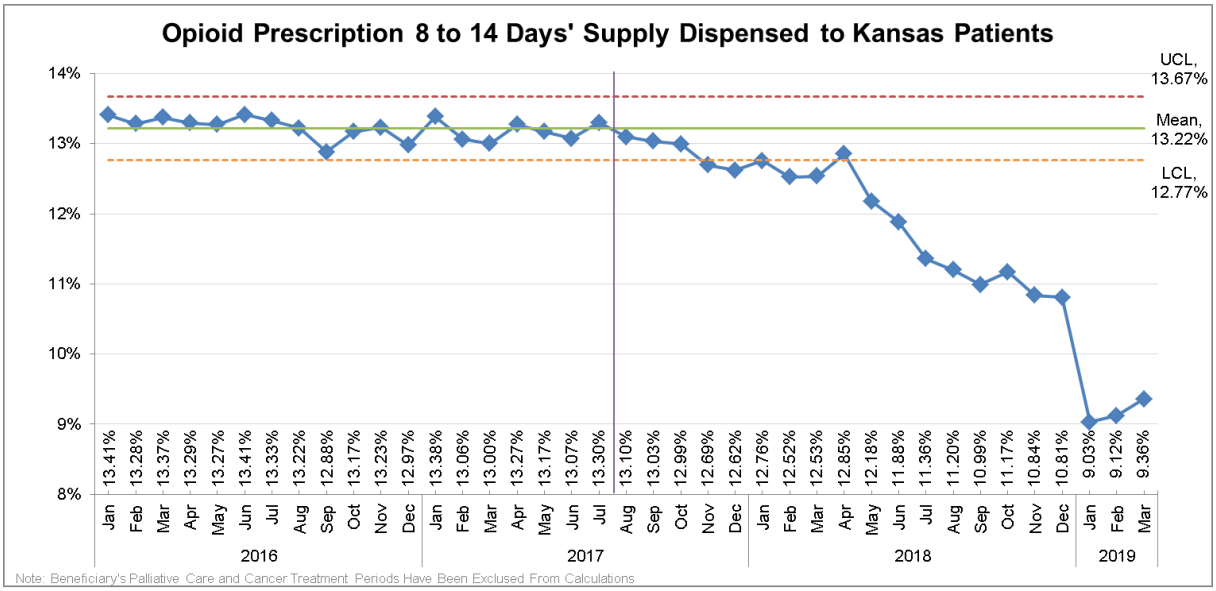
Opioid Prescription – 1 to 7 Days



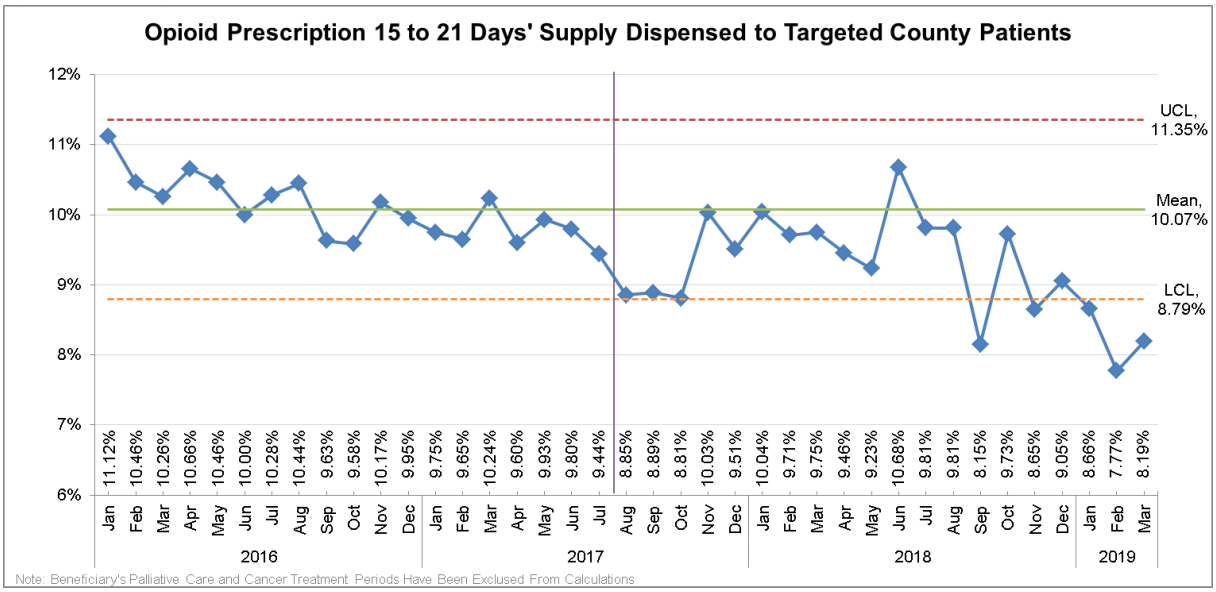


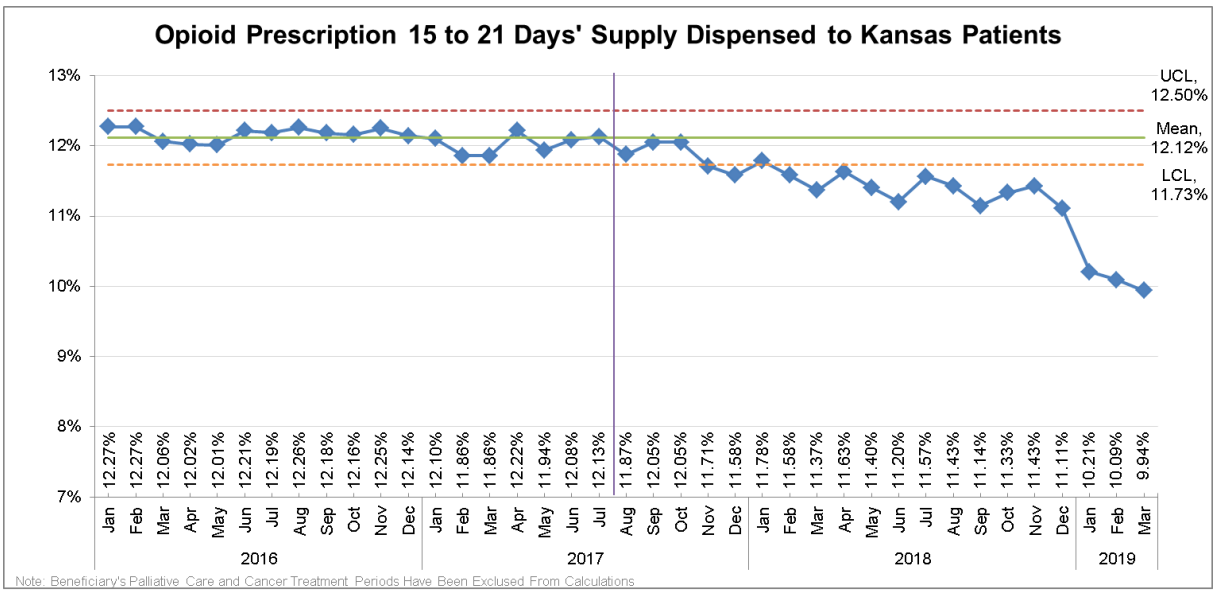
Opioid Prescription – 8 to 14 Days



