MERCER
MAKE TOMORROW, TODAY

OKLAHOMA EMERGENCY DEPARTMENT UTILIZATION

NOVEMBER 22, 2015

Government Human Services Consulting

MARSH & McLENNAN COMPANIES

CONTENTS

1

Introduction

The Oklahoma Health Care Authority (OHCA) contracted with Mercer Government Human Services Consulting (Mercer), a part of Mercer Health & Benefits LLC, to analyze one of the key drivers of health care cost, emergency department (ED) utilization. EDs have become the front door to health care for many Americans, and often, ED visits are for non-urgent — and even routine — health care problems. The costs of these low-acuity ED visits can be more than triple the cost of treatment in a primary or urgent care setting. Nationally the estimates of waste in the health care system related to unnecessary ED visits totaled approximately $14 billion in 2010, not including replacement costs had services been delivered in a more appropriate setting. However, to put spending for ED visits in perspective, the Medicaid and Children's Health Insurance Program (CHIP) Payment and Access Commission (MACPAC) estimated that spending on ED visits represented only about 4% of the overall Medicaid spend in 2011.[1] In Oklahoma's SoonerCare program ED services accounted for approximately $198 million from July 2012 through December 2013, less than 2% of the State's total Medicaid spend. So, why the significant interest in ED utilization?

State legislatures, Medicaid program directors, hospitals and other stakeholders are keenly interested in "avoidable" ED visits because they are often representative of other challenges in the health care delivery system. As noted in the landmark 2001 report by the Institute of Medicine, *Crossing the Quality Chasm*[2], health care should be safe, timely, efficient, equitable, effective and patient centered. In many ways inappropriate ED utilization has become the "face" for what is wrong with the health care system: mainly that it represents a fragmented delivery model that is problem focused and volume driven with little concern for quality and value. It has been and continues to be the OHCA's mission "…to responsibly purchase state and federally funded health care in the most efficient and comprehensive manner possible; and to analyze and recommend strategies for optimizing the accessibility and quality of health care; and to cultivate relationships to improve the health outcomes of Oklahomans". To that end the OHCA is seeking to fully understand a critical component of their SoonerCare program expense. They are committed to engaging data analytic models to quantify the issues, identify drivers, implement refinements to existing initiatives, identify new strategies to more appropriately manage inappropriate ED utilization, and to develop member-centric, coordinated, efficient and effective systems of care for the most vulnerable Oklahomans.

---

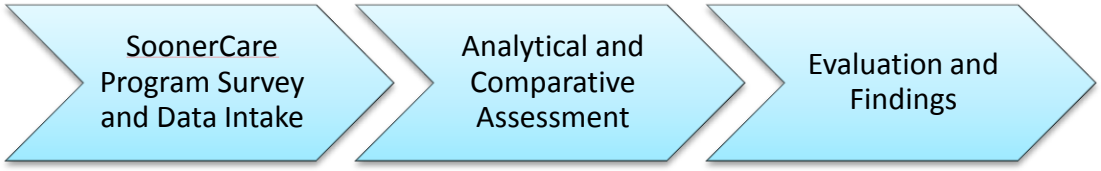
[1] Medicaid and CHIP Payment and Access Commission, MAC*Facts*, "Revisiting Emergency Department Use in Medicaid," July 2014, available at https://www.macpac.gov/publication/mac-facts-revisiting-emergency-department-use-in-medicaid/, accessed 29 July 2015.

[2] Institute of Medicine, "Crossing the Quality Chasm," March 1, 2001, available at https://iom.nationalacademies.org/Reports/2001/Crossing-the-Quality-Chasm-A-New-Health-System-for-the-21st-Century.aspx accessed 29 July 2015.

Approach

Mercer used the following systematic approach to conduct the analysis and provide a comprehensive picture of ED utilization, and to identify successful approaches used by other states to manage "inappropriate" ED utilization. The timeframe for this study, as indicated below in Exhibit 1, encompassed the eighteen-month period starting July 1, 2012 and ending December 31, 2013.

Exhibit 1: Timeframe for ED Utilization Study, July 1, 2012 – December 31, 2013



SoonerCare Program Survey and Data Intake

In this first step of the process, Mercer worked with OHCA staff to gain a comprehensive understanding of the SoonerCare program including the populations covered under each of the different delivery models, the various population health management programs and the specific activities and interventions developed to address inappropriate ED utilization. Mercer's team of health care informatics specialists worked closely with the OHCA's information systems program staff to obtain the requisite health care claim data, member eligibility information and provider demographic and specialty data. As part of the data intake process Mercer completed extensive data validation and linked member demographic and utilization data with provider and hospital information. This intensive process resulted in the creation of hierarchies to assign members to either the SoonerCare Traditional or SoonerCare Choice programs, which was necessary as members may have transitioned between programs during the eighteen month study period. As part of the data validation process several data anomalies, described in the Study Limitations section below, were discovered, which resulted in the inability to address certain components of the proposed ED study.

Analytics and Comparative Assessment

During this phase of the study Mercer completed a number of parallel activities to address three critical requests by the OHCA:

- Development of a standardized term and definition to be used to address ED utilization that is currently referred to under many different terms including, but not limited to, "inappropriate", "unnecessary", "avoidable", "preventable", etc.

- Completion of a statistical analysis of ED utilization including geospatial mapping and application of Mercer's low-acuity non-emergent (LANE) methodology. Mercer's LANE algorithm is used nationally in other Medicaid programs, to quantify the component of ED utilization that is "avoidable".

- Research different approaches employed by other States to successfully manage "inappropriate" ED utilization.

Results of Mercer's independent analyses are discussed in more depth in subsequent sections of this report.

Evaluation and Findings

The results of the above activities were synthesized and represent the totality of this report. Mercer has been actively engaged in evaluation of Medicaid ED utilization on a national level for almost ten years. Our LANE algorithm not only quantifies the potential avoidable costs it also recognizes and adjusts for the service to be provided in a lower, more appropriate level of care. Mercer has developed dashboards to present analysis results so that our state partners can use the information to further refine and adjust their programs based on the unique nature of each state and population served.

Study Limitations

As noted earlier there were data issues that prevented certain proposed data analyses. In part, some of the data issues were related to the historical nature of the review period such as information pertaining to the tracking of a SoonerCare member's enrollment in a particular population health management program or engagement in multiple programs over the course of the study period. Thus, Mercer was not able to draw conclusions about the effectiveness of one type of ED intervention over another or the efficacy on one population health program over another. There was also difficulty in mapping and assigning members to patient-centered medical home (PCMH) providers versus health access network (HAN) providers and the impact of member's switching between different providers during the study period. This prevented analysis of the effectiveness of PCMH versus HAN providers in decreasing "inappropriate" ED utilization. It was also difficult to perform analyses on the times of day in which ED visits occurred as the claims did not routinely contain time of admission. For the topics that Mercer was not able to analyze both the OHCA and Mercer have agreed to continue to work towards data enhancement processes in an effort to more fully evaluate these particular areas of the evaluation during subsequent data analysis periods.

2

Oklahoma Medicaid Program

Oklahoma Medicaid Program Background

Since its inception under legislative mandate in 1993, the OHCA has sought to improve access to and decrease costs of the State's Medicaid program, known as SoonerCare. In the past twenty-two years the SoonerCare program has expanded and matured to provide statewide coverage through a wide variety of health care benefits and innovative programs to a diverse population of adults and children, often considered to be the most vulnerable citizens in the State. To accomplish its goal the OHCA utilizes two different health care delivery models through which it administers the various benefit packages.

Understanding the two different health care delivery models, the unique "faces" of the people served under those models, as well as the benefits and care coordination interventions offered to those populations is critical to understanding the results contained within this analysis of ED utilization.

Delivery Models

SoonerCare Traditional

In this "traditional" fee-for-service (FFS) payment model SoonerCare Traditional enrollees receive a comprehensive medical benefit plan and can access services from contracted SoonerCare providers; enrollees are not required to select a primary care provider (PCP). In turn, the OHCA pays the provider on a FFS basis according to a predetermined fee schedule. SoonerCare Traditional provides coverage for members who are institutionalized, in state or tribal custody, covered under a commercial health maintenance organization (HMO), enrolled under one of the Home and Community-Based Services (HCBS) waivers or are dually eligible for Medicare and Medicaid. Dually eligible individuals receive both Medicare and Medicaid services; approximately 31% of SoonerCare Traditional enrollees are dually eligible. According to the Kaiser Commission on Medicaid Facts, "Dual eligibles often have multiple chronic conditions and are more likely to be hospitalized, use emergency rooms and require long-term care".[3] When an individual is dually eligible it is Medicare that typically pays for the ED visit and Medicaid may pay only the co-pay (if applicable). Other demographic characteristics of the SoonerCare Traditional population include a higher percentage of females (62%) and individuals 65 years of age and older (16%). Additionally, almost 52% of SoonerCare Traditional enrollees live in rural areas where access to primary care may be more limited than in more urban areas. While additional demographic information can be found in Section 4 of this report, this information helps to illustrate the "faces" of SoonerCare Traditional enrollees.

[3] Kaiser Commission on Medicaid and the Uninsured, "Dual Eligibles: Medicaid's Role for Low-Income Medicare Beneficiaries," May 2011, available at http://kff.org/medicaid/fact-sheet/dual-eligibles-medicaids-role-for-low-income-2/ accessed 29 July 2015.

SoonerCare Choice

Unlike the "traditional" FFS model, SoonerCare Choice provides a type of managed care option typically referred to as "enhanced" Primary Care Case Management (PCCM), more commonly known as the patient-centered medical home (PCMH) model. The PCMH model is centered on enrollees selecting a PCP who is responsible for providing a medical home for the member. Medical home providers are expected to engage members in care through proactive outreach, delivery of care coordination services and/or linking them to community programs and services in an effort to assist the member in navigating the health care system. The OHCA contracts directly with PCPs throughout the state to provide medical home/care coordination services and in turn the PCPs receive a monthly care coordination payment. Monthly payments vary depending on the level of medical home/care coordination services provided and the mix of adults and children the PCP's practice accepts. Additionally, PCPs may be eligible to receive performance incentive payments after certain quality improvement goals, as defined under the Sooner Excel program, are met. Similar to the traditional FFS model all other services are reimbursed on a FFS basis. The SoonerCare Choice model provides Medicaid benefits to over 70% of all SoonerCare enrollees. Other populations covered under the SoonerCare Choice program include pregnant women, individuals in need of breast and/or cervical cancer treatment, disabled children and people classified as aged, blind or disabled (ABD). Unlike their SoonerCare Traditional counterparts, SoonerCare Choice enrollees are more evenly distributed across gender with females comprising approximately 55% of the population and they represent a much younger group with 50% of the population less than 11 years of age (nearly 80% are less than 21 years of age). Additionally, SoonerCare Choice members are more likely to live in urban areas with 41% clustered in areas such as Lawton, Oklahoma City, and Tulsa.

Other SoonerCare Programs

The OHCA operates a number of other programs that offer either limited benefits or premium assistance to qualifying individuals. Not all of the enrollees in these programs may qualify for standard SoonerCare benefits but are able to receive additional assistance. During the analysis phase review of eligibility files submitted by the OHCA indicated that some individuals demonstrated eligibility across different programs throughout the study period. The majority of individuals who demonstrated eligibility in one of the programs below were attributed to the SoonerCare Traditional bucket for the purposes of this analysis.

- *Long-Term Care Services:* Long-Term Care Services offer additional benefits to certain members who are enrolled in SoonerCare Traditional or SoonerCare Supplemental plans. These benefits could include long-term care facility services, in-home personal care services and/or home and community-based services. The home and community-based benefit provides medical and other supportive services as an alternative to a member entering a nursing home or hospital setting.

- *Sooner Plan:* SoonerPlan is a benefit plan covering limited services related to family planning. SoonerPlan provides family planning services and contraceptive products to women and men age 19 and older who do not choose or typically qualify for full SoonerCare benefits.

- *Soon-to-be-Sooners:* Soon-to-be-Sooners is a limited benefit plan providing pregnancy-related medical services to women who do not qualify for full scope benefits due to their immigration status.

- *SoonerCare Supplemental:* SoonerCare Supplemental is a benefit plan for dually eligible members enrolled in both Medicare and Medicaid. SoonerCare Supplemental pays the Medicare coinsurance and deductible and provides medical benefits that supplement those services covered by Medicare.

- *Insure Oklahoma Employer-Sponsored Insurance (ESI):* ESI is a benefit plan providing premium assistance to qualified employees and spouses of Oklahoma small businesses employing 99 or fewer workers. With ESI, the cost of health insurance premiums is shared by the employer, the employee, and OHCA. Children of the ESI members with income higher than SoonerCare income standards are covered through their family's private insurance plan, and Insure Oklahoma subsidizes a portion of the family's premium costs.

- *Insure Oklahoma Individual Plan (IP):* IP is a health insurance option for qualified Oklahomans. This benefit plan offers some basic health services to uninsured adults up to age 64, whose household income meets income requirements, and who are not receiving Medicaid or Medicare. The Individual Plan is available to people who meet the definition in one of the following groups: 1) Working adults who do not qualify for ESI and work for an Oklahoma business with 99 or fewer employees, 2) Temporarily unemployed adults who qualify to receive unemployment benefits, 3) Working adults with a disability who work for any size employer and have a ticket to work, or 4) Adults who are self-employed. College students age 19 through 22 who meet financial requirements may also receive benefits under Insure Oklahoma.

SoonerCare Initiatives

While the SoonerCare Choice program has undergone significant evolution since its early years, the program's overarching goals have remained constant: to provide accessible, high quality and cost effective care to the Oklahoma Medicaid population. To this end, over the past seven years, the OHCA has consistently looked for opportunities to implement innovative initiatives to continue movement toward goal attainment. The OHCA's activities can be classified into two categories: population care management and PCP practice transformation. The work accomplished under each of these initiatives serves many purposes including engagement of SoonerCare enrollees to be more active in making decisions about where to receive their health care, as well as developing self-management skills to support each individual's ongoing effort to manage their chronic conditions — all of which can serve to manage ED utilization.

Population Care Management

Case Management

The case management unit focuses on the episodic health care needs of several groups including the following:

- Obstetric case management for at-risk or hi-risk maternity events including targeting interventions at specific counties with high infant mortality rates.

- Pediatric case management for the first year of life for infants determined to be high-risk based on their residence in a county with high incidence of infant mortality. Infants who are screened to be at-risk secondary to an adverse birth outcome or chronic condition may also be case managed, along with children who are receiving private duty nursing.

- Other programs such as coordination of out-of-state services, support services for individuals undergoing breast or cervical cancer treatment, clinical reviews of individuals enrolled in a long-term care waiver (many of whom are enrolled in SoonerCare Traditional), medically complex adults and individuals who have a history of consistent ED usage.

Services provided under this group of programs include telephonic based outreach and dissemination of educational materials and linkages to community programs.

The Health Management Program and the Chronic Care Unit

These two programs are similar in nature but provide differing levels of engagement to targeted members. While the Chronic Care Unit (CCU) provides telephonic based support to identified members, the Health Management Program (HMP) supports the primary care practice transformation efforts through synergistic activities such as embedding health coaches and practice facilitators in larger volume primary care practices.

As part of the ED analysis, the OHCA requested evaluation of ED utilization outcomes between these two programs. Unfortunately existing member eligibility and program specific enrollment data did not support the necessary linking of members to each program during the study period.

Although the OHCA's HMP has evolved since its inception in 2008 the primary objective of the OHCA HMP is to provide holistic person-centered care management to members identified as having chronic conditions and being at high risk for both adverse outcomes and increased health care expenditures. The OHCA HMP emphasizes development of member self-management skills and provider adherence to evidence-based guidelines and best practices. As it exists today the OHCA HMP provides practice based health coaches, nurses who provide evidence based care to individuals with chronic conditions, and practice facilitators; specially trained individuals that assist primary care practices in the development of processes and infrastructure to support the ongoing management and engagement of individuals with chronic illness. While embedding health coaches/case managers directly in provider offices is a relatively new development in health care, early evidence suggests these activities can lead to significant reduction in "inappropriate" service utilization including decreases in readmissions and management of ED utilization.

Similar to the OHCA's HMP the OHCA's CCU provides telephonic based health coaching to members who have same or similar conditions as those enrolled in OHCA's HMP but who have not chosen a primary care practice that receives HMP support. While some telephonic disease management programs have enjoyed moderate success, in general, telephonic based programs, especially those targeted at Medicaid enrollees have typically experienced limited success. In part this is due to the transient nature of Medicaid enrollees and difficulty in maintaining viable contact information, as well as the difficulty in establishing therapeutic relationships in the absence of face-to-face encounters. During the next review phase Mercer

will continue to work with the OHCA to try and identify members enrolled in each of these programs in an effort to more fully understand how these two models of care management may or may not have impacted ED utilization.