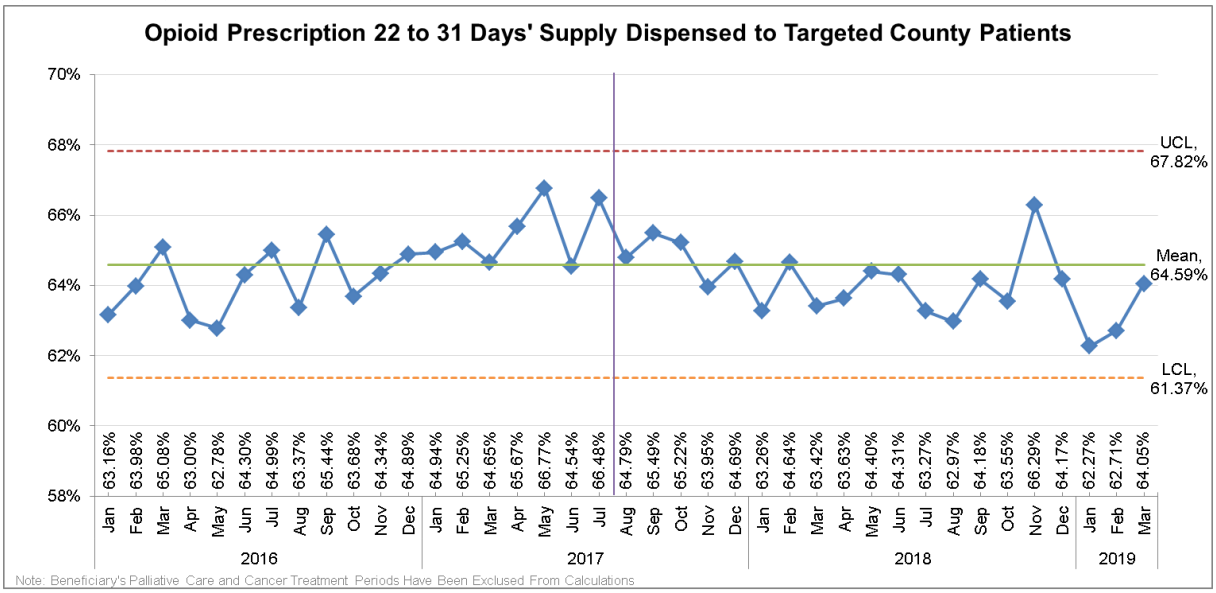


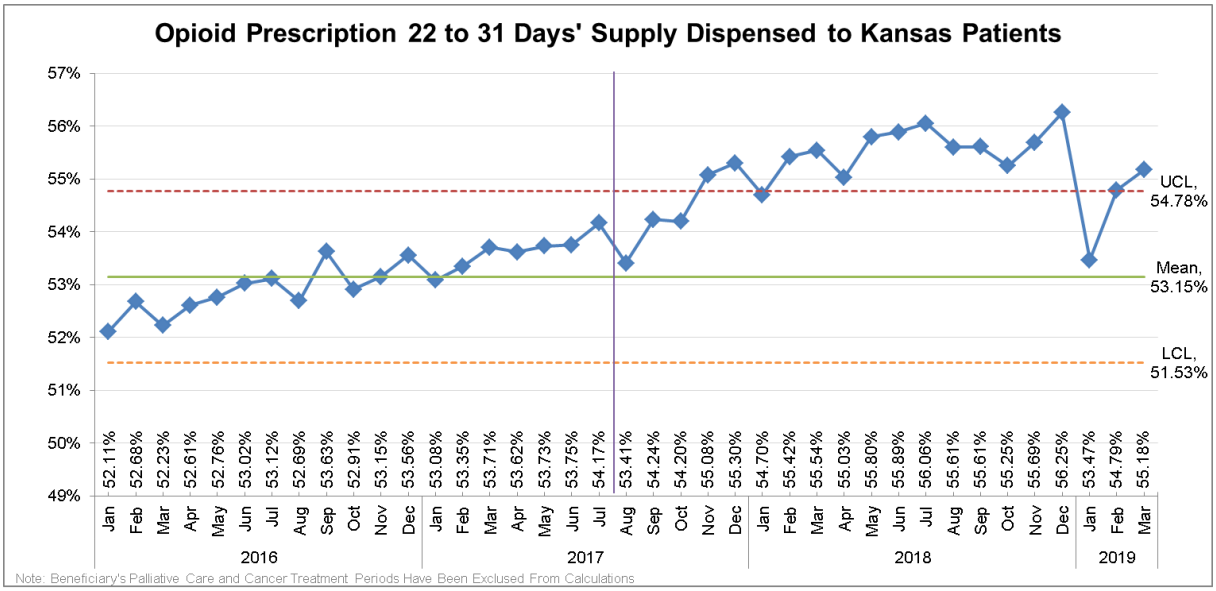
Opioid Prescription – 15 to 21 Days



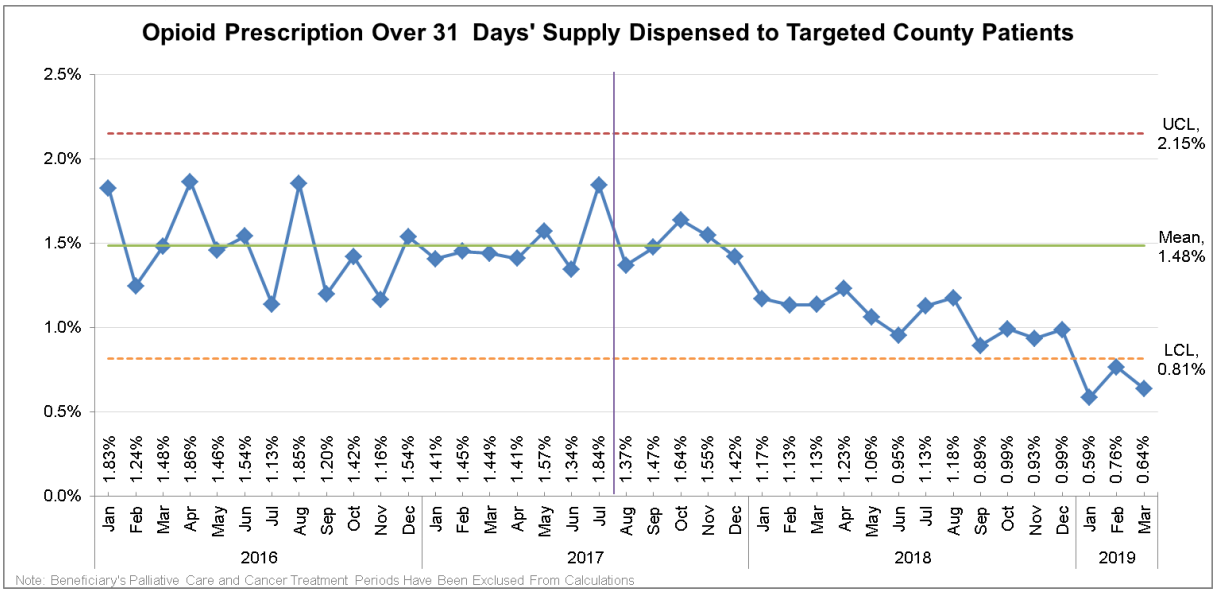


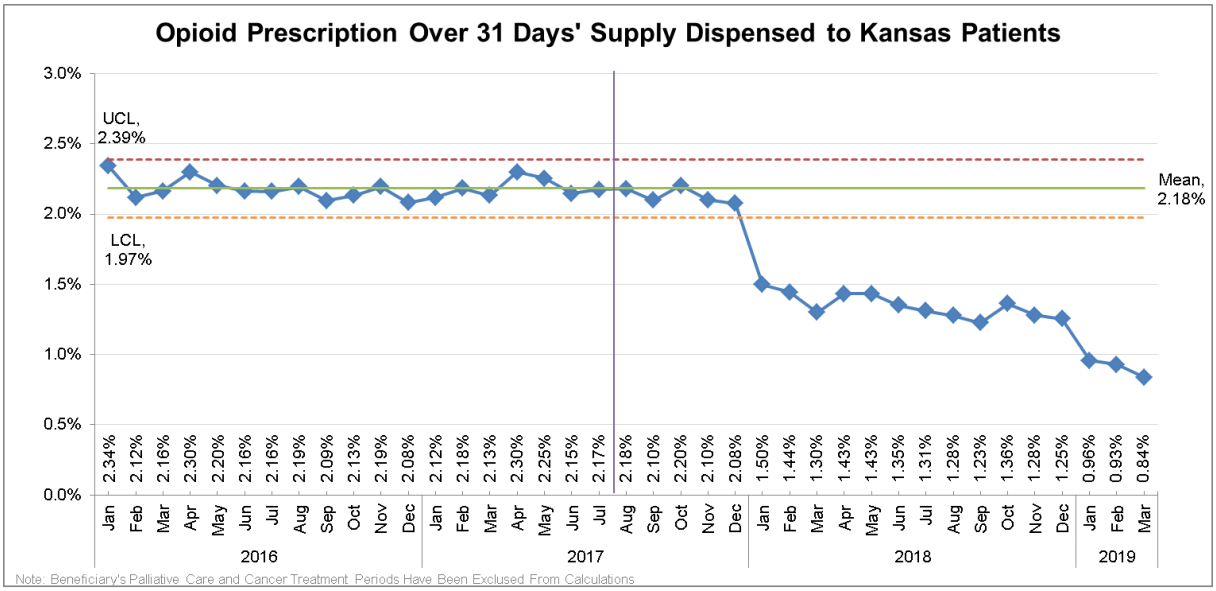
Opioid Prescription – 22 to 31 Days



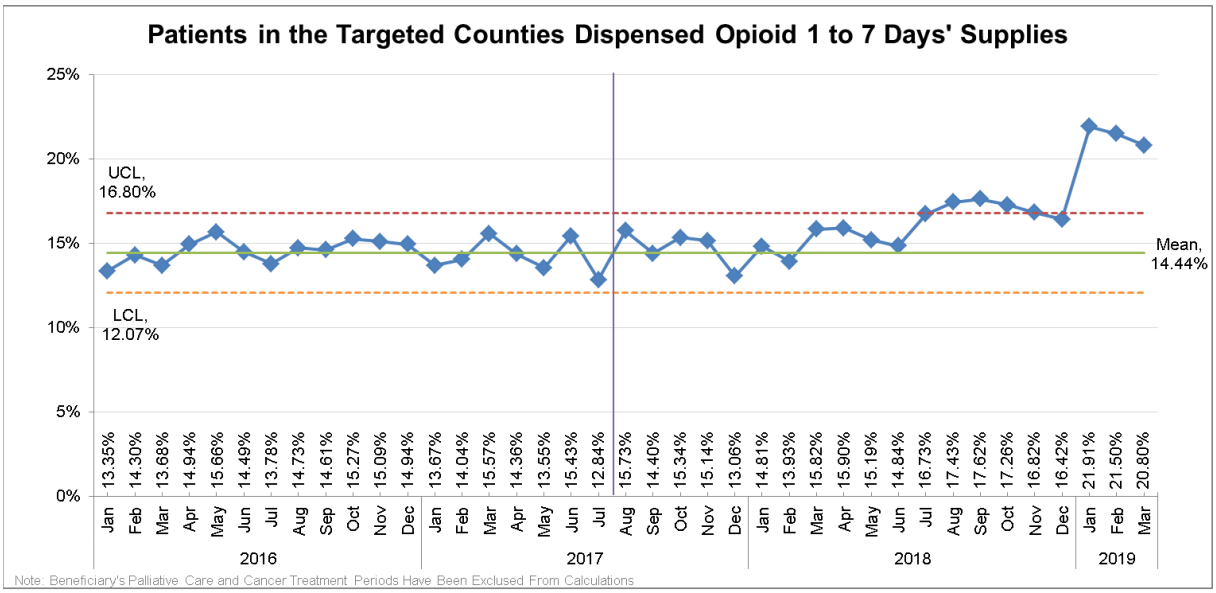


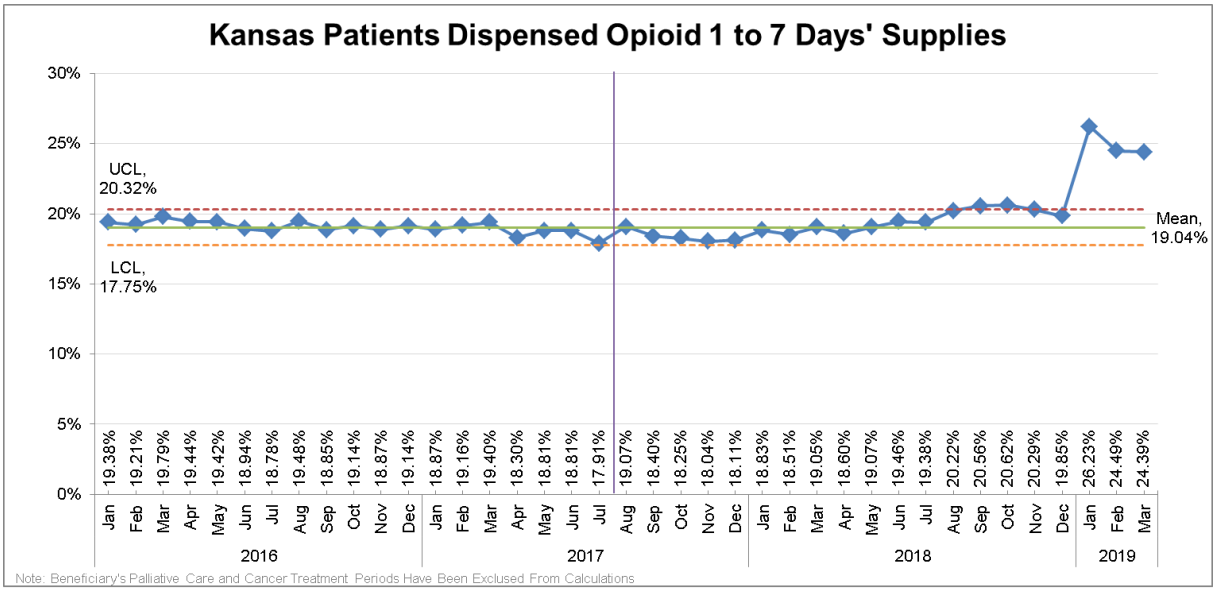
Opioid Prescription – Over 31 Days



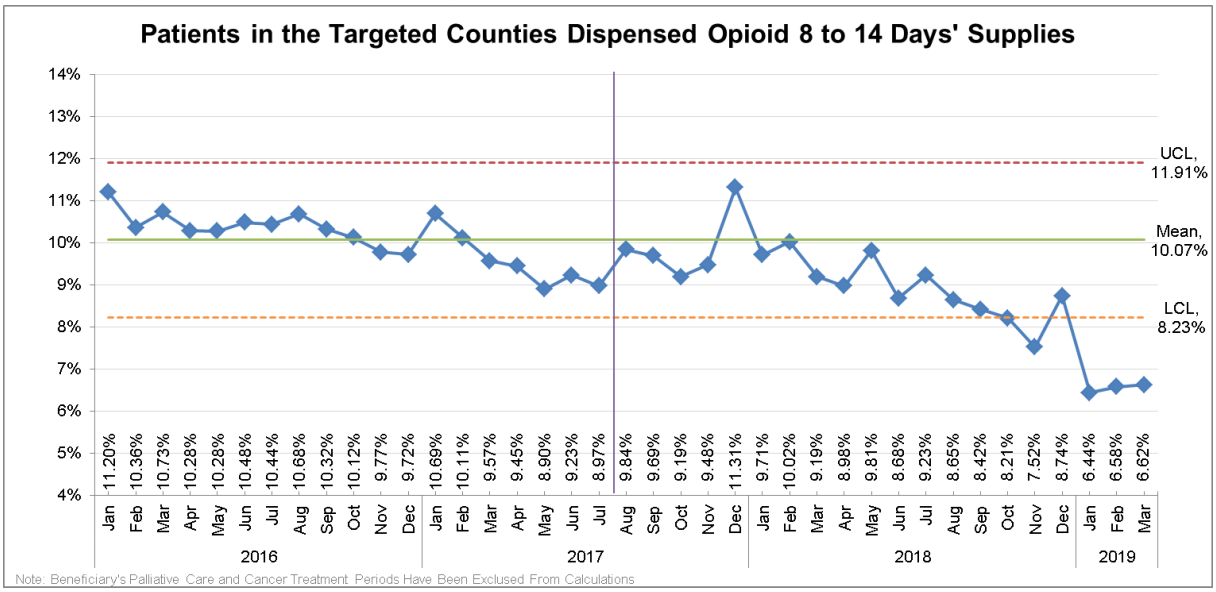