Delivery System Initiatives

Much of health services research focused on ED utilization hypothesizes that individuals use the ED for low-acuity non-emergent conditions because access to their PCP and/or availability of timely appointments is severely limited. In part this is due to the fact that primary care has moved away from a health and wellness model to a more volume driven, reactive, acute episodic based care delivery system. Due to a number of factors, over the past several years efforts to re-invigorate or "transform" primary care have surfaced. More importantly these efforts have shown early positive returns in their attempts to align payment with quality outcomes and to place the member back at the center of care. In fact, recent research indicates that medical home models can curb "inappropriate" ED utilization between 5–8%.[4]

Patient Centered Medical Home

OHCA introduced their PCMH model in 2009. In this model members are aligned with a PCP who is responsible for meeting strict access and quality of care standards. PCMH providers are arrayed into three levels, or tiers, depending on the number of standards they meet. OHCA pays monthly care management fees (in addition to regular fee-for-service payments) based on the tier achieved (higher reimbursement rates for higher tiers). Providers can also earn "SoonerExcel" quality incentives for meeting performance targets, such as member preventive care, appropriate member use of the ED and generic drug prescription practices.

Health Access Network

In 2010, OHCA expanded upon their PCMH model by contracting with three HAN provider systems. The HANs are community-based, integrated networks intended to advance program access, quality and cost-effectiveness goals by offering greater care coordination support to affiliated PCMH providers.

[4] David, G., Gunnarsson, C., Saynisch, P.A., Chawla, R., Nigam, S. Health Services Research, "Do patient-centered medical homes reduce emergency department visits?" April, 2015;50(2):418-39.

3

Emergency Department Utilization Terminology

Understanding the Issue

According to federal law, EDs are required to evaluate and treat all patients with emergency conditions regardless of their ability to pay. Additionally, EDs must be staffed, equipped and ready to treat all types of patients with all types of conditions 24 hours a day, 7 days of the week, 365 days of the year. According to the National Hospital Association, emergency department visits increased an unprecedented 44% from 88.5 million in 1991 to 127.2 million in 2010. However, during the same period, EDs closed at a rate of almost eleven percent. These figures underscore the strain that many EDs face and highlight the importance of ensuring that precious ED resources are used in the most efficient and effective manner.

From the perspective of achieving the triple aim (better health quality, better experience of care, and sustainable cost), consider that EDs were designed to treat the most critically ill and injured patients, as well as to act as a safety net during public health emergencies such as catastrophic events, epidemic outbreaks, and even terrorist attacks. “Inappropriate” ED utilization can negatively impact hospital resources, including long-term financial viability. Furthermore, it can contribute to fragmented care, and it can cost insurance health programs significantly more than if the same type of care were delivered in an alternative setting. A RAND Corporation study in 2010 indicated that between 14% and 27% of all ED visits for non-urgent reasons could take place in an alternate location, resulting in potential cost savings of $4.4 billion annually.[5]

There is an abundancy of health services research on the topic of ED usage and many of the papers and journal articles provide conflicting and inconsistent messages. Over the years, many myths have developed regarding ED utilization in general and Medicaid enrollee ED utilization in particular. In fact, these myths have become so pervasive that MACPAC issued a MACfacts document in July of 2014 specifically to debunk myths regarding Medicaid ED utilization.[6] However, even in this briefing document, it is clear that, in part, incorrect beliefs about ED utilization are fueled by a shortage of consistent terminology, and methodological approaches in which to study “inappropriate” and/or “avoidable/preventable” ED usage. To address this issue the OHCA requested that Mercer assist in the development of a standardized term and definition in which they could consistently identify and quantify the component of ED utilization typically referred to in terms such as: “avoidable”, “preventable” and “inappropriate”. In this case it is important to understand that not all ED utilization is bad, in fact, much of it is good and to be expected. The important part is being able to consistently parse out the component of ED utilization that could be avoided and in doing so, identify the potential drivers that cause this

[5] Rand Health Corporation. *The Evolving Role of Emergency Departments in the United States* (2013).

[6] Medicaid and CHIP Payment and Access Commission, MAC*Facts*, “Revisiting Emergency Department Use in Medicaid,” July 2014, available at https://www.macpac.gov/publication/mac-facts-revisiting-emergency-department-use-in-medicaid/, accessed 29 July 2015.

unnecessary resource usage and develop programs and interventions to curtail this type of utilization.

OHCA Definition Development

Mercer was asked to help the OHCA document a definition of "inappropriate" ED utilization and identify how the definition may differ from the provider's perspective. Mercer's approach to this task included conducting telephonic interviews with various stakeholders including OHCA staff members, community primary care physicians, hospital representatives, and ED physicians. The interview guide used to facilitate telephone interviews is included in Appendix A. Mercer also drew on our experience working with other state Medicaid programs to help inform the development of terminology that could be used to define a subset of ED visits that are typically referenced by terms such as "inappropriate", "unnecessary", "avoidable" and/or "preventable".

The term "avoidable" was referenced most frequently by interview participants and overall the consensus was that this term was softer and more palatable than other descriptions and did not produce the same negative connotation of some of the other terms commonly used. However, many of those interviewed felt that the term "avoidable" still did not fully illustrate the various issues and innate complexities that contribute to the use of the ED for health issues that are often not of an immediate and life threatening nature, that could be appropriately treated in a lower level of care such as a primary care office, urgent care setting, or other lower level of care, such as a community clinic. Additionally, interview participants all pointed to the retrospective nature that is inherent to developing a definition to describe a component of utilization based on an analysis that uses ED discharge diagnosis versus the presenting complaint of the patient. While this is a valid perspective, it is not the primary consideration in the development of a definition whereas; it is a critical point of consideration in the actual analysis to be used in quantifying the percent of utilization encompassed under the proposed definition. Throughout the remainder of this report the following definition will be used to describe ED utilization that is often referred to as "inappropriate", "unnecessary", "avoidable" or "preventable".

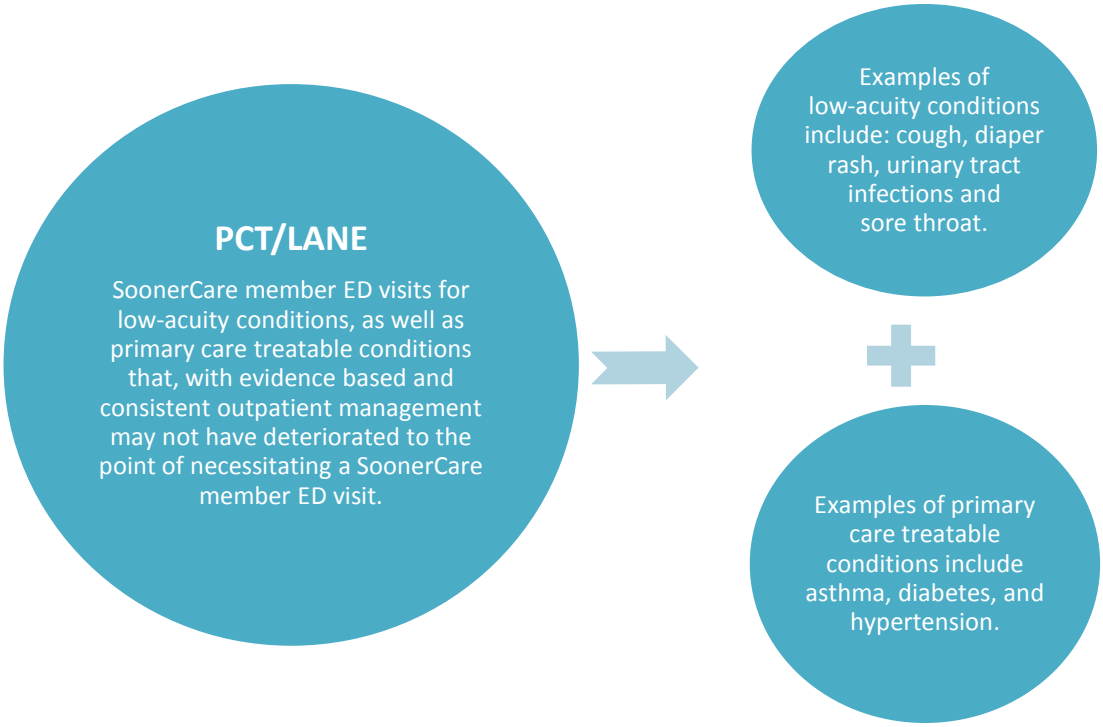
Primary Care Treatable/Low-Acuity Non Emergent (PCT/LANE) Emergency Department Utilization Definition

The definition that was developed and presented in

Exhibit 2 is: SoonerCare member ED visits for low-acuity conditions, as well as primary care treatable and/or low-acuity non-emergent conditions that, with evidence based and consistent outpatient management may not have deteriorated to the point of necessitating a SoonerCare member ED visit.

- Examples of low-acuity conditions include cough, diaper rash, urinary tract infections, and sore throat.
- Examples of primary care treatable ambulatory care sensitive conditions include asthma, diabetes, and hypertension.

Exhibit 2: Primary Care Treatable/Low-Acuity Non Emergent (PCT/LANE) Definition and Examples of Conditions



4

Emergency Department Utilization

Statistical Analysis Introduction

The OHCA shared member eligibility, provider, and member claims data files with Mercer. For the statistical analysis, the eligibility file was augmented by member information on the various populations in SoonerCare: Patient-centered medical home (PCMH), health management program (HMP), and health access networks (HANs). Also added to the eligibility file were distance measures generated by the geospatial analysis inclusive of distance from the member's eligibility file address to the closest primary care provider (PCP) and hospital and distance to the member's chosen PCP (if available for non-SoonerCare Choice members).

The OHCA eligibility system allows member assignment in multiple aid categories in one month. For purposes of analysis, a hierarchy was provided by the OHCA to assign one aid category for each month of eligibility. For each month of eligibility with a PCMH selection, a member was categorized as SoonerCare Choice, otherwise the member was categorized as SoonerCare Traditional. A member was assigned to the OHCA's HMP for the entire study period (July 1, 2012 to December 31, 2013) if they had at least two consecutive months of enrolment in the OHCA's HMP.

From the member claims files, ED visits were counted per member, and paid claims were summed to calculate total visits and ED per member per month (PMPM) dollars paid during the study period. The primary diagnosis code for each ED visit was captured from the member claims file. The distance to visited hospital was also added by the geospatial analysis to the member claims file. Members were categorized as "frequent ED users" if they had six or more ED visits in the eighteen month study period.

Given that a member could change membership in SoonerCare programs during the study period, each member was placed into a single combination of the eligibility fields based on the latest program in which they were enrolled during the last month of eligibility or the end of the study period. For example, if a member was in SoonerCare Traditional for eight months, but SoonerCare Choice for three months, including the last month of the study period they were categorized as a SoonerCare Choice member for purposes of statistical analysis. Changes in status follow:

- 29.5% of members moved between SoonerCare Choice and SoonerCare Traditional.
- 4.8% of members had a change in aid category (Temporary Assistance for Needy Families (TANF), Age, Blind or Disabled (ABD), Breast and Cervical Cancer (BCC), etc.).
- Out of 192,060 members that were enrolled in a HAN for any month during the study period, 108,425 (56.6%) had some type of change in status (joined a HAN, moved to a PCP that was not affiliated with a HAN, lost eligibility, etc.) during the study period.

Movement between programs, changes in health management programs and health access networks during the study period have an effect on how the statistics that follow can be interpreted. A possible refinement for future studies would be to study the impact of movement on ED utilization. Additionally, a limited sample study of ED utilization for members without program movement could be informative. A study question that may be of interest to OHCA hypothesizes the following: “Is ED utilization for members who remained in the same aid category, who were consistently in SoonerCare Choice and who received their primary care within a HAN different than the ED utilization of members who do not meet these criteria?”

Statistical Analyses

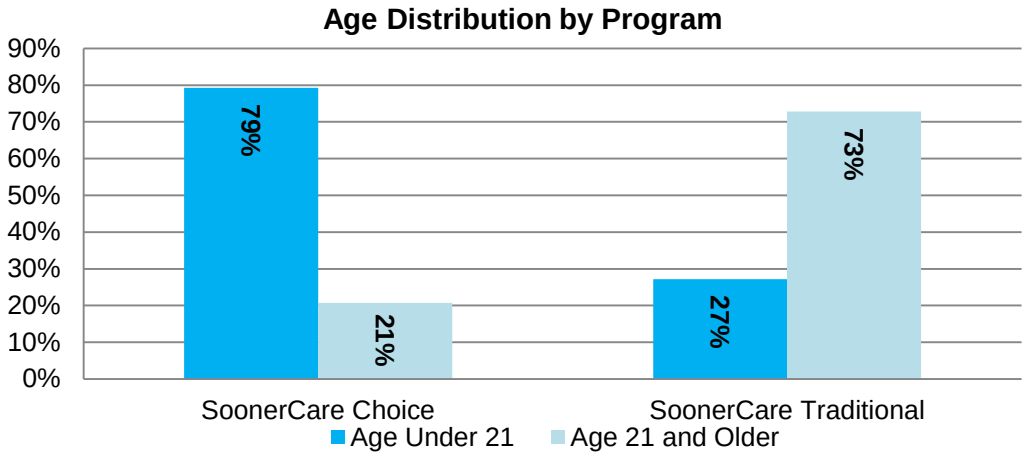
Mercer conducted descriptive, univariate and multivariate statistical analyses. As a first step in the analysis process, Mercer conducted descriptive statistical analyses. Data were summarized for the entire SoonerCare population; SoonerCare Choice, SoonerCare Traditional, and members with at least one ED visit during the study period. ED utilization rates per 1,000 member months were calculated as the number of ED visits divided by the number of member months, multiplied by 1,000. Complete tables of statistical analyses are presented in Appendix B.

It is important at this point to note limitations in the analysis conducted. The first is that crossover claims for members who are dually eligible for Medicare and Medicaid were not available. Because Medicaid is the payer of last resort there may be ED visits by a portion of the population for which claims data were not analyzed. Second, incomplete data for day and time of ED visit made analysis based on these variables unreliable. Finally, analysis of ED utilization, relative cost and return on investment by initiative is limited due to the movement between the OHCA population health programs noted above.

SoonerCare Population Demographics

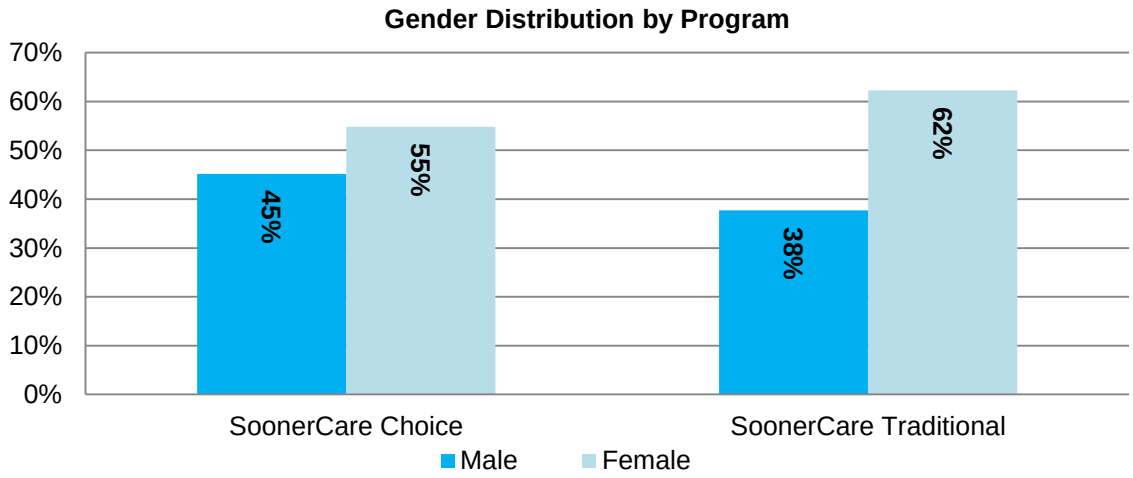
In the study population, nearly 60% of the SoonerCare population was under the age of 21, the majority were female and Caucasian. Twelve percent of the study population was dually eligible for Medicaid and Medicare and just over 5% were pregnant. More than 82% of the Medicaid members were within 10 miles of a hospital and 94% were within 10 miles to the closest PCP. Just over 50% of SoonerCare members lived in urban areas. (Appendix B Table 1: Demographic Summary of SoonerCare Members). The distribution of age in the SoonerCare Choice and SoonerCare Traditional populations, as seen in Exhibit 3 was nearly reversed, with 79% of the SoonerCare Choice population under the age of 21 while 73% of the SoonerCare Traditional population was over the age of 21. As Exhibit 4 and Exhibit 5 show, the gender and racial distribution between SoonerCare Choice and SoonerCare Traditional is more similar between the two programs. Exhibit 6 displays the aid category distribution comparison between the SoonerCare Choice and SoonerCare Traditional programs. The vast majority (92.6%) of the SoonerCare Choice program members were in the TANF aid category, while the SoonerCare Traditional members are fairly evenly distributed between the ABD, Family Planning and TANF aid categories.