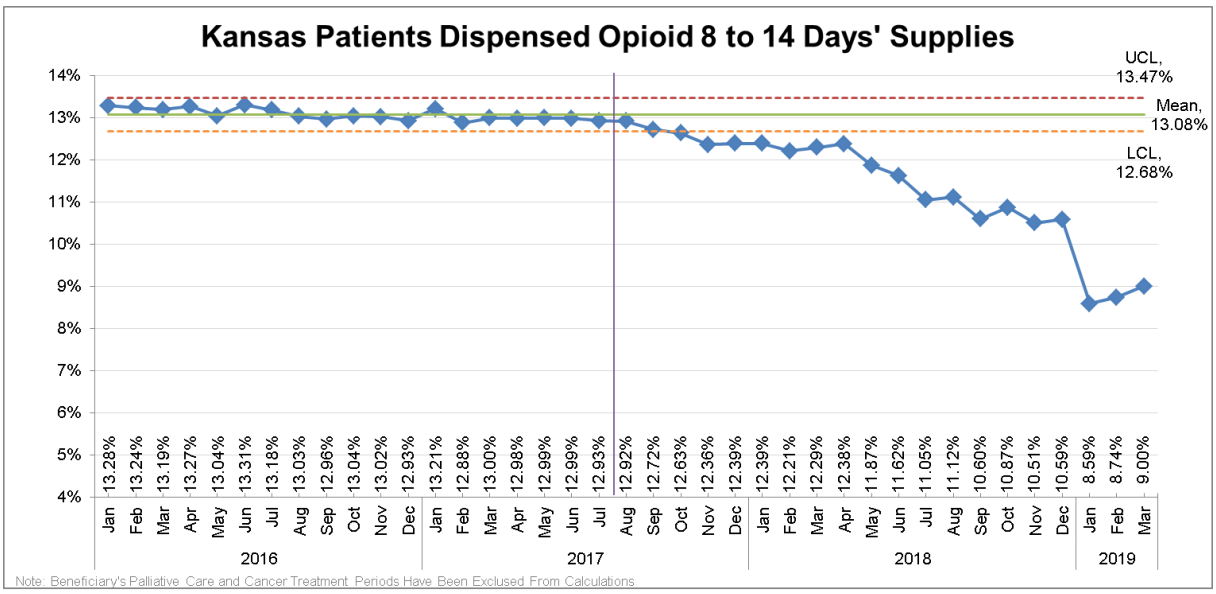
Patients Dispensed – 1 to 7 Days' Supply



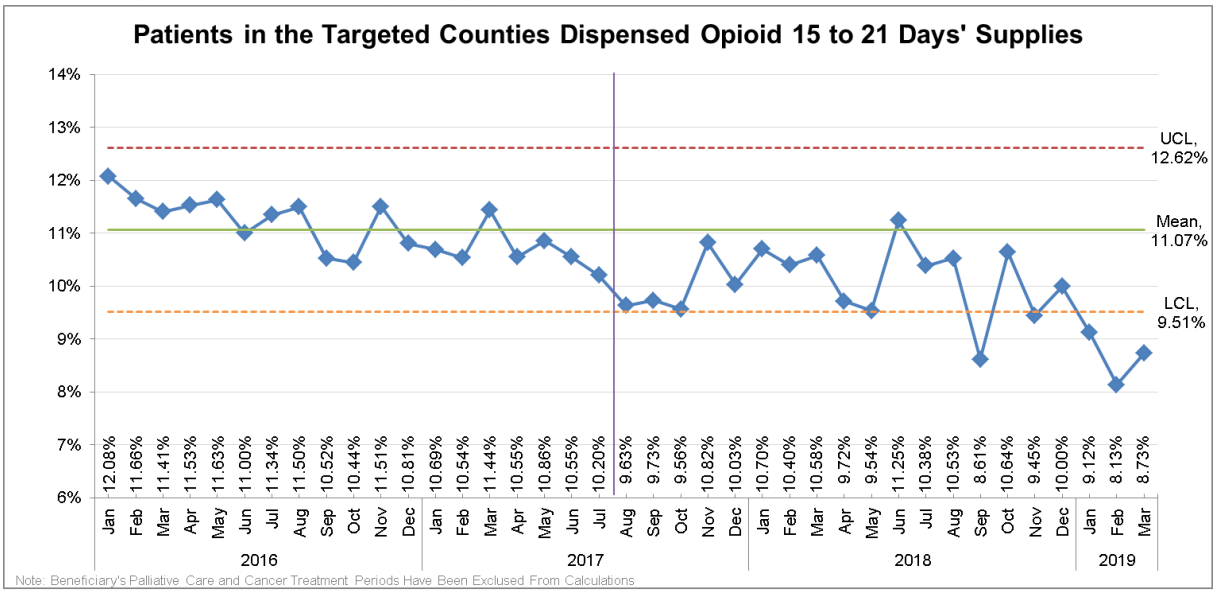


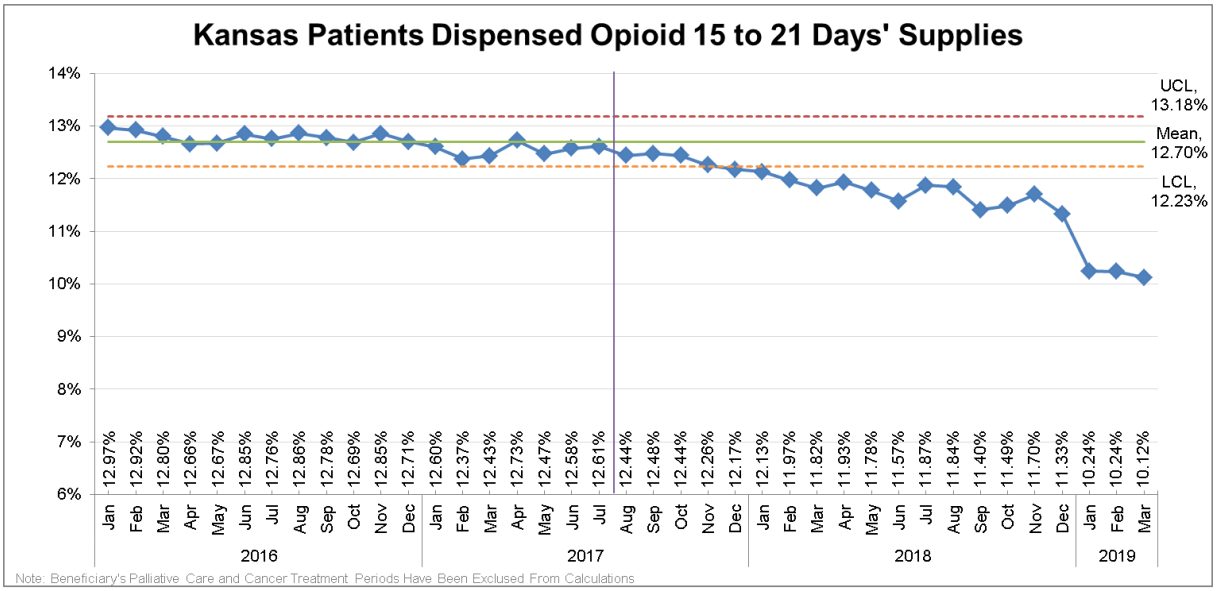
Patients Dispensed – 8 to 14 Days' Supply



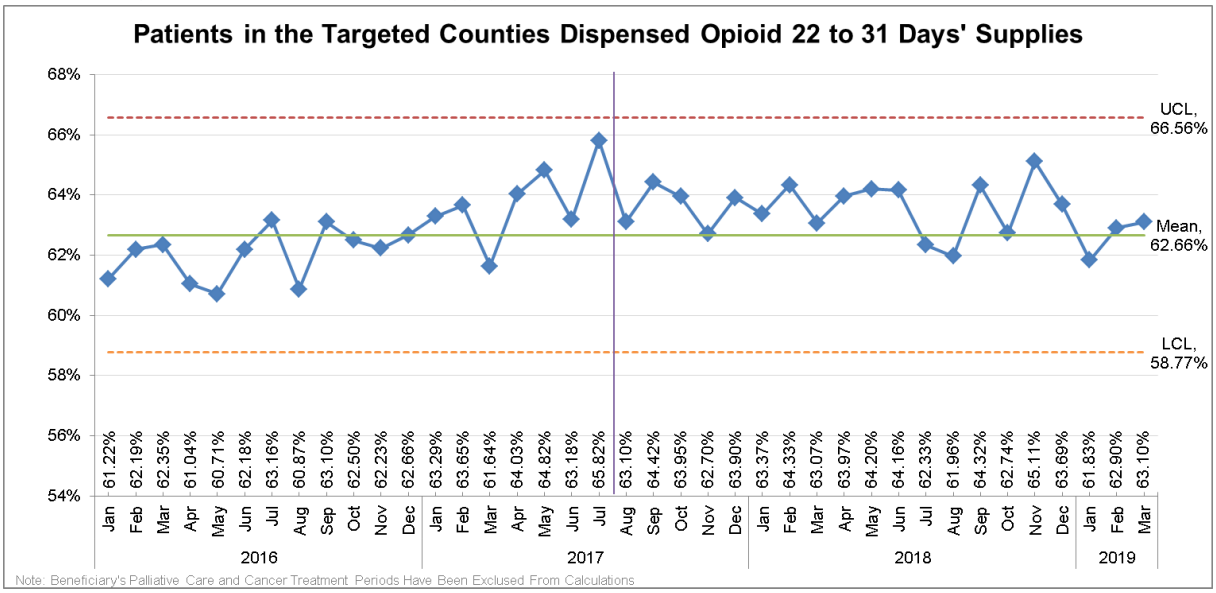


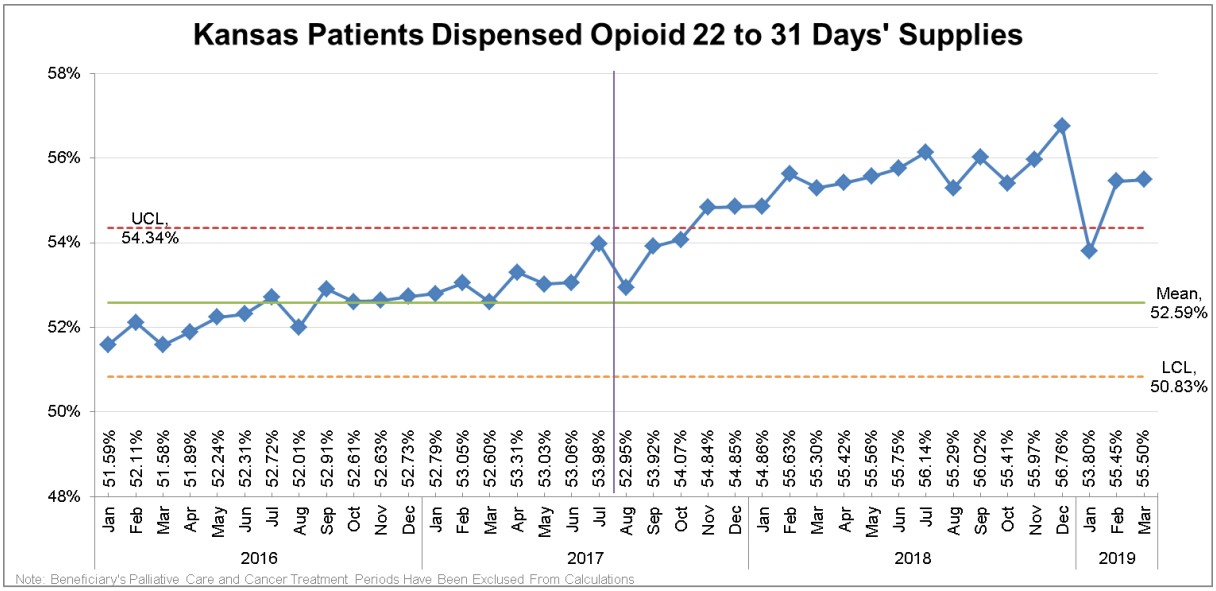
Patients Dispensed – 15 to 21 Days' Supply



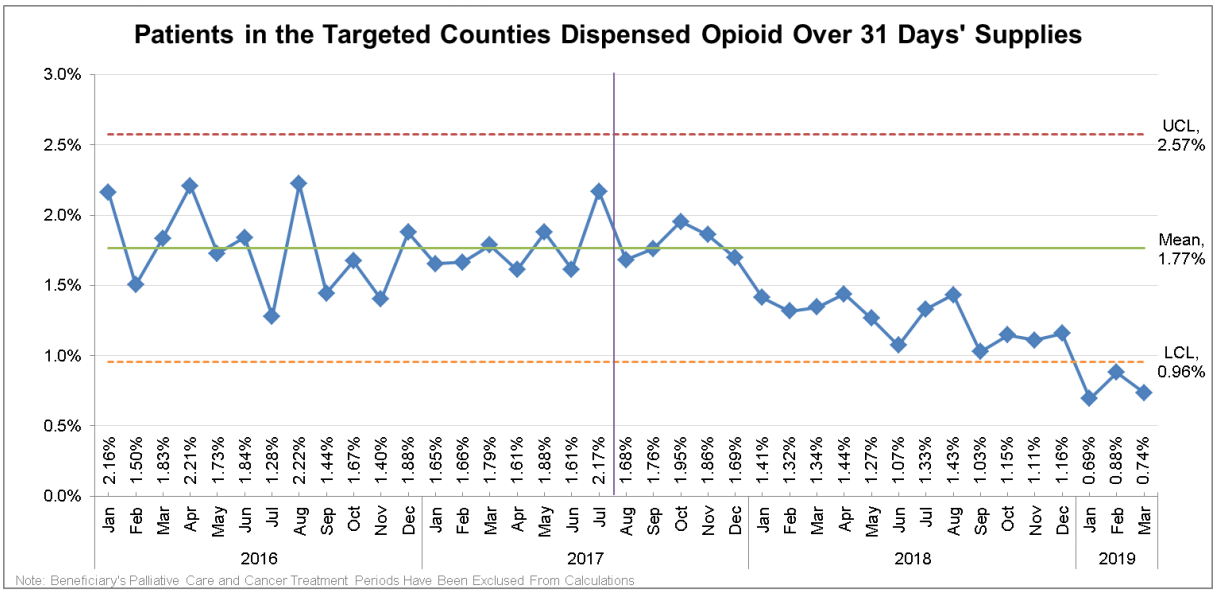


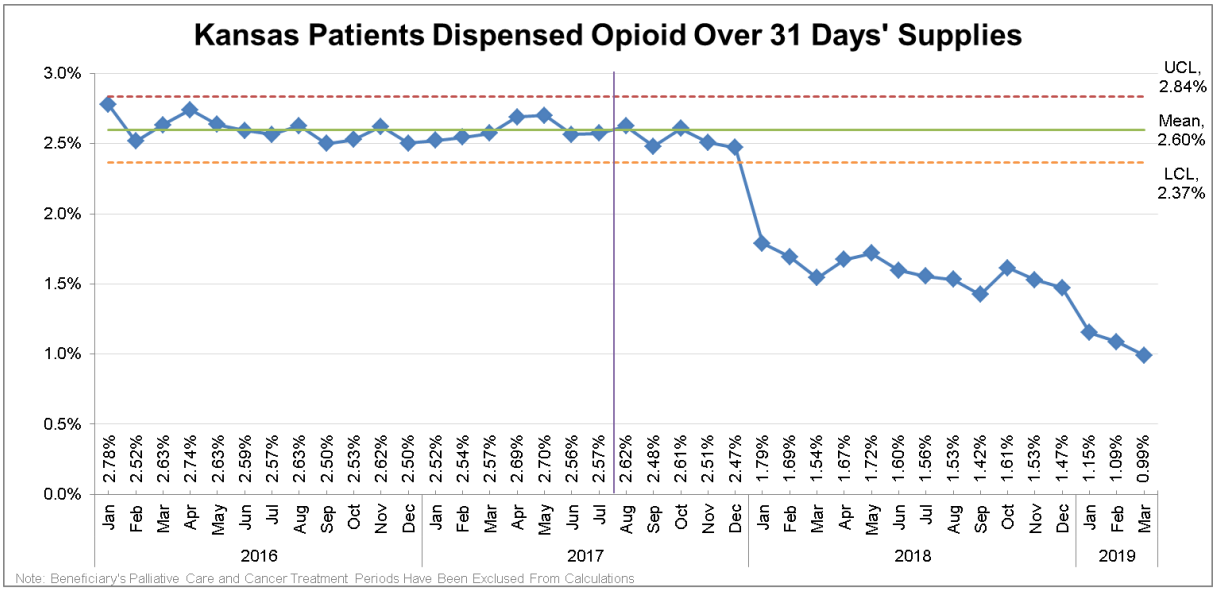
Patients Dispensed – 22 to 31 Days' Supply