Exhibit 3: SoonerCare Member Demographics by Age
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



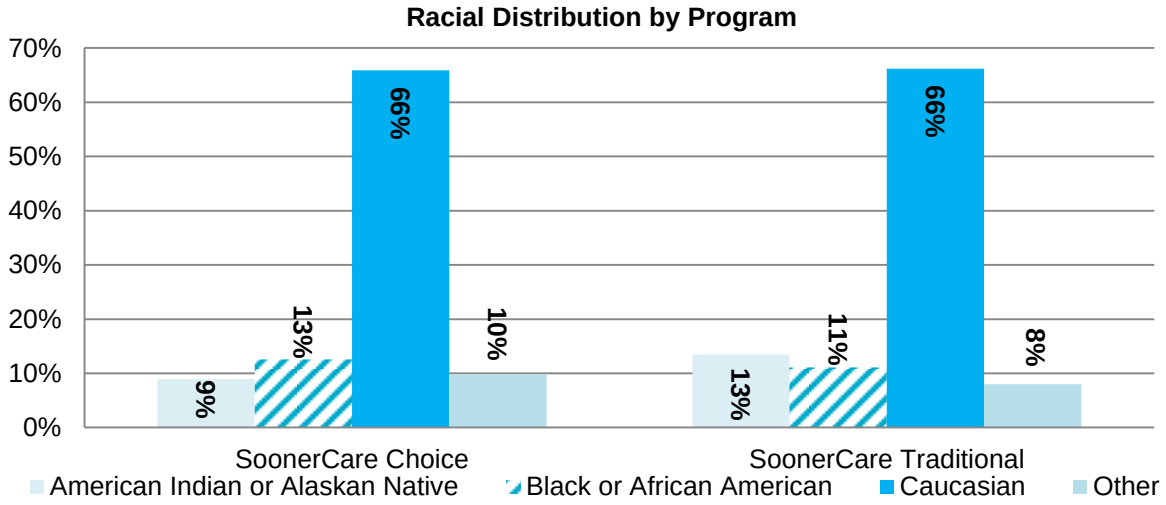
1. Analysis reflects information for all enrolled members, including those with no ED utilization.

Exhibit 4: SoonerCare Member Demographics by Gender
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



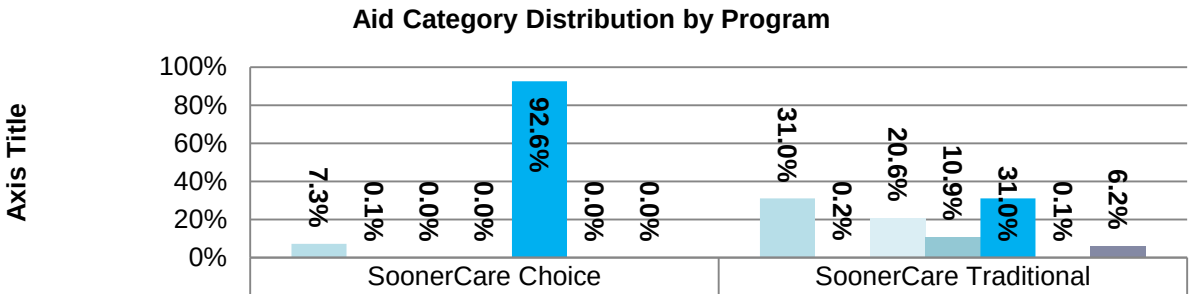
1. Analysis reflects information for all enrolled members, including those with no ED utilization.

Exhibit 5: SoonerCare Member Demographics by Race
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. Analysis reflects information for all enrolled members, including those with no ED utilization.

Exhibit 6: SoonerCare Member Demographics by Aid Category
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



	SoonerCare Choice	SoonerCare Traditional
ABD	7.3%	31.0%
BCC	0.1%	0.2%
Family Planning	0.0%	20.6%
Insure Oklahoma	0.0%	10.9%
TANF	92.6%	31.0%
TEFRA	0.0%	0.1%
OTHER	0.0%	6.2%

1. Analysis reflects information for all enrolled members, including those with no ED utilization.

More than 65% of the overall SoonerCare population had zero ED visits during the eighteen-month study period and 82.6% of members had less than two ED visits during the study period (Appendix B, Table 3: Frequency Distribution of ED Visits by SoonerCare Medicaid Members). The balance, 17.4% of the population had two or more ED visits, and 2.5% had six or more ED visits (Appendix B, Table 4: Summary of ED Visits by SoonerCare Medicaid Members).

SoonerCare Choice Population Demographics

More than 61% of the SoonerCare population was part of the SoonerCare Choice managed care program. The demographic makeup of the SoonerCare Choice population varied in some ways from the overall SoonerCare population in total. For example, there were no members over 65 years of age in the SoonerCare Choice population, 50% were under 10 years and almost 80% of the population is under age 21. There were slightly fewer females in the SoonerCare Choice population (54.8% SoonerCare Choice versus 57.7% total population). The most marked distinction in the SoonerCare Choice population was that more than 92% were part of the TANF aid category (Appendix B, Table 2: Demographic Summary of SoonerCare Choice and SoonerCare Traditional Medicaid Members).

SoonerCare Traditional Population Demographics

Nearly 39% of the SoonerCare population was part of the SoonerCare Traditional program. For purposes of analysis this group was made up of all SoonerCare members who were not part of SoonerCare Choice. This group had more than 16% of members who were over age 65 and in total nearly 73% of the population was over 21 years of age. More than 63% of the SoonerCare Traditional population was female and slightly more of the population (49.9%) lived in rural areas compared to both the overall SoonerCare population and the SoonerCare Choice population (46.7% and 44.6% respectively). Aid category was another demographic area of difference for the SoonerCare Traditional population. Only 31% of the SoonerCare Traditional population was part of the TANF aid category, while 31% were part of the ABD aid category and 20.6% were part of the Family Planning category. A slightly smaller percentage of the population was pregnant. The aid category assignments were based on the latest program in which they were enrolled during the last month of eligibility or the end of the study period (Appendix B, Table 2: Demographic Summary of SoonerCare Choice and SoonerCare Traditional Medicaid Members).

ED Utilization Descriptive Analyses

Various statistical analyses were conducted to study the relationship between member demographics and ED utilization. Overall members with higher rates of ED utilization were female and infants or those over 21 years of age. As could be anticipated, those in the ABD aid category had far higher ED utilization rates than any other aid category and those dually eligible for Medicare and Medicaid had higher utilization than those who are not dually eligible for Medicare and Medicaid. Members with a chosen PCP (a selection made by SoonerCare Choice members only) within five miles of their home address was lower than those with a chosen PCP greater than five miles away.

Two findings that warrant additional discussion are that the SoonerCare Choice members had higher utilization rates (68.1 per 1,000 member months) than SoonerCare Traditional members (55.5 per 1,000 member months) and OHCA HMP members had higher rates (169.3 per 1,000

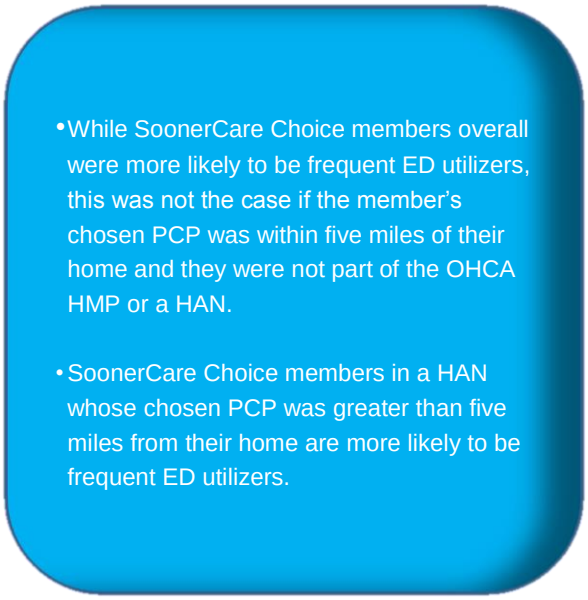
member months) than OHCA non-HMP members (62.5 per 1,000 member months). While initially these findings seem counter to the intent and effort of the programs, there are two key considerations needed. First, as noted in the data limitations, crossover claims for those members who are dually eligible for Medicare and Medicaid were not available for analysis; this limits overall comparative analysis. Second, consideration of the health and probable multiple chronic conditions of the members that make up these populations is needed. This consideration of program member health should be carried throughout the remainder of this section of the report.

After the initial descriptive analyses were completed, additional analyses were conducted with those members who were considered frequent ED utilizers (those with 6+ ED visits between July 1, 2012 and December 31, 2013). The majority of the results mirrored those in the descriptive analysis, meaning the population of frequent ED utilizers is similar to ED utilization overall.

Additional analyses were completed to explore the relationship of frequent ED utilization and eighteen months of continuous enrollment in SoonerCare. There were two factors that became statistically significant when controlling for continuous enrollment. Those factors were being a part of SoonerCare Choice and being part of a HAN. As the analysis continued, and comparisons between combinations of programs and demographic factors were analyzed the following key findings were identified (Exhibit 7):

- While SoonerCare Choice members overall were more likely to be frequent ED utilizers, this was not the case if the member's chosen PCP was within five miles of their home and they were not part of the OHCA's HMP or a HAN.
- SoonerCare Choice members in a HAN only whose chosen PCP is greater than five miles from their home are more likely to be frequent ED utilizers.

Exhibit 7: SoonerCare Choice Member ED Utilization: Impact of PCP Proximity to Member and Enrollment in a OHCA HMP and/or HAN



Program comparisons on the basis of ED PMPM dollars spent were conducted. Within SoonerCare Traditional, non-Part A Medicare members have a higher predicted cost PMPM by $20. All SoonerCare Choice program combinations have a higher predicted cost PMPM than SoonerCare Traditional members. However, members in a HAN and/or members with a chosen PCP closer than five miles show the smallest differences with SoonerCare Traditional non-Part A Medicare members.

Within SoonerCare Choice, members that are in neither a HAN or the OHCA's HMP, or are in a HAN only but do not have a chosen PCP within five miles have a slightly higher predicted cost

PMPM than those in neither a HAN or the OHCA's HMP, or a HAN only that have a chosen PCP within five miles. In summary, there is evidence that having a chosen PCP within five miles may provide some cost savings for a subset of the population.

LANE Analysis Introduction

Mercer's low-acuity non-emergent (LANE) analysis provides a systematic and evidenced-based approach for evaluating trends and patterns of ED utilization. The LANE analysis was built specifically to identify and quantify the impact of low-acuity non-emergent ED usage. The analysis is underpinned by extensive health services research with additional input from an expert panel including ED physicians, state Medicaid chief medical officers, and other clinical providers with Medicaid and managed care organizations (MCO) experience.

There are two components of an ED visit that factor into consideration of a low-acuity non-emergent visit. The first is the diagnosis code. The International Classification of Diseases, Ninth Revision, (ICD-9) is a coding method based on the World Health Organization's system for classification of diseases. Mercer has identified 701 ICD-9 codes that have the potential to be low-acuity non-emergent conditions.

The second component of an ED visit that factors into consideration of a LANE visit is the evaluation and management (E&M) code. E&M coding is the process by which physician-patient encounters are translated into five digit codes to facilitate billing. These are the numeric codes, which are submitted to insurers for payment. Visits to the ED are coded 99281, 99282, 99283, 99284, and 99285. For purposes of Mercer's LANE analysis ED visits that are coded 99281, 99282, or 99283 (lower level of clinical complexity) are considered "potentially preventable". Visits with an evaluation and management procedure code of 99284 or 99285 (higher level of clinical complexity) are not included in the analysis of ED visits considered "potentially preventable". These conditions are of high severity, may pose an immediate significant threat to life or physiologic function and require urgent evaluation by the physician or other health care professional. Conditions meeting these criteria are not considered a potentially preventable ED visit.

The following is a description of LANE results parsed into the SoonerCare Choice and SoonerCare Traditional populations. All tables and graphs prepared for the LANE analysis are presented in Appendix C.

Identification and Stratification of ED Visits

Mercer's LANE analysis began with the identification of all ED visits within the study period. For this project, Mercer reviewed records of SoonerCare members' ED visits between July 1, 2012 and December 31, 2013. In order to quantify the comprehensive cost of an ED visit, Mercer aggregated all claims for the same member, at the same facility with the same date of service.

The total ED claims and total ED dollars for this eighteen month study period are as follows (Exhibit 8):

Exhibit 8: Total ED Claims and Total ED Dollars

Program	Total ED Visits	Total ED Dollars
SoonerCare Choice	612,769	$149,135,722
SoonerCare Traditional	319,490	$ 49,306,934

After all ED visits were identified and claims for an individual visit were aggregated, the medical diagnoses available on the visit record were compared to Mercer's list of LANE diagnoses. The LANE diagnoses were categorized as "low-acuity, non-emergent" based on the clinical severity of the condition that drove the member to the ED. Mercer reviewed all available diagnosis information for a single ED claim and identified the subset of visits with a diagnosis on the list.

Mercer recognizes the significant challenges of influencing member behavior in a Medicaid population, as well as variation in clinical interpretations of the term "preventable". As a result, each diagnosis in the LANE analysis is assigned a unique percentage, which represents the portion of visits with that diagnosis code that could be redirected to a more appropriate setting, or avoided entirely. These percentages are applied to the observed utilization by diagnosis code to quantify the "potentially preventable" ED utilization. Mercer also considers the input of the attending physician through the procedure code information attached to the claim. Cases that are indicated as having the highest level of medical complexity (99284 or 99285) are not included in the analysis of ED visits considered "potentially preventable". These conditions are of high severity, may pose an immediate significant threat to life or physiologic function and require urgent evaluation by the physician or other health care professional. ED visits with conditions meeting these criteria are not considered as potentially preventable ED visits.

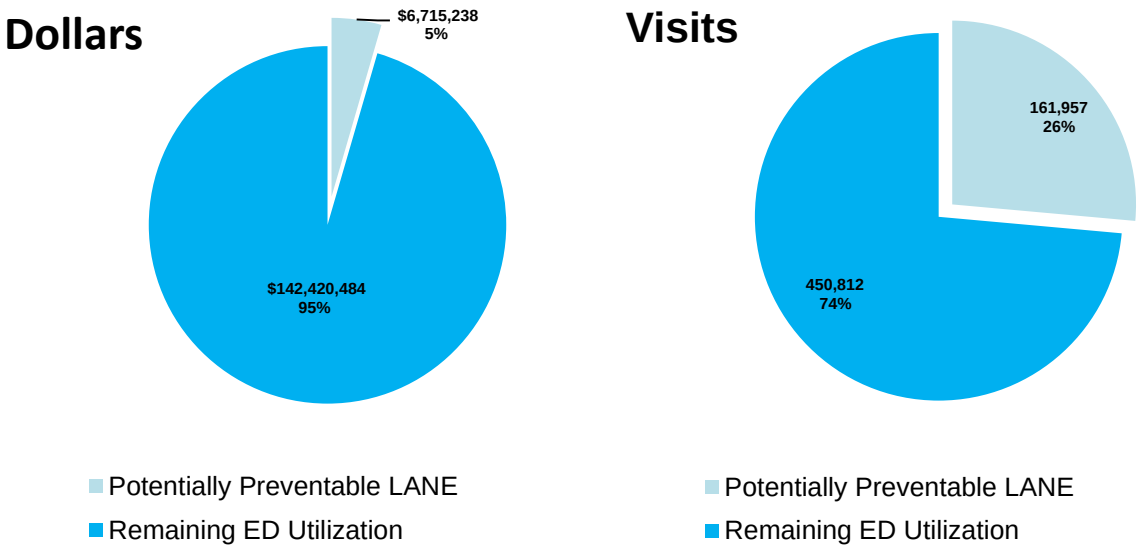
The SoonerCare ED utilization quantified as potentially preventable for overall ED utilization follows (Exhibit 9):

Exhibit 9: Potentially Preventable ED Visits and Potentially Preventable ED Dollars

	Total Potentially Preventable ED Visits	Total Potentially Preventable Visits as % of Total ED Visits	Total Potentially Preventable Dollars	Total Potentially Preventable Dollars as % of Total ED Dollars
SoonerCare Choice	161,957	26.4%	$20,950,250	14.0%
SoonerCare Traditional	60,041	18.8%	$ 5,173,759	10.5%

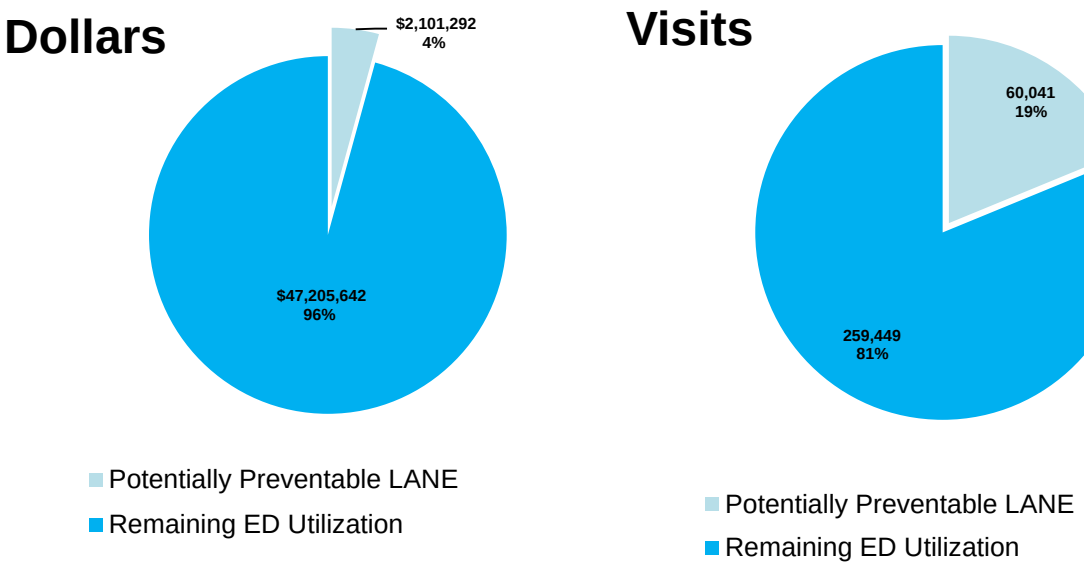
Finally, Mercer quantified ED utilization that was low-acuity non-emergent, potentially preventable as a percentage of overall ED utilization for the SoonerCare Choice and the SoonerCare Traditional populations. These results are presented in Exhibit 10 and Exhibit 11.