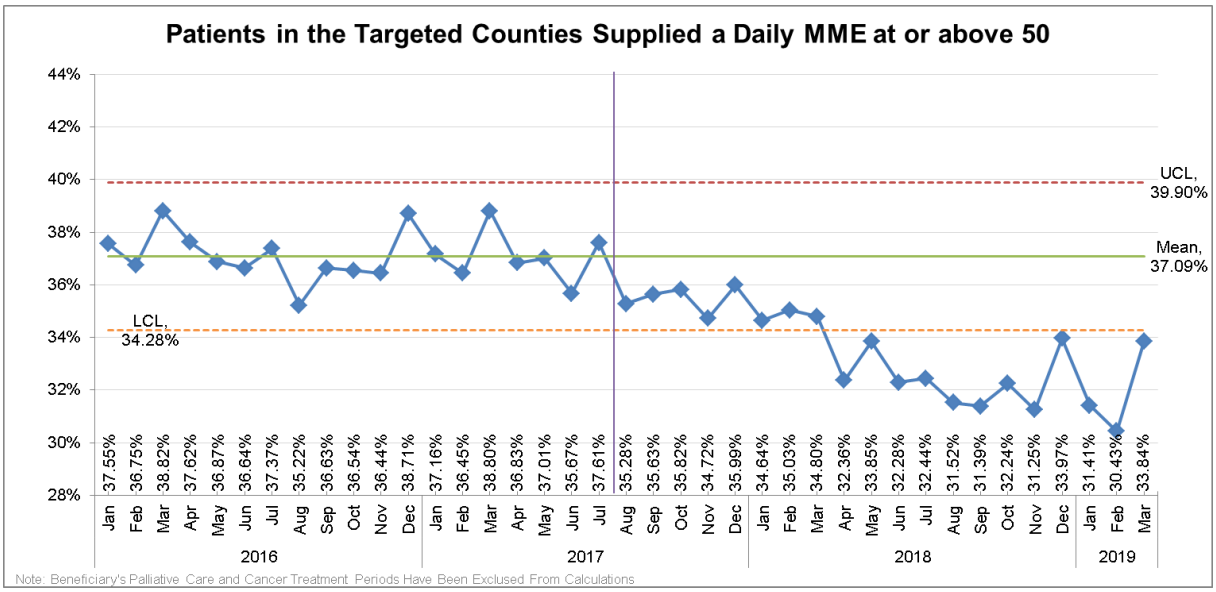


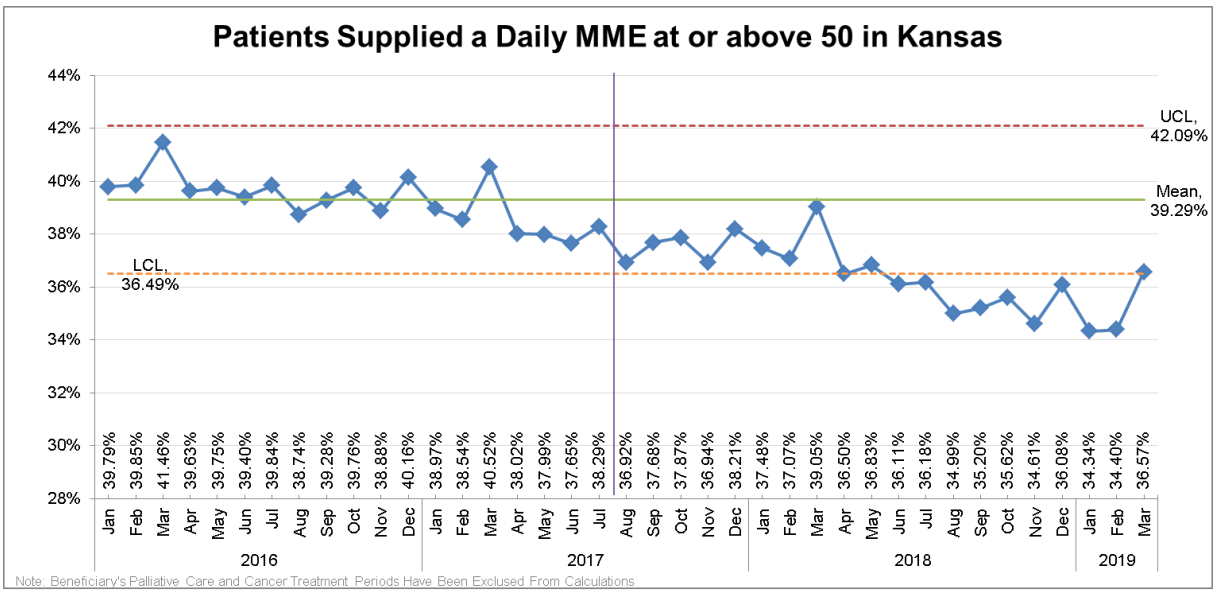
Patients Dispensed – Over 31 Days' Supply