Exhibit 10: SoonerCare Choice Low-Acuity Non-Emergent (LANE) Analysis Results
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits.

Exhibit 11: SoonerCare Traditional Low-Acuity Non-Emergent (LANE) Analysis Results
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits.

While many ED visits could have been avoided entirely, the final step of Mercer's LANE analysis was to consider the costs of providing care in a more clinically appropriate and financially efficient setting. Mercer summarized the cost of physician office visits during the study period to quantify the cost of comparable visits to a primary care office, clinic, or specialist. The average cost per office visit for SoonerCare Traditional was $54.41, and the average cost per office visit in SoonerCare Choice was $93.09. The difference in average costs appeared to be based on underlying fees, rather than variation in the severity of cases. These unit costs were counted for each of the visits shown above as "potentially preventable", which reduced the potential savings. For those individuals that incurred more than six LANE visits during the study period, Mercer only provided for six physician cost off-sets in the calculation.

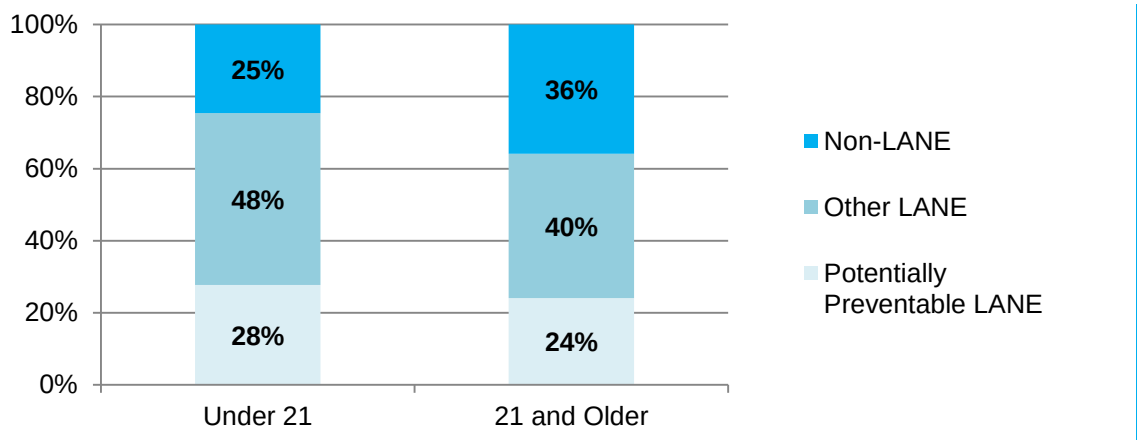
The net potentially preventable ED utilization after physician unit cost off-sets were considered is as follows (Exhibit 12):

Exhibit 12: Net Potentially Preventable ED Utilization after Physician Unit Cost Off-Sets

	Total Potentially Preventable Dollars	Net Potentially Preventable LANE Dollars	Total Equivalent Provider Office Costs	Net Potentially Preventable Percent of LANE Dollars
SoonerCare Choice	$20,950,250	$6,715,238	$14,235,012	4.5%
SoonerCare Traditional	$ 5,173,759	$2,101,292	$ 3,072,467	4.3%

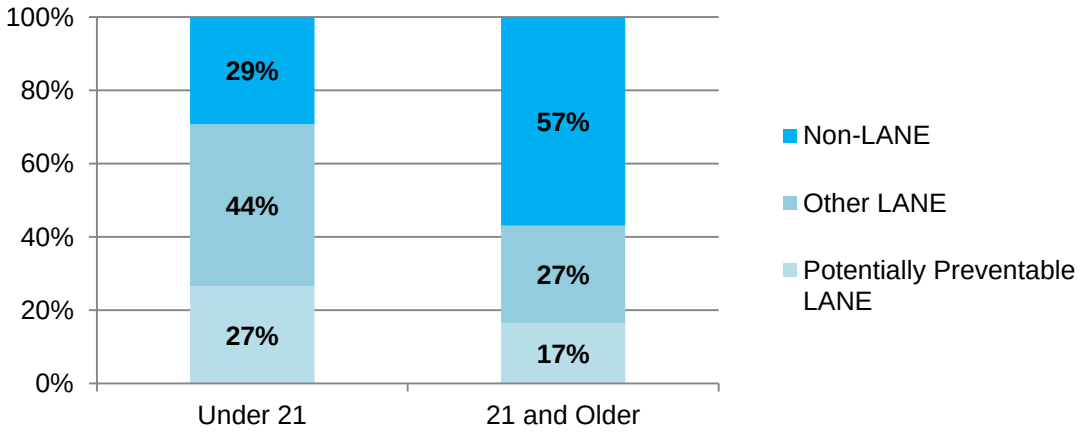
As noted earlier, nearly 60% of the total Medicaid population is under 21 years of age. In the SoonerCare Choice population under 21 the percentage is even higher at 79%. In the SoonerCare Traditional population, 27% is under the age of 21. The graphs below (Exhibit 13 and Exhibit 14) show a comparison of LANE utilization for members who are under 21 years of age and those 21 and older for the SoonerCare Traditional and the SoonerCare Choice populations.

Exhibit 13: SoonerCare Choice Low-Acuity Non-Emergent (LANE) Visit Statistics by Age Group
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".

Exhibit 14: SoonerCare Traditional Low-Acuity Non-Emergent (LANE) Visit Statistics by Age Group
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".

Geospatial Analysis Introduction

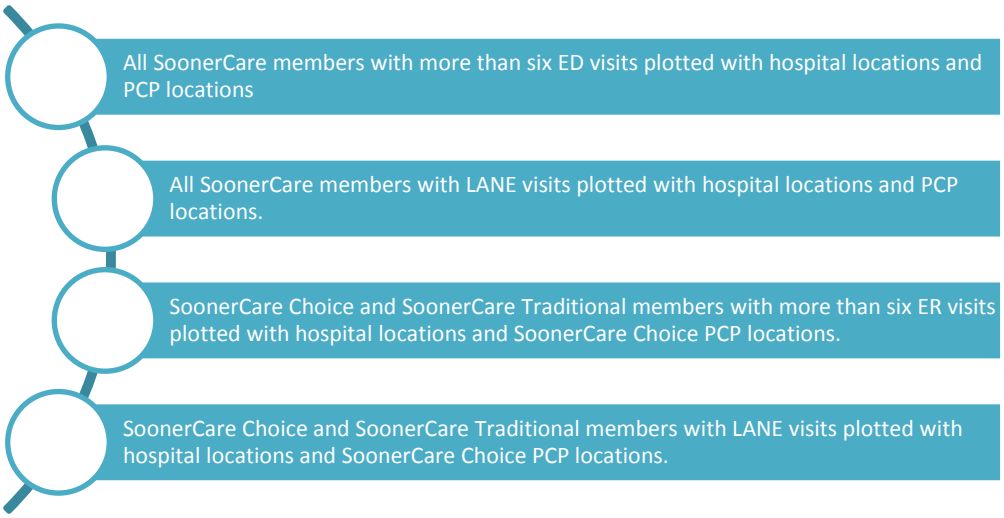
Geocoding is a process that uses address information to assign locations (based on longitude and latitude) on a map that are then analyzed in relation to other spatial data. Two sets of data are needed for the geocoding process: one is the address of analysis, for this project the member eligibility file address; the second is the address of reference, for this project the provider address (PCP or ED location). Mercer used Quest Analytics software versions 2014.4 and 2015.1 to geocode, map, and complete the access analyses. Data management, prep and analyses were performed using SAS version 9.2.

In order to conduct the geospatial analysis, the OHCA shared member eligibility, provider, and member claims data files with Mercer. Once validated, each file was limited to the fields required for geospatial analysis and the files were prepared for geocoding. Rural members were identified as those whose geocoded addresses were located in an Oklahoma county designated as rural. In broad terms the areas of Oklahoma City and Tulsa were urban areas and eliminated from the rural analyses described below. All maps were restricted to members whose geocoded addresses on the member eligibility file were located in Oklahoma. This may lead to slight variation in population size between these analyses and the statistical analyses.

Geospatial Analysis Results

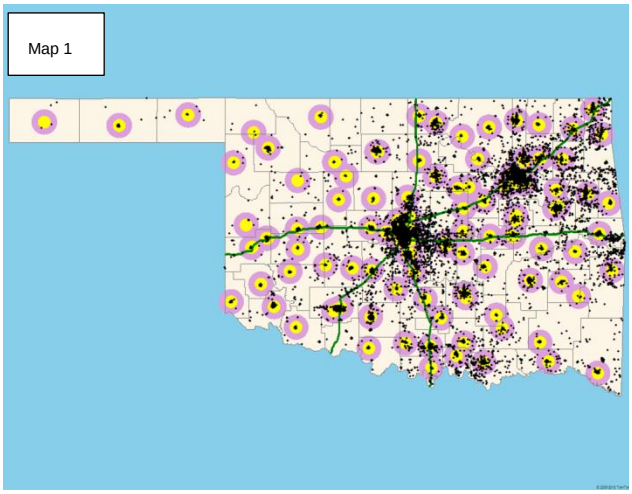
Geospatial analyses as described in Exhibit 15, below, were conducted for the state overall and specifically for the areas designated as rural. All maps generated are presented in Appendix D.

Exhibit 15: Geospatial Analyses for State Overall and Areas Designated as Rural



One of the key considerations while reviewing the selected maps below is the black icons (members) that fall outside a yellow or purple icon. These represent areas where access to providers, either hospitals or PCPs may be an issue.

Exhibit 16: Map 1

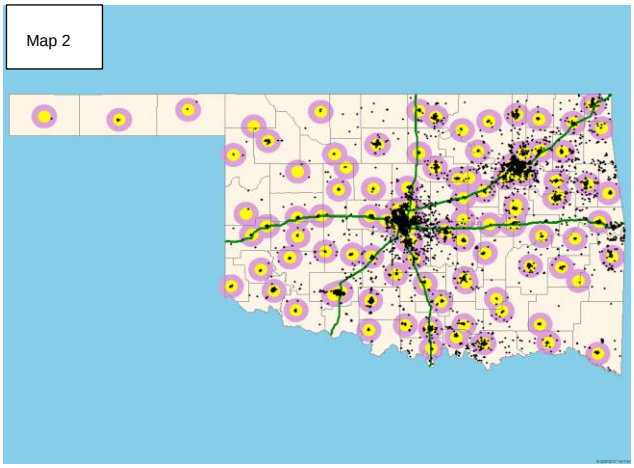


Map 1: All SoonerCare members with 6+ ED visits plotted with hospital locations:

- A member address is represented by a black dot (n = 28,142).
- A yellow halo is a five mile radius from the address of a hospital (n=188).
- A purple halo is a ten mile radius from the address of a hospital.
- An interstate highway is represented by a green line.

As seen in Exhibit 16, and as described in the statistical analysis (Appendix B), the highest concentration of SoonerCare members is located in the urban areas of Oklahoma City and Tulsa. The most significant concentration of members with six or more ED visits is in the urban locations. As noted in the statistical analysis (in Appendix B) less than three percent of the members had six or more ED visits during the study period.

Exhibit 17: Map 2

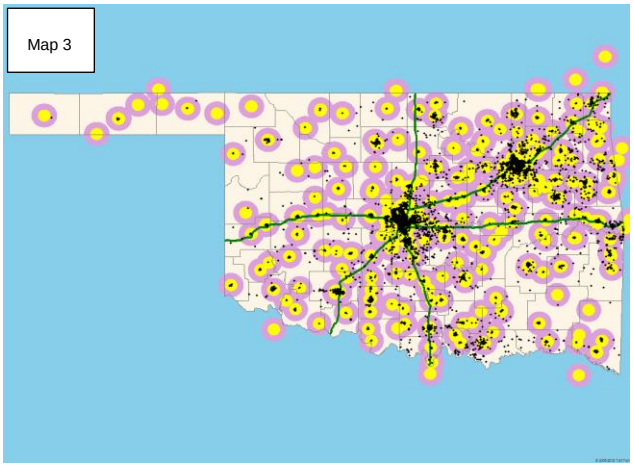


Map 2: SoonerCare Choice members with 6+ ED visits plotted with hospital locations:

- A member address is represented by a black dot (n = 9,100).
- A yellow halo is a five mile radius from the address of a hospital (n=188).
- A purple halo is a ten mile radius from the address of a hospital.
- An interstate highway is represented by a green line.

Again, as expected, the highest concentration of SoonerCare Choice members with six or more ED visits is in the urban locations of Oklahoma City and Tulsa (Exhibit 17). Interestingly there are relatively few members who live more than ten miles from a hospital with six or more ED visits.

Exhibit 18: Map 3

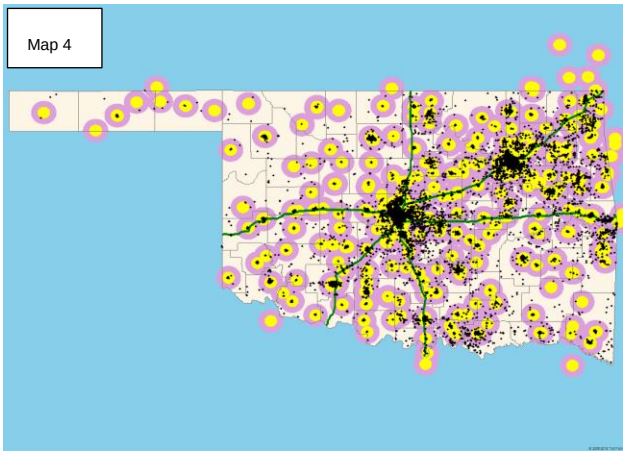


Map 3: SoonerCare Choice members with 6+ ED visits plotted with SoonerCare Choice contracted PCPs:

- A member address is represented by a black dot (n = 9,100).
- A yellow halo is a five mile radius from the address of a SoonerCare Choice PCP (n=1048).
- A purple halo is a ten mile radius from the address of a SoonerCare Choice PCP.
- An interstate highway is represented by a green line.

Map 3 (Exhibit 18) shows the distance from a SoonerCare Choice member's address to a SoonerCare Choice contracted PCP. As can be seen, the majority of these members have access to a SoonerCare Choice contracted PCP within five miles and even more within ten miles. As described in the statistical analysis (located in Appendix B), while SoonerCare Choice members overall were more likely to be frequent ED utilizers, this was not the case if the member's chosen PCP was within five miles of their home and they were not part of the OHCA's HMP or a HAN.

Exhibit 19: Map 4



Map 4: SoonerCare Traditional members with 6+ ED visits plotted with PCPs:

- A member address is represented by a black dot (n = 19,042).
- A yellow halo is a five mile radius from the address of a PCP (n=1297).
- A purple halo is a ten mile radius from the address of a PCP.
- An interstate highway is represented by a green line.

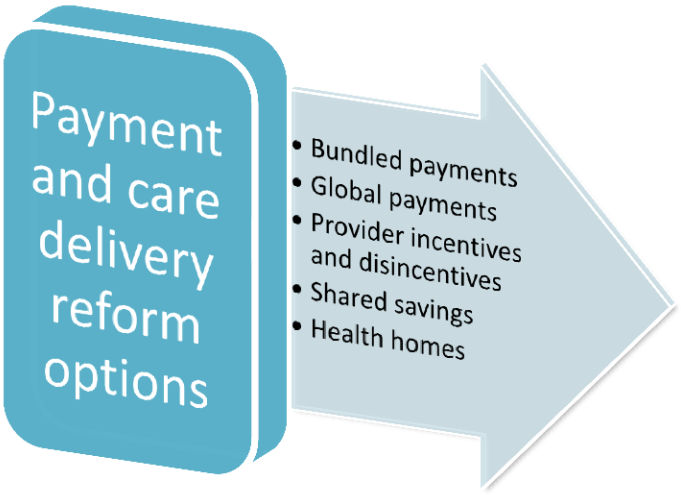
Map 4 (Exhibit 19) shows the distance from a SoonerCare Traditional member's address to a PCP that participates in the SoonerCare program. There are more members who visited the ED 6+ times represented that do not have a PCP within ten miles in comparison to the SoonerCare Choice population.