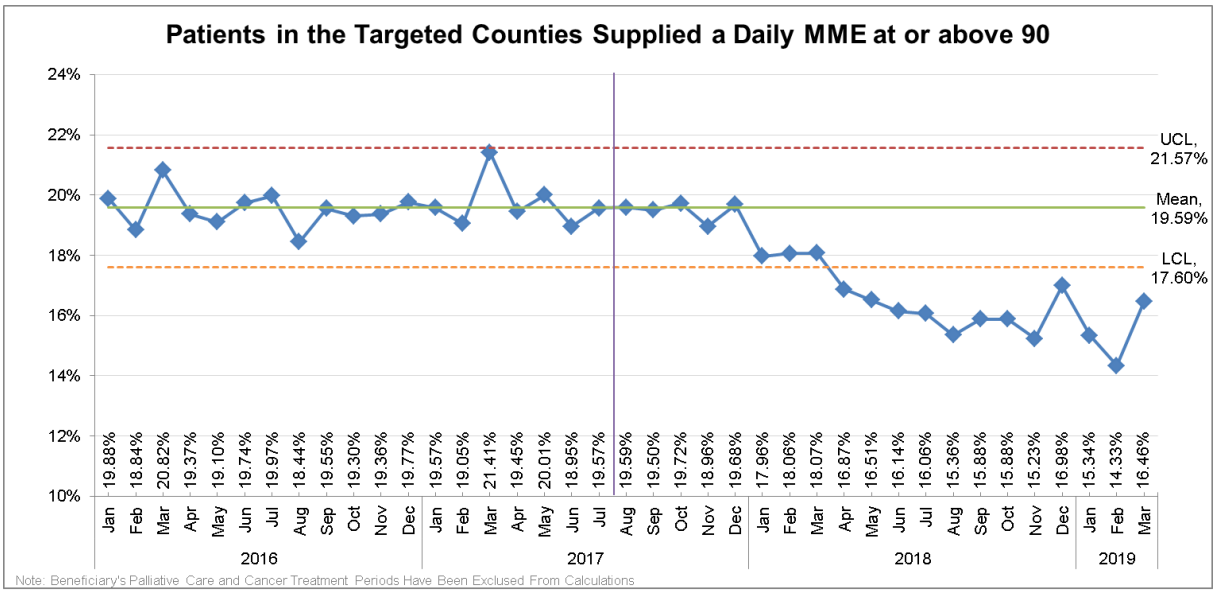


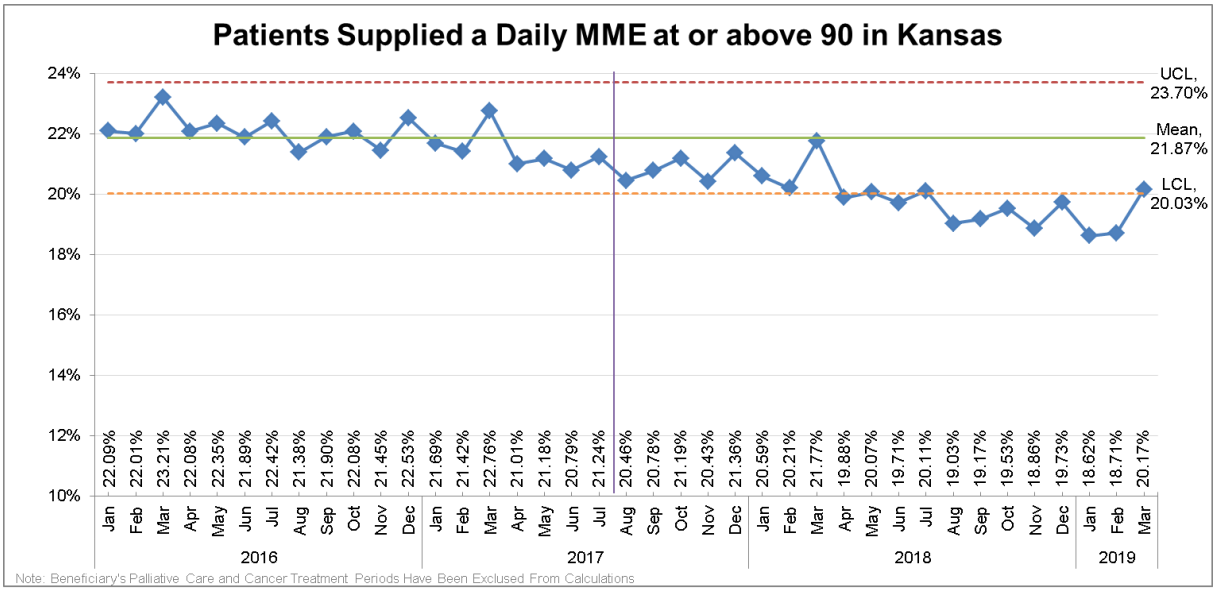
MME50 and Above



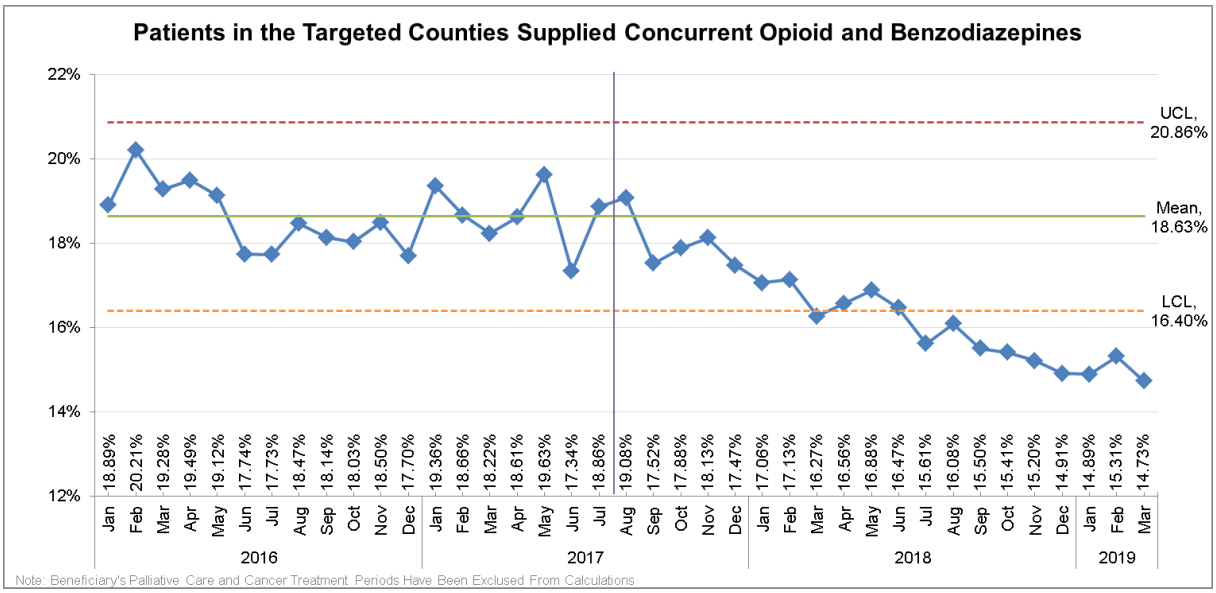


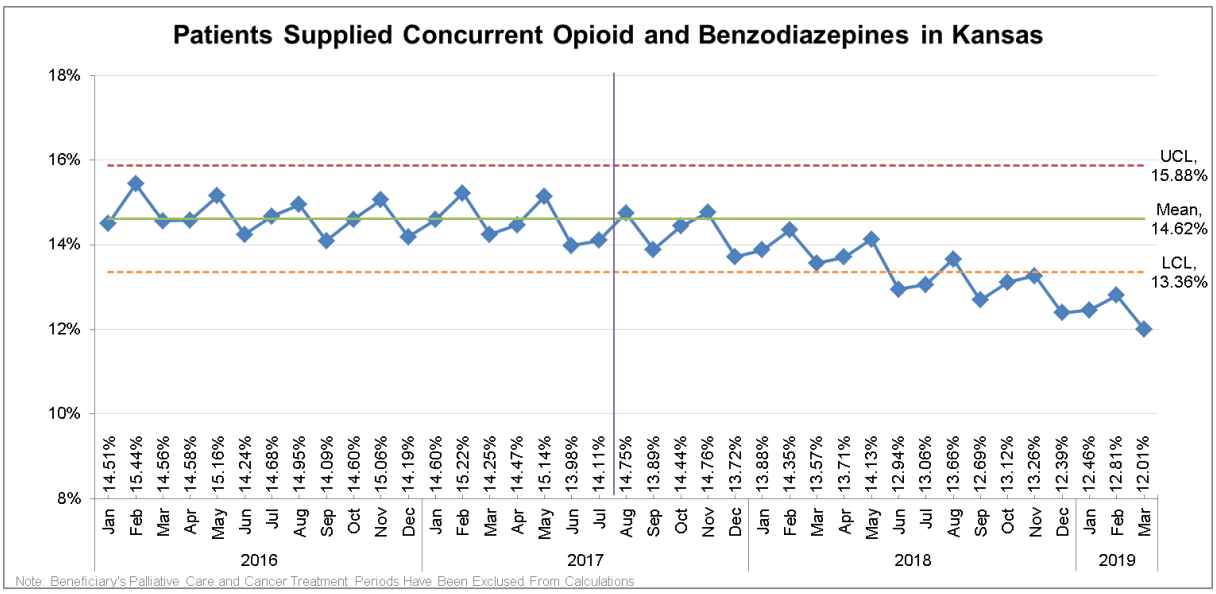
MME90 and Above



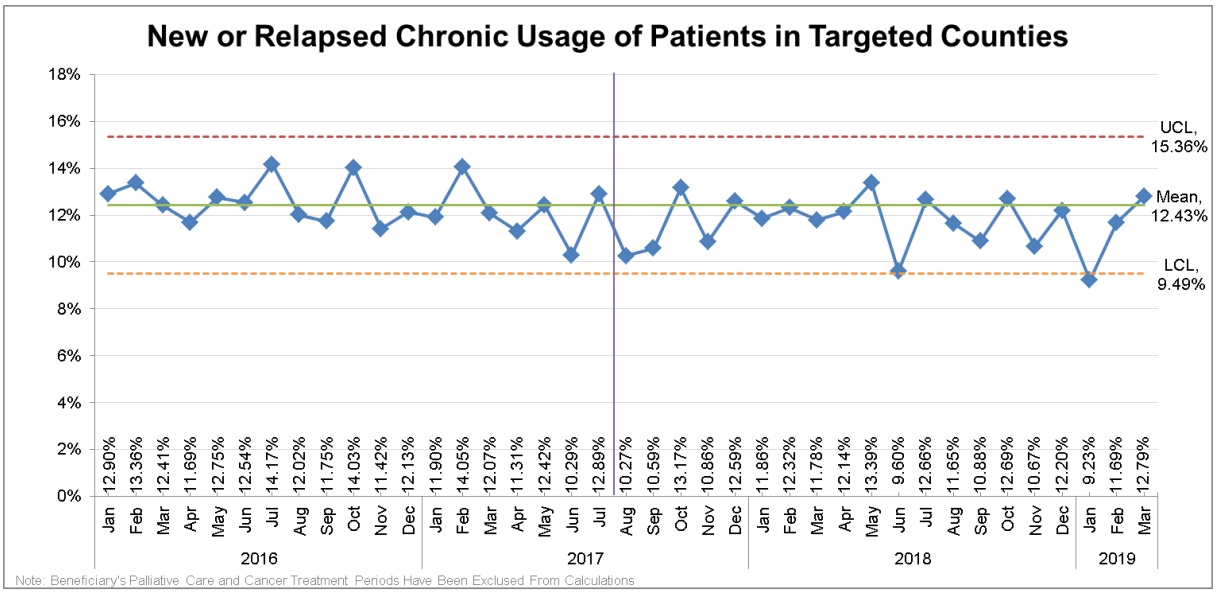


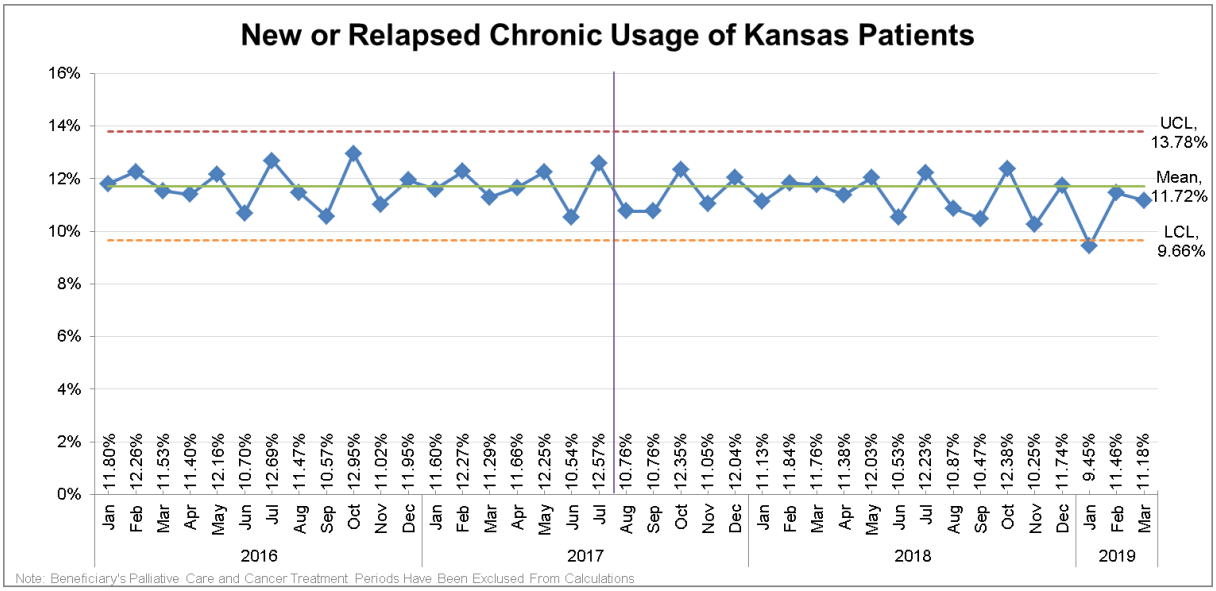
Concurrent Opioid and Benzo Supplies



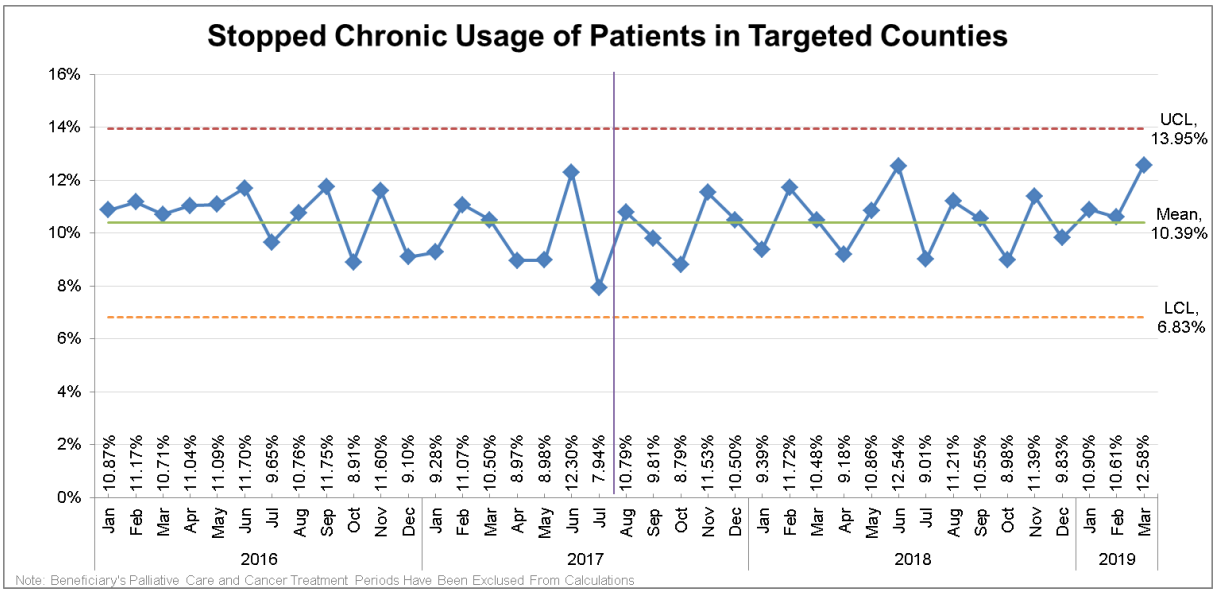


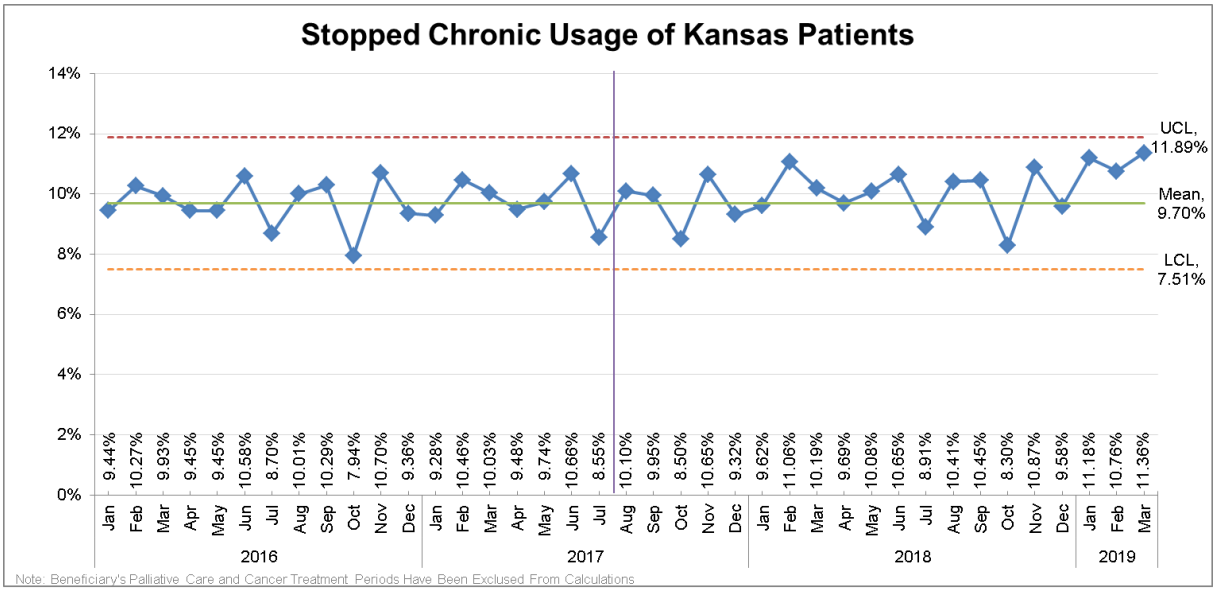
Chronic Usage – New/Relapsed Usage





Chronic Usage – Stopped Usage





Chronic Usage – Continued Usage