5

State Medicaid Approaches to Manage Emergency Department Utilization

Non-urgent use of the emergency department (ED) has been studied by both state Medicaid agencies and commercial insurers for decades. Appropriate ED use is important for many reasons including concerns about ED crowding, quality and appropriateness of patient care, and cost. Review of appropriate ED services also serves as a measure of access to appropriate care. Despite the importance of appropriate ED use, uniform best practices have been slow to emerge due to the unique needs and challenges in states and local communities, and the health care challenges of frequent ED users. There are; however, emerging ED diversion programs that demonstrate promise especially in light of new payment reform options, such as those represented in Exhibit 20 that could provide opportunities in Oklahoma. Mercer has reviewed seven state programs that could inform strategies in Oklahoma to facilitate appropriate ED use among Medicaid beneficiaries. These states include Colorado, Maryland, Massachusetts, Missouri, Oregon, Washington, and Wisconsin.

Exhibit 20 Payment and Care Delivery Reform Options



The lessons learned in each state program included in this report provide options for Oklahoma to impact ED utilization. While each state program is unique, Oklahoma could tailor programs reviewed in this section to reflect the realities of care systems in the State. There are a variety of payment and care delivery reform options, including condition-specific care management, available through state plan amendments and/or waivers that could further refine the most appropriate ED diversion program for Oklahoma.

Payment reform models described below range from bundled payments for asthma-specific care management, as in Massachusetts, to global payments as in the system implemented in Maryland. Payment reform models also incorporated a range of incentives and disincentives for providers to help shape more appropriate ED use. Some state programs, such as Washington, incorporated disincentives such as nonpayment for excessive non-urgent ED services for hospitals that do not adopt best care practices, or reimbursement withholds tied to ED reduction in Colorado. Many of the states reviewed in this section indicated interest in adopting a shared savings model with the care or payment reform initiative. None have moved forward with shared

savings in practice, but this option could provide a valuable opportunity for Oklahoma, its provider community, and for better measurement and outcomes. Another important incentive exists in the form of a 90% Federal match rate for health home services, like Missouri's behavioral health-health home. These and other payment and care delivery reform models are reviewed in detail below.

Colorado

Colorado's Accountable Care Collaborative program was launched in May 2011 and is comprised of seven Regional Care Collaborative Organizations (RCCO). The RCCOs form a network of primary care medical providers (PCMPs) that support medical homes, and are ultimately responsible for reaching performance targets that focus on ED use reductions, hospital readmission prevention, and lower outpatient service utilization of magnetic resonance imaging (MRI), computed tomography (CT) scans, and x-rays.[7] The PCMPs include group practices, federally qualified health centers (FQHCs), and rural health centers.

The role of the RCCO is to work with participating PCMPs in any stage of medical home processes and assist with improving medical home services. As noted in a number of reports on the program, "RCCOs have flexibility to customize reforms to meet regional needs"[8] while remaining within the allowable funding as discussed below. Each RCCO operates differently and activities range from working with PCMPs to implement substance abuse screening to providing training on best care practices for managing chronic conditions.[9] A specific example of this RCCO activity latitude is reflected in the 2014 Accountable Care Collaborative Report.[10] According to the report, the RCCO in Region 7, Community Care of Central Colorado, partners with the Colorado Springs Fire Department (CSFD) to prevent overuse of ED services. In a case example cited in the 2014 report, Community Care of Central Colorado and CSFD worked to get a frequent 911 caller, who made repeated ED visits, into intensive outpatient therapy and move into a sober living home.

RCCO services are reimbursed at a per member per month (PMPM) rate of $20. One dollar is withheld from this total to fund an incentive pool to reward lower ED usage as well as hospital admission reductions and outpatient service utilization of MRIs, CT scans, and x-rays.

---

[7] Colorado Center on Law & Policy. "The Colorado Medicaid Accountable Care Collaborative Program," available at http://www.healthpolicyproject.org/Publications_files/Medicaid/ColoradoAccountableCarePresentation.pdf, accessed 3June 2015.

[8] Jahnke L., Sidiqui N., Andrulis D., Reddy S. "Snapshot of Medicaid 1115 Waiver and Other State-Based Delivery System Transformations," available at http://www.texashealthinstitute.org/uploads/1/3/5/3/13535548/snapshot_of_medicaid_1115_waiver__state_delivery_transformation.pdf, accessed 3 June 2015.

[9] Rodin D., Silow-Carrol S. "Medicaid Payment and Delivery Reform in Colorado: ACOs at the Regional Level," available at http://www.commonwealthfund.org/~/media/files/publications/case-study/2013/mar/1666_rodin_medicaid_colorado_case_study_final_v2.pdf, accessed 3 June 2015.

[10] 2014 Accountable Care Collaborative Report available at https://www.colorado.gov/pacific/sites/default/files/Accountable%20Care%20Collaborative%202014%20Annual%20Report.pdf, accessed 3 June 2015.

The effect on ED visits has been, in some ways, mixed. For example, in state fiscal year (SFY) 2012 to SFY 2013, the number of ED visits increased for those enrolled in the program, but at a slower rate compared to the general Medicaid population. During the period from SFY 2013 to SFY 2014, aggregate savings from the program totaled approximately $31 million.[11] Colorado also reported fewer ED visits for certain program enrollees.[12] Adults enrolled in the program for more than six months utilized approximately 8% fewer ED services than adults not enrolled in the program. ED use by children with disabilities decreased by 7%, but increased doctor visits by 6%. It should be noted that fewer than six months of program enrollment resulted in higher than average ED use among the adult population. ED use by adults with disabilities enrolled in the program was higher than those not enrolled. ED use by non-disabled child enrollees was negligible.

Case Comparison

Colorado is a Medicaid expansion state. However, the ED diversion program was conceived and implemented pre-Medicaid expansion. While Medicaid expansion has the potential to increase the ranks of Medicaid enrollees potentially targeted by the program from 2014 on, reported success prior to expansion should be comparable for potential implementation in Oklahoma. Approximately 98% of Colorado's Medicaid population is enrolled in managed care.[13]

Applying Success in Oklahoma

Colorado's Accountable Care Collaborative program operates as an RCCO through a fee-for-service (FFS) payment structure combined with a primary care case management (PCCM) PMPM payment of $20 and incentive payments for meeting quality targets. Oklahoma operates an "enhanced" PCCM, but there are differences in reimbursement structures. In Colorado, there is a PMPM reimbursement, withhold tied in part, to ED utilization reductions. Colorado has also indicated interest in pursuing a complementary shared-savings model, which has not yet been implemented. Both the PMPM reimbursement, withhold tied to ED reduction and shared savings could be implemented in Oklahoma through a state plan amendment (SPA). Another important consideration is the application of flexible RCCO activities locally tailored to meet specific regionally based health care needs.

Maryland

The University of Maryland Upper Chesapeake Health (UM UCH) is a community-based, not-for-profit care system located in Harford County, Maryland. The system focuses on

---

[11]Colorado Department of Health Care Policy & Financing. "Creating a Culture of Change, Accountable Care Collaborative, 2014 Annual Report," available at https://www.colorado.gov/pacific/sites/default/files/Accountable%20Care%20Collaborative%202014%20Annual%20Report.pdf, accessed 2 June 2015.

[12]Colorado Department of Health Care Policy & Financing. "Colorado Medicaid Program Achieves Record Savings, Improved Outcomes," available at https://www.colorado.gov/pacific/sites/default/files/Accountable%20Care%20Collaborative%20News%20Release%20and%20Fact%20Sheet%20-%20November%203,%202014.pdf, accessed 2 June 2015.

[13]The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=CO, accessed 2 June 2015.

maintaining and improving community health through an integrated delivery system that provides the highest quality of care. In late 2013, UCH formally merged into the UM medical system in order to continue its commitment to the growing northeast Maryland area with expanded clinical services, programs and facilities, and physician recruitment.[14] The merger facilitated UCH's ability to participate in the all payer hospital inpatient and outpatient redesign known as the Maryland Global Budget Revenue (GBR) model that began in January 2014.

The Maryland GBR model aims to transition to fixed hospital payments for both inpatient-based and outpatient-based care. In addition to cost containment requirements, participants must also meet population management goals including targets for quality, safety, and patient experience across all payers for their facility to avoid reductions in the global budgets as the program advances. In order to ensure success of the GBR initiative, the UM UCH embarked on a three-pronged approach to reduce the acute care costs and improve overall health outcomes. The three-pronged approached is as follows:

- Prevent acute health problems and the associated care from happening in the first place.
- Create and expand less costly, more convenient alternatives to ED care so people with acute problems use less expensive hospital-based care.
- Improve the function of the acute care system itself.[15]

To support this three-pronged approach, UM UCH developed four key programs to support the transformation and to provide a variety of interventions focused on empowering the ED physicians to control resources, including inpatient admissions, outpatient observation designations, discharge determinations and the use of advanced radiography and prescribing. Four key programs include:

- ***High-Risk Care Plan Program.*** The High-Risk Care Plan program targets individuals with more than five ED visits, three hospital admissions, or one readmission in the past twelve months. The program focuses on the lack of appropriate comprehensive medical record information available to ED decision-makers, and creates a multi-disciplinary team including case managers, primary care physicians, ED physicians, pain management specialists, and psychiatrists. The teams work together to develop a "one-pager" that contains all of the critical patient information, including psychosocial information, to avoid electronic health record (EHR) searching fatigue. The program required an investment of $20,000 up front for the easy-to-use EHR platform, and will eventually require case management staff increases. Of the 844 individuals in the program, over 50% have shown a decrease in opioid prescriptions, a 40–50% reduction in admissions, observation stays, and ED visits.

- ***Comprehensive Care Clinic.*** The Comprehensive Care Clinic program targets individuals without a primary care doctor, without insurance coverage, or those with high-risk follow-up

[14]University of Maryland Upper Chesapeake Health. "Facts," available at http://umuch.org/~/media/systemhospitals/uchs/pdfs/about-us/umuch_factsheet_120314.pdf, accessed 5 June 2015.

[15]Pines J., McClellan M. "Case Studies in Emergency Medicine: Integrating Care for the Acutely Ill and Injured," available at http://www.brookings.edu/research/papers/2015/05/04-emergency-medicine-case-studies-medtalk, accessed 5 June 2015.

care that puts them at risk for reengaging the ED. Comprehensive care coordination, not just referral services, is provided as well as outreach specifically focused on population engagement. A scoring tool is used to review EHR data and identifies individuals who would most benefit from the outreach. Outcomes data and return on investment are not yet available for this initiative as the clinic began operations in January 2015.

- ***Standardized Care Pathways.*** The Standardized Care Pathways program stems from the variation in care management and admitting patterns by ED physicians. For example, a tool created by the program includes a low-risk chest pain protocol to provide appropriate care while safely reducing inpatient admissions. The protocol consists of activities such as arranging and scheduling a follow-up exercise treadmill test no later than 24 to 72 hours after discharge, which has produced promising results. Approximately 240 individuals have been safely diverted from inpatient admission or observation status since use of the protocol began in October 2014. However, the length of stay in the ED has increased due to testing requirements at the one and three hour mark required by the protocol.

- ***Patient Call Back Program***. The Patient Call Back program is designed to incentivize intervention by ED physicians in the transitions and follow-up care identified after an ED visit. Because ED physicians are not directly reimbursed for cost efficiencies, they are paid to call up to two patients after a shift by their overarching employer, the Maryland Emergency Medicine Network. The program began in January 2015 and provides $20 per call, for up to thirty calls per month. To date, participation in the two EDs that are in the system is at 70%, with a 15% to 30% penetration rate for discharged patients.

Case Comparison

Maryland is a Medicaid expansion state and has a specific waiver issued by the Center for Medicare and Medicaid Innovation (CMMI) to provide for the GBR payment reform features discussed above, which is likely to remain unique to that state. However, the key initiatives could be considered as a platform for innovation and longer term Medicaid ED reform in Oklahoma as the models are used for all payers.

Applying Success in Oklahoma

This multi-pronged approach to better coordination of care requires a great deal of buy in by providers, which is not easy to accomplish. A key to the success of the programs is that there is an employer/employee relationship in place, which fosters the employee compliance with the care and operational changes. There are many SPA opportunities for implementing comprehensive care coordination and incentive programs in Oklahoma. These include a PMPM capitated payment or a shared savings or incentives-based arrangement implemented through a Medicaid integrated care management (ICM) SPA. Consideration should be given to the feasibility of applying this in a statewide initiative due to the operational and financial complexity that will exist outside of the employer/employee environment.

Massachusetts

Pediatric asthma remains a challenging condition in terms of population health and aggregate medical costs. Pediatric asthma diagnosis rates continue to grow, and the fact that more care is being provided in an ED setting, underscores the need for better interventions to manage the

chronic condition. Between 2001 and 2011, the prevalence of pediatric asthma increased nearly 2% nationally and in 2010, Oklahoma spent approximately $5 million in Medicaid funds on pediatric asthma care in the ED.[16] Massachusetts has adopted a Medicaid pediatric asthma pilot program, the MassHealth Pediatric Asthma Bundled Payment Pilot program, intended to improve health outcomes of children with asthma, to reduce asthma-related ED utilization, and ultimately lower associated Medicaid costs.[17] The Centers for Medicare & Medicaid Services (CMS) initially approved the pilot program in December 2011 through a Section 1115 Waiver.

The Massachusetts Pediatric Asthma Bundled Payment Pilot Program is based on a program created by the Children's Hospital of Boston, the Community Asthma Initiative, for high-risk pediatric asthma patients. That initiative focuses on home visits and environmental mitigation tools. The initiative was found to produce total savings of over $500,000 within five years.[18]

Under the MassHealth Pediatric Asthma Bundled Payment Pilot Program, children are eligible for participation if they meet certain qualifications. Qualifications include being between the age of two and eighteen and having "high-risk" asthma, which is defined by an asthma-related hospitalization or ED visit, an oral corticosteroid prescription for asthma in the last twelve months, or another indicator of poor asthma control. The children are also required to receive care at one of the pilot primary care sites enrolled in the program.

The pediatric asthma pilot includes two phases. The first phase provides greater flexibility of coverage for community-prevention services not covered by MassHealth, including community health worker home visits or environmental trigger mitigation supplies reimbursed with a $50 PMPM capitated payment.[19] The second phase will incorporate the experiences of the first phase to develop a Medicaid bundled payment for children with high-risk asthma.

Case Comparison

Fifty-three percent of Massachusetts's Medicaid population is enrolled in managed care.[20] Oklahoma and Massachusetts have a similar composition of pediatric asthma rates. According to the Centers for Disease Control (CDC), the pediatric asthma rates in both states are

---

[16]Pearson W., Goates S., Harrykissoon S., Miller S. "State-Based Medicaid Costs for Pediatric Asthma Emergency Department Visits," available at http://www.cdc.gov/pcd/issues/2014/pdf/14_0139.pdf, accessed 8 June 2015.

[17]Medicaid. "Attachment J Master DSTI Plan," available at http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ma/MassHealth/ma-masshealth-attach-j.pdf, accessed 8 June 2015.

[18]Burton A., Chang D., Gratale D. "Medicaid funding of Community-Based Prevention, Myths, State Successes Overcoming Barriers and the Promise of Integrated Payment Models," available at http://www.nemours.org/content/dam/nemours/wwwv2/filebox/about/Medicaid_Funding_of_Community-Based_Prevention_Final.pdf, accessed 8 June 2015.

[19]The Brookings Institution. "A Case Study in Payment Reform to Support Optimal Pediatric Asthma Care," available at http://www.brookings.edu/~/media/research/files/papers/2015/04/27-asthma-case-study/asthma-case-study.pdf, accessed on 8 June 2015.

[20]The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=MA, accessed 2 June 2015.

approximately the same at 14%.[2122] The Medicaid income threshold for categorically eligible children in Oklahoma is higher than that in Massachusetts (205% versus 150% of the federal poverty level), so the scope of children possibly eligible for a similar program in Oklahoma would be greater.

Applying Success in Oklahoma

ED savings analyses from the MassHealth Pediatric Asthma Pilot program have not yet been reported. While cost savings have not been reported, savings have been found in the Community Asthma Initiative, on which the Pediatric Asthma Pilot program is based.

Massachusetts applied for and received approval for the pilot program through a Section 1115 Medicaid Waiver. While Oklahoma could pursue the same path through a Section 1115 Medicaid Waiver, the Childhood Asthma Leadership Coalition has identified other opportunities to design and receive Medicaid funding for community-based pediatric asthma programs. These options include the following: asthma interventions in non-clinical settings through the early, periodic, screening diagnosis and treatment Medicaid component; asthma interventions furnished by non-traditional providers through preventive benefits under Medicaid; and community-based asthma interventions under Medicaid health homes.[23]

Missouri

In 2010, the Agency for Health Care Research and Quality (AHRQ) reported that one in eight ED visits involved an individual with a mental disorder, substance abuse problem, or both.[24] The connection between mental health needs and ED care is confirmed in this and other reports, and anecdotally from emergency care providers in Oklahoma and across the country. Missouri has worked to better coordinate behavioral health care, which has produced savings by avoiding unnecessary ED visits.

Missouri's behavioral health home initiative was the first to receive CMS approval, granted in 2011, for a Medicaid health home SPA under Section 2703 of the Affordable Care Act (ACA).[25] Since implementation, the behavioral health homes have had the result of keeping Medicaid

---

[21] CDC's National Asthma Control Program. "Asthma in Oklahoma," available at http://www.cdc.gov/asthma/stateprofiles/asthma_in_ok.pdf, accessed 7 June 2015.

[22]CDC's National Asthma Control Program. "Asthma in Massachusetts," available at http://www.cdc.gov/asthma/stateprofiles/asthma_in_ma.pdf, accessed 7 June 2015.

[23]Harty M., Horton K. "Using Medicaid to Advance Community-Based Childhood Asthma Interventions: A Review of Innovative Medicaid Programs in Massachusetts and Opportunities for Expansion under Medicaid Nationwide," available at http://www.nchh.org/Portals/0/Contents/HCF_Community-Based-Asthma-Interventions-and-Medicaid-CALC-White-Paper_2.28.13.pdf, accessed 5 June 2015.

[24]Healthcare Cost and Utilization Project. "Emergency Department Use for Mental and Substance Use Disorders," available at https://www.hcup-us.ahrq.gov/reports/ED_Multivar_Rpt_Revision_Final072010.pdf, accessed 5 June 2015.

[25]Missouri Department of Mental Health. "Community Mental health Center Healthcare Homes," available at http://dmh.mo.gov/mentalillness/mohealthhomes.html, accessed on 4 June 2015.

beneficiaries out of hospitals and EDs, and averted care costs have saved $2.9 million as of 2013.[26]

Missouri's behavioral health home was profiled in a 2012 Kaiser Commission report on Medicaid health homes and chronic conditions.[27] The behavioral health home SPA focuses on Medicaid enrollees who have comorbidities, involving a serious and persistent mental health condition or substance use disorder. An eligible individual must also have more than $10,000 in Medicaid care costs during a twelve month period.

Missouri identifies those that meet these conditions through their Medicaid claims-based electronic health records (EHR) system, CyberAccess. Those identified are then automatically assigned to a health home. The behavioral health homes are community mental health centers with providers that have received additional training on chronic conditions as well as data and analytic tools.[28] Potentially eligible individuals who present in the ED are notified of the health homes and then referred to one. Missouri reimburses health homes directly through a PMPM care coordination fee. The care coordination PMPM payment is in addition to the FFS and managed care plan service payments.

The community medical homes provide mental health services and are required to help navigate and coordinate physical health issues. Specifically, medical homes conduct annual screenings including hypertension, diabetes, obesity, and high cholesterol. They also provide smoking cessation counseling and obesity and weight management services for diabetics. Medical homes assist in behavioral health case management services that include all possible psychosocial issues such as housing, assistance with activities of daily living, and medication adherence. Case managers also schedule and help patients keep appointments.[29]

Case Comparison

Like Oklahoma, Missouri is not a Medicaid expansion state and both states have a similar urban-rural population mix. Ninety-eight percent of Medicaid enrollees in Missouri are in managed care.[30] Capitated arrangements exist for certain geographical areas while others use the PCCM managed care model.

---

[26]Department of Mental Health and MO Healthnet. "Progress Report, Missouri CMHC Healthcare Homes," available at http://dmh.mo.gov/docs/mentalillness/prnov13.pdf, accessed on 4 June 2015.

[27]The Henry J. Kaiser Family Foundation. "Health Homes for Medicaid Beneficiaries with Chronic Conditions," available at http://kff.org/health-reform/issue-brief/health-homes-for-medicaid-beneficiaries-with-chronic/, accessed 4 June 2015.

[28]The Commonwealth Fund. "State in Action Archive," available at http://www.commonwealthfund.org/publications/newsletters/states-in-action/2011/jan/december-2010-january-2011/snapshots/missouri, accessed 2 June 2015.

[29]Ibid.

[30]The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=MO, accessed 2 June 2015.

Applying Success in Oklahoma

Oklahoma may consider reviewing comorbidities of ED patients to ensure that such a strategy appropriately reflects the realities of the SoonerCare Medicaid population that are frequent ED utilizers. Oklahoma could then consider creating and submitting a similar behavioral health home SPA under section 2703 of the ACA. States receive a 90% federal match rate for health home services during the first eight fiscal quarters from the effective date of the SPA. Medicaid reimbursement under a health home arrangement is flexible and can include FFS, a PMPM payment, and tiered shared savings, among other reimbursement options.

Oregon

The Central Oregon Health Council, established in 2009, is a public-private partnership to improve health outcomes in the region, including a particular focus on high health care utilizers. The council's ED diversion project reflects a promising initiative that has reduced non-emergent visits to the ED, and concurrent ED costs in central Oregon. The ED diversion project has been reviewed by the Health Integration Project report, details of which will be discussed further below.[31]

The ED diversion project targeted 144 frequent users, defined as having had ten or more ED visits in a twelve month period. A majority (83) of those targeted were enrolled in Medicaid. Of the 144 targeted frequent users, 79 were enrolled in the project, which included a four-tiered intervention process. The intervention process began with the development of a community wide treatment plan for each frequent user and then shifted to the services of health engagement teams, community health workers (CHWs), and behavioral health consultants.

A central component of the community wide treatment plan is the use of electronic health communication, where a patient's records can be accessed by all regional hospitals and the patient's health home. The community wide treatment plan includes an individualized plan of care with information on patient demographics, patient-centered primary care home (PCPCH) location, primary reasons for ED visits, and other individualized information. The treatment plan is then reviewed by a health engagement team and sent to the patient's PCPCH.

A full health engagement team is composed of a physician, registered nurse (RN) case manager, psychologist or social worker, CHW, and representation from the PCPCH to participate in the collaborative care model. CHWs serve a standout role as a patient advocate or peer and help patients and their families navigate the local health care system, using an approach known as the "Pathways Model" of care. This model identifies a single problem and then provides guidance to the CHW to help the patient through a resolution process. The "Pathways Model" of care has a process in place for resolving more than eighty identified problems, which range from medical home connection to chronic disease management. Additionally, two full-time CHWs have been implanted in three EDs and are able to provide services at the point of contact.

[31]Central Oregon Health Council. "Health Integration Project," available at http://www.apadivisions.org/division-31/news-events/blog/health-care/emergency-department-diversion.pdf, accessed 2 June 2015.

To better address comorbid mental health needs of high utilizers, behavioral health consultants were integrated into the PCPCH of those in need of behavioral health services. Adding behavioral health consultants to the PCPCH has increased compliance with follow-on care from 15% to 90%.[32]

In its first year of implementation, there was a 49% decrease in ED visits between the first six months of 2011 and the same period in 2010. This translates to a reduction of 541 ED visits, approximately 300 visits of which were attributed to Medicaid enrollees. ED savings attributed to Medicaid patients amounted to $3.132 million for just that six month period. Enrollment of subsequent targeted high utilizers in the program in 2011 showed similar progress of reducing repeat ED visits.

Case Comparison

The ED diversion project was implemented pre-Medicaid expansion in Oregon. While Medicaid expansion has the potential to increase the ranks of Medicaid enrollees targeted by the program from 2014 on, the early success of the project measured pre-Medicaid expansion should be comparable for potential implementation in Oklahoma. Approximately 86.5% of Oregon's Medicaid enrollees are in managed care, matching the 86.5% of Oklahoma's Medicaid population in managed care.[33]

Deschutes County, Oregon, which is the main location for the ED diversion project, is composed of both rural and urban populations. The population density of Deschutes County according to the U.S. Department of Agriculture (USDA) rural-urban commuting area codes ranges from 1.4 individuals per square mile to 4,144 individuals per square mile.[34]

Applying Success in Oklahoma

Provider funding for the project was contributed directly from program partners including hospitals and clinics, with a reimbursement plan from PacificSource Health Plans through a shared savings arrangement. Notably; however, the ED diversion project operates as a coordinated care organization with a shared savings model, where providers in Oregon have voluntarily come together to coordinate care and have accountability for the overall costs and quality of that care. Oklahoma could replicate the Oregon ED Diversion Project via an ICM Medicaid SPA or potentially a health homes SPA. Under an ICM arrangement in Medicaid, reimbursement can be flexible and can include FFS or a capitated managed care organization (MCO) and can provide incentive as well as service and care coordination.

---

[32]Ibid.

[33]The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=OR, accessed 2 June 2015.

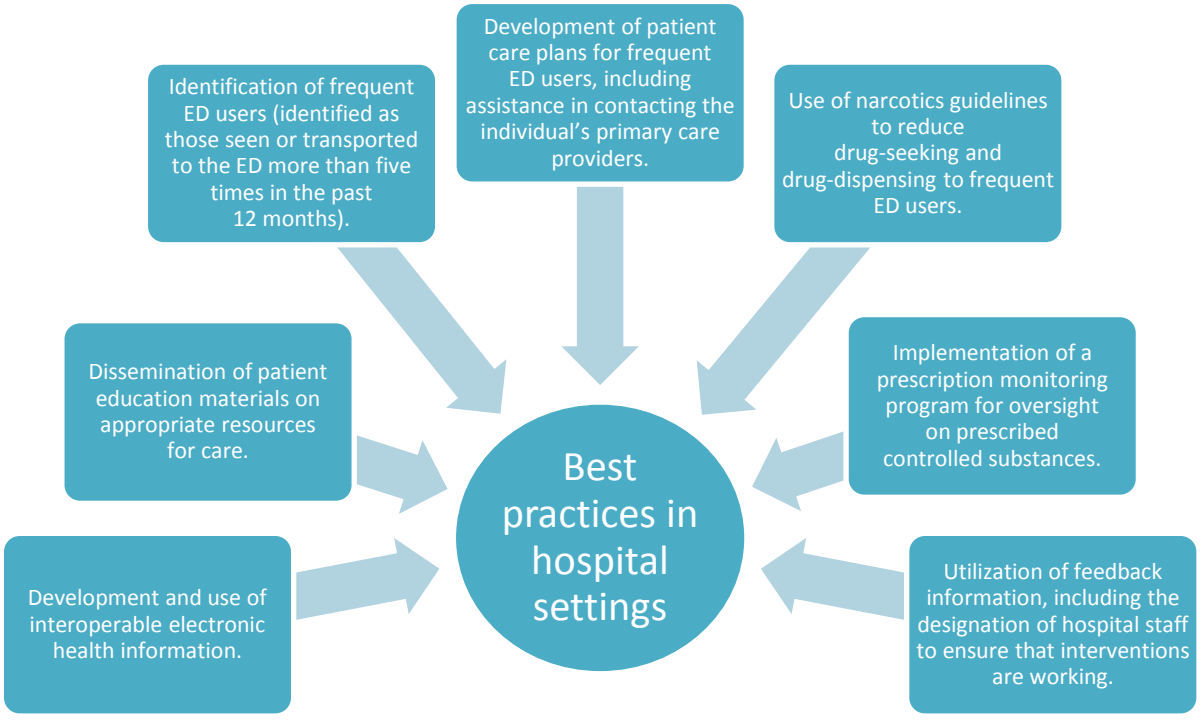
[34]United States Department of Agriculture Economic Research Service. "Rural-Urban Commuting Area Codes," available at http://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx, accessed 6 June 2015.

Washington

Washington State's "ER is for Emergencies" program was formed after notoriety of the Medicaid "Three Visit Rule" and subsequent lawsuit and court ruling against the limitation of ED visits. The original "Three Visit Rule" would have limited Medicaid reimbursements to three "non-emergency" ED visits, defined by a list of conditions considered to be treatable in alternative settings.[35] The "ER is for Emergencies" program was subsequently formed by collaboration between the Washington State Chapter of the American College of Emergency Physicians, the Washington State Medical Association and the Washington State Hospital Association.

Launched in 2012, the "ER is for Emergencies" program focuses on the following seven best practices in hospital settings (as indicated below in Exhibit 21):[36]

Exhibit 21: Best Practices in Hospital Settings



Under the program, hospitals were required to implement the seven best practices presented above, or be subject to nonpayment of non-emergency ED visits. Since implementation in June 2012, all hospitals have incorporated the seven best practices.

---

[35]Washington State Health Care Authority. "2011 Fact Sheet: FAQ: Non-Emergency ER Visit Limit," available at http://www.hca.wa.gov/medicaid/provider/Documents/FAQ_ERVisit.pdf, accessed 6 June 2015.

[36]Washington State Health Care Authority. "ER is for Emergencies, Seven Best Practices," available at https://www.wsha.org/images/activEdit/ERisforEmergenciesSevenPractices.pdf, accessed 6 June 2015.

According to a March 2014 report from the Washington State Health Care Authority, the rate of ED visits declined by 9.9% and the rate of frequent users declined by 10.7% from implementation in June 2012 to June 2013.[37] The Washington State Health Care Authority also reported that savings reached its Medicaid savings goal of $33.6 million in FFS emergency care costs.

As noted in a Brookings report, Washington State did not provide direct funding to hospitals to implement the program.[38] Hospitals incurred upfront and ongoing costs to operate the best practices, including an estimated $10,000 and $20,000 per site to implement the electronic health information exchange (HIE), along with $10,000 to $15,000 per year in annual program costs.

Case Comparison

Washington is a Medicaid expansion state. However, like the case in Oregon, the "ER is for Emergencies" program was implemented pre-Medicaid expansion. While the expansion has the potential to increase the ranks of Medicaid enrollees targeted by the program from 2014 on, the early success of the program in 2011 should be comparable for potential implementation in Oklahoma. Approximately 88% of Washington's Medicaid enrollees are in managed care, approximately the same percentage as Oklahoma.[39] Washington and Oklahoma have a similar urban-rural population mix.

Applying Success in Oklahoma

While the initial approach in Washington State focused on disincentives (that is, nonpayment for non-urgent services), it was modified to reflect a "carrot-stick" model. The same could be done in Oklahoma. As noted in the report, there are alternative payment incentives that could support the development of "ER is for Emergencies" in Oklahoma. These include a PMPM capitated payment or a shared savings arrangement implemented through a Medicaid ICM SPA. Nonpayment after three non-urgent services can also be considered in hospitals that do not adopt the changes.

Wisconsin

The Milwaukee Health Care Partnership is a public/private partnership comprising Milwaukee's five health care systems, four federally qualified health centers (FQHCs), the Medical College of Wisconsin, as well as health departments at the city, county, and state levels. Member organizations commit to leadership and financial resources of a community-wide plan intended

---

[37]Washington State Health Care Authority. "Emergency Department Utilization: Update on Assumed Savings from Best Practices Implementation," available at http://www.hca.wa.gov/documents_legislative/EmergencyDeptUtilization.pdf, accessed 6 June 2015.

[38]The Brookings Institution. "Washington State Medicaid: Implementation and Impact of "ER is for Emergencies" Program," available at http://www.brookings.edu/~/media/Research/Files/Papers/2015/05/04-emergency-medicine/050415EmerMedCaseStudyWash.pdf?la=en, accessed 6 June 2015.

[39]The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=WA, accessed 2 June 2015.

to improve health, reduce health disparities, and reduce total cost of care.[40] In 2007, the Milwaukee Health Care Partnership launched the Emergency Department Care Coordination Initiative, a program to reduce "inappropriate" ED use by Medicaid and uninsured patients, which has resulted in better access to primary care, better linkage to a medical home, and reduced ED visits.

The ED initiative uses a standard process in Milwaukee County EDs and FQHCs to identify targeted patients and refer them to a health home.[41] Designated ED case managers employed by the ED use the regions' HIE to review a patient's medical record to determine whether a patient meets the qualifications of the target population. Patients targeted for the initiative are those who are enrolled in Medicaid or are uninsured, have a chronic condition, are pregnant, or have four or more ED visits over a twelve-month period.

After a patient has been identified, the ED case manager educates patients about appropriate ED use and the importance of having a primary care medical home and then schedules a follow-up appointment with a primary care physician at an FQHC or clinic. An electronic scheduling system known as MyHealthDirect displays available appointments with the FQHCs and clinics, and allows the ED case manager to schedule the appointment directly. Before the medical home appointment, the FQHC or clinic staff calls the patient with encouragement to keep the appointment.

In 2012, ED case managers scheduled more than 6,700 appointments at FQHCs and other safety net clinics. Of the appointments scheduled at FQHCs, 41% were fulfilled the first time. Fifty-seven percent of those patients, who kept their initial appointment, returned for a second appointment within six months. For patients who kept their scheduled appointments, there was a 44% reduction in the number of ED visits.[42]

Case Comparison

Wisconsin, like Oklahoma, is not a Medicaid expansion state. The percentage of Wisconsin's Medicaid population that is enrolled in managed care is 63.7%.[43] While Wisconsin as a whole reflects a similar urban-rural population mix as in Oklahoma, Milwaukee County where the program was implemented, is primarily urban according to the USDA rural-urban commuting

[40] Milwaukee Health Care Partnership. "The Partnership," available at http://www.froedtert.com/upload/docs/giving/community-benefit/milwaukee-health-care-partnership.pdf, accessed 4 June 2015.

[41] Agency for Healthcare Research and Quality. "Emergency Department-Based Case Managers throughout County Electronically Schedule Clinic Appointments for Underserved Patients, Allowing Many to Establish a Medical Home," available at https://innovations.ahrq.gov/node/4993, accessed 4 June 2015.

[42] Ibid.

[43] The Henry J. Kaiser Family Foundation. "Total Medicaid Managed Care Enrollment," available at http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/?state=WI, accessed 2 June 2015.

area codes.[44] For comparison purposes, the examples provided in the Milwaukee initiative could best be applied to urban settings in Oklahoma.

Applying Success in Oklahoma

The participating hospitals, the FQHCs, the State of Wisconsin, and the Robert Wood Johnson Foundation provide operating costs for the initiative. A similar ED care coordination initiative could be applied in Oklahoma through a Medicaid enhanced or primary care case management arrangement. Reimbursement for case management could be defined as a FFS payment, case management, or care coordination fee with the potential for shared savings in a SPA. It should be noted that operating costs provided by non-state entities, including the Robert Wood Johnson Foundation, hospitals, and FQHCs constitute a "donation" and cannot be counted towards a federal Medicaid match.

[44]United States Department of Agriculture Economic Research Service. "Rural-Urban Commuting Area Codes," available at http://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx, accessed 2 June 2015.

6

Conclusion

With the mission "…to responsibly purchase state and federally funded health care in the most efficient and comprehensive manner possible; and to analyze and recommend strategies for optimizing the accessibility and quality of health care; and to cultivate relationships to improve the health outcomes of Oklahomans," the OHCA is looking to fully understand emergency department (ED) utilization in the state and employ strategies for most appropriately managing utilization in the best manner for their SoonerCare population. The state of Oklahoma is not alone in the challenges it faces managing ED utilization. This is a multifaceted issue facing all states and delivery systems including fee-for-service (FFS) and capitated managed care. There are multiple stakeholders, sometimes with competing interests and needs. As evidenced in Oklahoma's health management and care management programs, there is no one technique that works for all members. There is no one approach that fits all, no silver bullet.

Exhibit 22: The Role of Key Stakeholders in ED Utilization

The graphic above (Exhibit 22) represents key stakeholders that have a role in ED utilization. Data (both qualitative and quantitative) from each of these stakeholders was used throughout this report.

What is the role of the member in ED utilization? There are times and events where an ED visit is the most appropriate course of action for a member to ensure his or her health and safety. However, both the statistical information presented in this report as well as anecdotal information gathered throughout the project indicate that there are ED visits that meet OHCA's definition of primary care treatable/low-acuity non-emergent (PCT/LANE). Some ED visits are a matter of convenience; the ED is open 24 hours a day, 7 days a week, 365 days per year, no appointment needed. For some members going to the ED has become a matter of routine; it is considered the primary resource for medical care.

What is the role of hospitals in ED utilization? EDs are very important and serve a key role in the hospital system and health care delivery. They are also an important revenue stream for

hospitals. As such, it is in the hospital's interest to advertise the services and convenience available. However, the opportunity for revenue and drawing patients in has led to some challenges for hospitals in overcrowding, patient management, and use of the ED for primary care treatable/low-acuity non-emergent (PCT/LANE) conditions.

What is the role of the primary care provider (PCP) in ED utilization? As evidenced by Oklahoma Health Care Authority (OHCA) program initiatives, PCPs are considered a key link to high quality health care for SoonerCare members and have an opportunity to impact ED utilization. As the data show in this evaluation, physical proximity to a member's PCP may impact the number of ED visits. One challenge is the limited number of PCPs, particularly those providing care to SoonerCare members, throughout the state. Fewer PCPs results in less availability of primary care. Additionally, in contrast to EDs, who are always open, PCP practices have scheduled office hours with specific appointment availability and may be perceived as inconvenient.

While initiatives are often focused on one of the stakeholders or topics described above, the most positive outcomes are often realized when ED utilization is addressed with members, hospitals and PCPs as a whole.

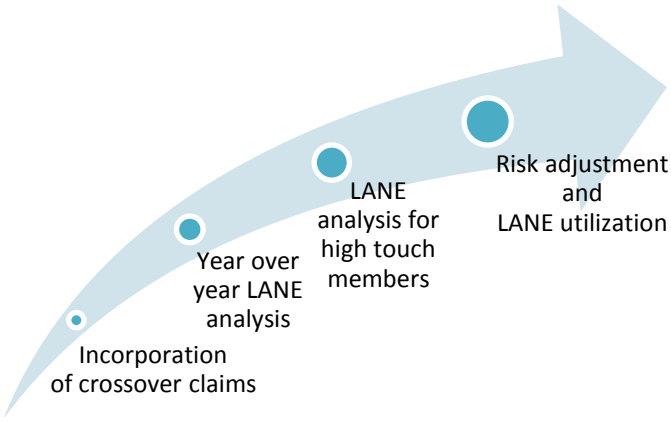
Although the OHCA is not an individual receiving or providing direct care it does have a role in ED utilization. As described in the early sections of this report, the SoonerCare Choice delivery model developed by the state provides additional reimbursement to a PCP selected by a member serving as a medical home to engage that member in care through proactive outreach, delivery of care coordination services and/or linking them to community programs and services in an effort to assist the member in navigating the health care system and receiving care in the most appropriate and cost effective setting.

In addition to the delivery models the OHCA has also developed several initiatives to assist members and ensure high quality care and health outcomes while managing cost. Continued development of the health access network (HAN) and recognition of provider practices as patient centered medical homes as well as the care coordination and case management services provided by the state to members who have need of these services provide opportunity for the OHCA to impact utilization of the ED for those conditions that are considered primary care treatable/low-acuity non-emergent (PCT/LANE).

Next Steps for Analysis

There are additional analysis steps that Mercer would propose to develop an even more complete picture of ED utilization as presented in Exhibit 23.

Exhibit 23: Next Steps for Analysis



This report presents information based on data available for the eighteen month time period July 2012 through December 2013 for claims paid by Medicaid. Incorporating crossover claims for beneficiaries who are dually eligible for Medicare and Medicaid would provide a more robust picture of ED utilization and may allow for more reliable delivery system and intervention analysis.

As more data are analyzed over a longer period of time there will be opportunity to identify trends in ED utilization, particularly for primary care treatable/low-acuity non-emergent (PCT/LANE) ED visits. Over time more and more SoonerCare members have been engaged in SoonerCare Choice while at the same time more and more providers have established a patient-centered medical home (PCMH) and are providing primary care case management (PCCM) services. Evaluating the impact of these care delivery changes and the impact they have on ED utilization and primary care treatable/low-acuity non-emergent (PCT/LANE) utilization in particular will be very valuable.

In addition to evaluating changes in delivery over time, developing a methodology for analyzing members based on periods of enrollment in the various OHCA initiatives and engagement with PCPs and care managers would be beneficial. Do those members who have more intensive case management or strong engagement with PCPs use the ED less or for fewer primary care treatable/low-acuity non-emergent (PCT/LANE) visits?

Risk adjustment is used for a variety of purposes in the health care industry. Because of differences in health status and treatment needs, utilization and cost of health care will vary from person to person. By measuring the relationship between these demographic characteristics, health conditions and costs for a large group, a formula is developed to calculate a risk score for each individual. A risk score is an individual's relative cost compared with the average for the population. For example, a 50 year old enrollee who is diabetic and has a hypertension diagnosis may be expected to cost 40 percent more than average. A child who has asthma may

be expected to cost 20 percent more than average. Conducting risk analysis on the Medicaid population, evaluating ED utilization, and particularly primary care treatable/low-acuity non-emergent (PCT/LANE) utilization based on various risk populations may be very helpful in evaluating the impact of OHCA initiatives and targeting future initiatives.

APPENDIX A

Interview Guide for Primary Care Treatable/Low-Acuity Non-Emergent (PCT/LANE) Definition Development

Emergency Department Utilization — Understanding What is "Avoidable/Inappropriate"

The Oklahoma Health Care Authority has engaged Mercer Government Human Services Consulting to research and analyze emergency department (ED) utilization in the state of Oklahoma. Mercer would like to facilitate a discussion with you to understand your/your organization's interpretation and application of issues related to ED utilization. The information will be used to inform our research and aid in the interpretation of the Health Care Authority data.

One task in the project is to understand how providers in Oklahoma define "inappropriate" ED utilization. As a 2012 article in the American Journal of Managed care stated:

> *"Terms like unnecessary, avoidable, preventable, ambulatory-case sensitive, inappropriate, non-urgent, and low-acuity lack precise definitions and are used interchangeably despite subtle differences. They may refer to encounters for conditions that are not life-threatening, not time-sensitive, capable of improving without intervention, or better suited for different settings. They may suggest visits preventable through better primary care or public health measures or those for alternative purposes like seeking food, shelter, or narcotic medication."*[45]

1. Which terms (unnecessary, avoidable, preventable, ambulatory-case sensitive, inappropriate, non-urgent, and low-acuity) do you hear most frequently?

2. How is the medical community in Oklahoma interpreting the various terms?

3. Has your organization developed a formal position on the best term to describe these types of ED visits? How did you reach this consensus?

[45] Sofie Rahman Morgan, MD, MBA; Meaghan A. Smith, BS; Stephen R. Pitts, MD, MPH; Robert Shesser, MD, MPH; Lori Uscher-Pines, PhD, MSc; Michael J. Ward, MD, MBA; and Jesse M. Pines, MD, MBA, MSCE
http://www.ajmc.com/publications/issue/2012/2012-9-vol18-n9/measuring-value-for-low-acuity-care-across-settings

A second task as part of the research is to understand how the medical community (particularly hospitals/providers in hospitals) manages expectations of the Emergency Medical Treatment and Labor Act (EMTALA) in the current environment.

1. What types of guidance and or formal interpretations of EMTALA has your organization provided?

2. In practice, how is EMTALA managed in various settings?

APPENDIX B

Statistical Analysis Tables

Table 1: Demographic Summary of SoonerCare Members

		SoonerCare Members			
		All Members (N=1,126,223)		Members with at least one ED Visit (N=384,774)	
Demographic		Count	Percent	Count	Percent
Total population		1,126,223	100.0%	384,774	100.0%
Age Group	Newborn	6,435	0.6%	231	0.1%
	Infant	84,550	7.5%	35,794	9.3%
	2-10	320,100	28.4%	118,316	30.7%
	11-20	253,898	22.5%	79,515	20.7%
	21-64	388,740	34.5%	123,874	32.2%
	65+	72,500	6.4%	27,044	7.0%
Gender	Female	650,011	57.7%	225,502	58.6%
	Male	476,212	42.3%	159,272	41.4%
Race	American Indian or Alaskan Native	120,412	10.7%	38,460	10.0%
	Asian	17,205	1.5%	2,984	0.8%
	Black or African American	135,561	12.0%	52,062	13.5%
	Caucasian	743,194	66.0%	251,546	65.4%
	Multiracial	81,889	7.3%	30,201	7.8%
	Native Hawaiian or Other Pacific Islander	3,254	0.3%	973	0.3%
	Declined to answer	24,708	2.2%	8,548	2.2%
Ethnicity	Hispanic/Latino	180,759	16.1%	54,314	14.1%
	Non-Hispanic/ Latino	945,464	83.9%	330,460	85.9%
County	ADAIR	10,951	1.0%	4,127	1.1%
	ALFALFA	1,159	0.1%	329	0.1%
	ATOKA	4,750	0.4%	1,477	0.4%
	BEAVER	1,037	0.1%	248	0.1%
	BECKHAM	6,675	0.6%	2,429	0.6%
	BLAINE	3,558	0.3%	1,240	0.3%
	BRYAN	16,336	1.5%	6,260	1.6%
	CADDO	11,340	1.0%	3,557	0.9%
	CANADIAN	21,836	1.9%	6,633	1.7%
	CARTER	17,574	1.6%	6,526	1.7%
	CHEROKEE	15,789	1.4%	5,233	1.4%
	CHOCTAW	6,970	0.6%	2,515	0.7%
	CIMARRON	722	0.1%	220	0.1%
	CLEVELAND	48,781	4.3%	17,361	4.5%
	COAL	2,161	0.2%	775	0.2%

Demographic		SoonerCare Members			
		All Members (N=1,126,223)		Members with at least one ED Visit (N=384,774)	
		Count	Percent	Count	Percent
	COMANCHE	33,034	2.9%	11,112	2.9%
	COTTON	1,831	0.2%	569	0.1%
	CRAIG	5,289	0.5%	2,051	0.5%
	CREEK	22,613	2.0%	8,021	2.1%
	CUSTER	7,747	0.7%	2,487	0.6%
	DELAWARE	13,274	1.2%	4,418	1.1%
	DEWEY	1,115	0.1%	341	0.1%
	ELLIS	719	0.1%	224	0.1%
	GARFIELD	18,112	1.6%	6,417	1.7%
	GARVIN	9,208	0.8%	3,210	0.8%
	GRADY	12,631	1.1%	4,441	1.2%
	GRANT	1,057	0.1%	342	0.1%
	GREER	1,898	0.2%	745	0.2%
	HARMON	1,109	0.1%	485	0.1%
	HARPER	851	0.1%	211	0.1%
	HASKELL	5,326	0.5%	1,800	0.5%
	HUGHES	4,904	0.4%	1,847	0.5%
	JACKSON	8,224	0.7%	3,237	0.8%
	JEFFERSON	2,692	0.2%	1,028	0.3%
	JOHNSTON	4,382	0.4%	1,554	0.4%
	KAY	17,097	1.5%	6,531	1.7%
	KINGFISHER	3,740	0.3%	1,012	0.3%
	KIOWA	3,337	0.3%	1,235	0.3%
	LATIMER	3,926	0.3%	959	0.2%
	LEFLORE	18,539	1.6%	6,408	1.7%
	LINCOLN	9,757	0.9%	3,395	0.9%
	LOGAN	9,495	0.8%	3,189	0.8%
	LOVE	3,151	0.3%	1,112	0.3%
	MAJOR	1,793	0.2%	526	0.1%
	MARSHALL	5,646	0.5%	2,288	0.6%
	MAYES	14,282	1.3%	4,928	1.3%
	MCCLAIN	8,739	0.8%	3,226	0.8%
	MCCURTAIN	15,205	1.4%	4,976	1.3%
	MCINTOSH	7,211	0.6%	2,463	0.6%
	MURRAY	4,103	0.4%	1,591	0.4%
	MUSKOGEE	26,768	2.4%	8,922	2.3%
	NOBLE	3,107	0.3%	1,078	0.3%
	NOWATA	3,203	0.3%	1,080	0.3%
	OKFUSKEE	4,897	0.4%	1,282	0.3%
	OKLAHOMA	222,595	19.8%	81,405	21.2%

Demographic		SoonerCare Members			
		All Members (N=1,126,223)		Members with at least one ED Visit (N=384,774)	
		Count	Percent	Count	Percent
	OKMULGEE	14,455	1.3%	5,285	1.4%
	OSAGE	7,641	0.7%	2,810	0.7%
	OTTAWA	13,937	1.2%	5,359	1.4%
	PAWNEE	5,519	0.5%	1,910	0.5%
	PAYNE	17,052	1.5%	5,377	1.4%
	PITTSBURG	14,141	1.3%	4,569	1.2%
	PONTOTOC	12,220	1.1%	3,593	0.9%
	POTTAWATOMIE	25,004	2.2%	9,205	2.4%
	PUSHMATAHA	4,497	0.4%	1,315	0.3%
	ROGER MILLS	776	0.1%	230	0.1%
	ROGERS	19,794	1.8%	5,851	1.5%
	SEMINOLE	10,106	0.9%	3,876	1.0%
	SEQUOYAH	17,071	1.5%	6,726	1.7%
	STEPHENS	13,188	1.2%	5,045	1.3%
	TEXAS	6,310	0.6%	1,283	0.3%
	TILLMAN	3,020	0.3%	1,114	0.3%
	TULSA	177,403	15.8%	53,739	14.0%
	WAGONER	15,964	1.4%	4,505	1.2%
	WASHINGTON	13,157	1.2%	4,771	1.2%
	WASHITA	2,996	0.3%	1,040	0.3%
	WOODS	1,776	0.2%	562	0.1%
	WOODWARD	5,295	0.5%	2,086	0.5%
	OTHER	12,655	1.1%	3,447	0.9%
County Type	Rural	525,673	46.7%	183,475	47.7%
	Urban	587,895	52.2%	197,852	51.4%
	OTHER	12,655	1.1%	3,447	0.9%
Aid Category	ABD	185,675	16.5%	94,160	24.5%
	BCC	1,484	0.1%	467	0.1%
	Family Planning	90,161	8.0%	46	0.0%
	Insure Oklahoma	47,815	4.2%	5,046	1.3%
	TANF	773,186	68.7%	284,883	74.0%
	TEFRA	515	0.0%	72	0.0%
	OTHER	27,387	2.4%	100	0.0%
Dual	No	990,671	88.0%	328,911	85.5%
	Yes	135,552	12.0%	55,863	14.5%
Part A	Yes	135,309	12.0%	55,768	14.5%
Part B	Yes	133,415	11.8%	55,084	14.3%
Pregnant	No	1,068,927	94.9%	363,130	94.4%
	Yes	57,296	5.1%	21,644	5.6%
HAN	No	972,253	86.3%	324,495	84.3%

Demographic		SoonerCare Members			
		All Members (N=1,126,223)		Members with at least one ED Visit (N=384,774)	
		Count	Percent	Count	Percent
	Yes	153,970	13.7%	60,279	15.7%
HMP	No	1,118,508	99.3%	379,538	98.6%
	Yes	7,715	0.7%	5,236	1.4%
Distance to Closest Hospital*	0-5 miles	781,370	69.4%	272,909	70.9%
	>5-10 miles	148,389	13.2%	48,208	12.5%
	>10-30 miles	172,656	15.3%	56,378	14.7%
	>30-50 miles	1,638	0.1%	480	0.1%
	>50 miles	9,425	0.8%	3,325	0.9%
	NA	12,745	1.1%	3,474	0.9%
Distance to Closest PCP*	0-5 miles	950,880	84.4%	327,556	85.1%
	>5-10 miles	113,904	10.1%	37,643	9.8%
	>10-30 miles	39,189	3.5%	12,747	3.3%
	>30-50 miles	837	0.1%	307	0.1%
	>50 miles	8,668	0.8%	3,047	0.8%
	NA	12,745	1.1%	3,474	0.9%
Distance to Chosen PCP*^	0-5 miles	345,031	30.6%	133,282	34.6%
	>5-10 miles	135,583	12.0%	52,926	13.8%
	>10-30 miles	153,202	13.6%	61,384	16.0%
	>30-50 miles	22,468	2.0%	9,545	2.5%
	>50 miles	26,960	2.4%	11,760	3.1%
	NA	442,979	39.3%	115,877	30.1%

*Straight-line distance calculated to nearest Hospital/PCP, chosen PCP.

^Only SC Choice members choose a PCP. Members with NA in this field are either in SC Traditional, or with home address in 'OTHER' County.

Table 2: Demographic Summary of SoonerCare Choice and SoonerCare Traditional Medicaid Members

		SoonerCare Choice Members				SoonerCare Traditional Members			
		All Members (N=688,820)		Members with at least one ED Visit (N=270,341)		All Members (N=437,403)		Members with at least one ED Visit (N=114,433)	
Demographic		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Total population		688,820	61.2%	270,341	70.3%	437,403	38.8%	114,433	29.7%
Age Group	Newborn	5,150	0.7%	204	0.1%	1,285	0.3%	27	0.0%
	Infant	74,185	10.8%	32,342	12.0%	10,365	2.4%	3,452	3.0%
	2-10	270,112	39.2%	102,681	38.0%	49,988	11.4%	15,635	13.7%
	11-20	196,769	28.6%	65,317	24.2%	57,129	13.1%	14,198	12.4%
	21-64	142,579	20.7%	69,617	25.8%	246,161	56.3%	54,257	47.4%
	65+	25	0.0%	180	0.1%	72,475	16.6%	26,864	23.5%
Gender	Female	377,600	54.8%	154,598	57.2%	272,411	62.3%	70,904	62.0%
	Male	311,220	45.2%	115,743	42.8%	164,992	37.7%	43,529	38.0%
Race	American Indian or Alaskan Native	61,529	8.9%	23,863	8.8%	58,883	13.5%	14,597	12.8%
	Asian	9,453	1.4%	1,920	0.7%	7,752	1.8%	1,064	0.9%
	Black or African American	86,861	12.6%	37,127	13.7%	48,700	11.1%	14,935	13.1%
	Caucasian	453,684	65.9%	176,301	65.2%	289,510	66.2%	75,245	65.8%
	Multiracial	55,610	8.1%	22,803	8.4%	26,279	6.0%	7,398	6.5%
	Native Hawaiian or Other Pacific Islander	2,343	0.3%	848	0.3%	911	0.2%	125	0.177%
	Declined to answer	19,340	2.8%	7,479	2.8%	5,368	1.2%	1,069	0.9%
Ethnicity	Hispanic/Latino	127,502	18.5%	45,324	16.8%	53,257	12.2%	8,990	7.9%
	Non-Hispanic/ Latino	561,318	81.5%	225,017	83.2%	384,146	87.8%	105,443	92.1%
County	ADAIR	5,956	0.9%	2,642	1.0%	4,995	1.1%	1,485	1.3%
	ALFALFA	782	0.1%	246	0.1%	377	0.1%	83	0.1%
	ATOKA	2,873	0.4%	940	0.3%	1,877	0.4%	537	0.5%
	BEAVER	742	0.1%	191	0.1%	295	0.1%	57	0.0%
	BECKHAM	3,933	0.6%	1,589	0.6%	2,742	0.6%	840	0.7%
	BLAINE	2,239	0.3%	865	0.3%	1,319	0.3%	375	0.3%
	BRYAN	10,230	1.5%	4,523	1.7%	6,106	1.4%	1,737	1.5%
	CADDO	6,100	0.9%	2,333	0.9%	5,240	1.2%	1,224	1.1%
	CANADIAN	14,085	2.0%	4,903	1.8%	7,751	1.8%	1,730	1.5%
	CARTER	10,965	1.6%	4,725	1.7%	6,609	1.5%	1,801	1.6%
	CHEROKEE	8,422	1.2%	3,390	1.3%	7,367	1.7%	1,843	1.6%
	CHOCTAW	4,315	0.6%	1,610	0.6%	2,655	0.6%	905	0.8%
	CIMARRON	528	0.1%	174	0.1%	194	0.0%	46	0.0%
	CLEVELAND	30,919	4.5%	12,958	4.8%	17,862	4.1%	4,403	3.8%
	COAL	1,219	0.2%	512	0.2%	942	0.2%	263	0.2%
	COMANCHE	18,707	2.7%	7,723	2.9%	14,327	3.3%	3,389	3.0%
	COTTON	905	0.1%	345	0.1%	926	0.2%	224	0.2%

		SoonerCare Choice Members				SoonerCare Traditional Members			
		All Members (N=688,820)		Members with at least one ED Visit (N=270,341)		All Members (N=437,403)		Members with at least one ED Visit (N=114,433)	
Demographic		Count	Percent	Count	Percent	Count	Percent	Count	Percent
	CRAIG	2,840	0.4%	1,328	0.5%	2,449	0.6%	723	0.6%
	CREEK	13,670	2.0%	5,720	2.1%	8,943	2.0%	2,301	2.0%
	CUSTER	4,668	0.7%	1,698	0.6%	3,079	0.7%	789	0.7%
	DELAWARE	6,737	1.0%	2,489	0.9%	6,537	1.5%	1,929	1.7%
	DEWEY	719	0.1%	240	0.1%	396	0.1%	101	0.1%
	ELLIS	500	0.1%	176	0.1%	219	0.1%	48	0.0%
	GARFIELD	11,206	1.6%	4,613	1.7%	6,906	1.6%	1,804	1.6%
	GARVIN	5,530	0.8%	2,230	0.8%	3,678	0.8%	980	0.9%
	GRADY	7,706	1.1%	3,105	1.1%	4,925	1.1%	1,336	1.2%
	GRANT	681	0.1%	240	0.1%	376	0.1%	102	0.1%
	GREER	1,116	0.2%	480	0.2%	782	0.2%	265	0.2%
	HARMON	732	0.1%	357	0.1%	377	0.1%	128	0.1%
	HARPER	585	0.1%	143	0.1%	266	0.1%	68	0.1%
	HASKELL	3,186	0.5%	1,196	0.4%	2,140	0.5%	604	0.5%
	HUGHES	2,749	0.4%	1,185	0.4%	2,155	0.5%	662	0.6%
	JACKSON	5,091	0.7%	2,282	0.8%	3,133	0.7%	955	0.8%
	JEFFERSON	1,717	0.2%	750	0.3%	975	0.2%	278	0.2%
	JOHNSTON	2,630	0.4%	1,056	0.4%	1,752	0.4%	498	0.4%
	KAY	10,856	1.6%	4,729	1.7%	6,241	1.4%	1,802	1.6%
	KINGFISHER	2,549	0.4%	809	0.3%	1,191	0.3%	203	0.2%
	KIOWA	1,910	0.3%	808	0.3%	1,427	0.3%	427	0.4%
	LATIMER	1,917	0.3%	620	0.2%	2,009	0.5%	339	0.3%
	LEFLORE	10,679	1.6%	4,092	1.5%	7,860	1.8%	2,316	2.0%
	LINCOLN	5,840	0.8%	2,407	0.9%	3,917	0.9%	988	0.9%
	LOGAN	5,592	0.8%	2,263	0.8%	3,903	0.9%	926	0.8%
	LOVE	2,077	0.3%	818	0.3%	1,074	0.2%	294	0.3%
	MAJOR	1,192	0.2%	392	0.1%	601	0.1%	134	0.1%
	MARSHALL	3,649	0.5%	1,678	0.6%	1,997	0.5%	610	0.5%
	MAYES	8,184	1.2%	3,213	1.2%	6,098	1.4%	1,715	1.5%
	MCCLAIN	5,628	0.8%	2,381	0.9%	3,111	0.7%	845	0.7%
	MCCURTAIN	9,206	1.3%	3,178	1.2%	5,999	1.4%	1,798	1.6%
	MCINTOSH	3,794	0.6%	1,466	0.5%	3,417	0.8%	997	0.9%
	MURRAY	2,320	0.3%	1,102	0.4%	1,783	0.4%	489	0.4%
	MUSKOGEE	15,397	2.2%	5,714	2.1%	11,371	2.6%	3,208	2.8%
	NOBLE	1,940	0.3%	780	0.3%	1,167	0.3%	298	0.3%
	NOWATA	1,802	0.3%	699	0.3%	1,401	0.3%	381	0.3%
	OKFUSKEE	2,381	0.3%	616	0.2%	2,516	0.6%	666	0.6%
	OKLAHOMA	146,305	21.2%	60,515	22.4%	76,290	17.4%	20,890	18.3%
	OKMULGEE	7,764	1.1%	3,281	1.2%	6,691	1.5%	2,004	1.8%
	OSAGE	4,040	0.6%	1,707	0.6%	3,601	0.8%	1,103	1.0%

		SoonerCare Choice Members				SoonerCare Traditional Members			
		All Members (N=688,820)		Members with at least one ED Visit (N=270,341)		All Members (N=437,403)		Members with at least one ED Visit (N=114,433)	
Demographic		Count	Percent	Count	Percent	Count	Percent	Count	Percent
	OTTAWA	8,188	1.2%	3,650	1.4%	5,749	1.3%	1,709	1.5%
	PAWNEE	3,289	0.5%	1,325	0.5%	2,230	0.5%	585	0.5%
	PAYNE	10,097	1.5%	3,720	1.4%	6,955	1.6%	1,657	1.4%
	PITTSBURG	8,292	1.2%	3,004	1.1%	5,849	1.3%	1,565	1.4%
	PONTOTOC	5,917	0.9%	2,120	0.8%	6,303	1.4%	1,473	1.3%
	POTTAWATOMIE	13,344	1.9%	5,890	2.2%	11,660	2.7%	3,315	2.9%
	PUSHMATAHA	2,467	0.4%	805	0.3%	2,030	0.5%	510	0.4%
	ROGER MILLS	535	0.1%	160	0.1%	241	0.1%	70	0.1%
	ROGERS	11,633	1.7%	3,999	1.5%	8,161	1.9%	1,852	1.6%
	SEMINOLE	5,647	0.8%	2,513	0.9%	4,459	1.0%	1,363	1.2%
	SEQUOYAH	9,438	1.4%	4,263	1.6%	7,633	1.7%	2,463	2.2%
	STEPHENS	8,436	1.2%	3,662	1.4%	4,752	1.1%	1,383	1.2%
	TEXAS	4,472	0.6%	1,010	0.4%	1,838	0.4%	273	0.2%
	TILLMAN	2,000	0.3%	832	0.3%	1,020	0.2%	282	0.2%
	TULSA	115,295	16.7%	39,699	14.7%	62,108	14.2%	14,040	12.3%
	WAGONER	9,944	1.4%	3,309	1.2%	6,020	1.4%	1,196	1.0%
	WASHINGTON	7,755	1.1%	3,327	1.2%	5,402	1.2%	1,444	1.3%
	WASHITA	1,952	0.3%	752	0.3%	1,044	0.2%	288	0.3%
	WOODS	990	0.1%	383	0.1%	786	0.2%	179	0.2%
	WOODWARD	3,574	0.5%	1,570	0.6%	1,721	0.4%	516	0.5%
	OTHER	5,550	0.8%	2,123	0.8%	7,105	1.6%	1,324	1.2%
County Type	Rural	307,452	44.6%	123,041	45.5%	218,221	49.9%	60,434	52.8%
	Urban	375,818	54.6%	145,177	53.7%	212,077	48.5%	52,675	46.0%
	OTHER	5,550	0.8%	2,123	0.8%	7,105	1.6%	1,324	1.2%
Aid Category	ABD	50,274	7.3%	27,754	10.3%	135,401	31.0%	66,406	58.0%
	BCC	476	0.1%	179	0.1%	1,008	0.2%	288	0.3%
	Family Planning	5	0.0%	1	0.0%	90,156	20.6%	45	0.0%
	Insure Oklahoma	.	.	.	.	47,815	10.9%	5,046	4.4%
	TANF	637,639	92.6%	242,344	89.6%	135,547	31.0%	42,539	37.2%
	TEFRA	282	0.0%	49	0.0%	233	0.1%	23	0.0%
	OTHER	144	0.0%	14	0.0%	27,243	6.2%	86	0.1%
Dual	No	688,672	100.0%	269,469	99.7%	301,999	69.0%	59,442	51.9%
	Yes	148	0.0%	872	0.3%	135,404	31.0%	54,991	48.1%
Part A	Yes	146	0.0%	868	0.3%	135,163	30.9%	54,900	48.0%
Part B	Yes	53	0.0%	758	0.3%	133,362	30.5%	54,326	47.5%
Pregnant	No	649,123	94.2%	253,351	93.7%	419,804	96.0%	109,779	95.9%
	Yes	39,697	5.8%	16,990	6.3%	17,599	4.0%	4,654	4.1%
HAN	No	534,850	77.6%	210,062	77.7%	437,403	100.0%	114,433	100.0%
	Yes	153,970	22.4%	60,279	22.3%	.	.	.	.
HMP	No	682,415	99.1%	265,833	98.3%	436,093	99.7%	113,705	99.4%

		SoonerCare Choice Members				SoonerCare Traditional Members			
		All Members (N=688,820)		Members with at least one ED Visit (N=270,341)		All Members (N=437,403)		Members with at least one ED Visit (N=114,433)	
Demographic		Count	Percent	Count	Percent	Count	Percent	Count	Percent
	Yes	6,405	0.9%	4,508	1.7%	1,310	0.3%	728	0.6%
Distance to Closest Hospital*	0-5 miles	485,693	70.5%	194,636	72.0%	295,677	67.6%	78,273	68.4%
	>5-10 miles	89,443	13.0%	33,499	12.4%	58,946	13.5%	14,709	12.9%
	>10-30 miles	102,328	14.9%	38,024	14.1%	70,328	16.1%	18,354	16.0%
	>30-50 miles	875	0.1%	260	0.1%	763	0.2%	220	0.2%
	>50 miles	4,905	0.7%	1,786	0.7%	4,520	1.0%	1,539	1.3%
	NA	5,576	0.8%	2,136	0.8%	7,169	1.6%	1,338	1.2%
Distance to Closest PCP*	0-5 miles	587,281	85.3%	232,182	85.9%	363,599	83.1%	95,374	83.3%
	>5-10 miles	67,459	9.8%	25,735	9.5%	46,445	10.6%	11,908	10.4%
	>10-30 miles	23,556	3.4%	8,501	3.1%	15,633	3.6%	4,246	3.7%
	>30-50 miles	419	0.1%	150	0.1%	418	0.1%	157	0.1%
	>50 miles	4,529	0.7%	1,637	0.6%	4,139	0.9%	1,410	1.2%
	NA	5,576	0.8%	2,136	0.8%	7,169	1.6%	1,338	1.2%
Distance to Chosen PCP*^	0-5 miles	345,031	50.1%	125,553	46.4%	.	.	7,729	6.8%
	>5-10 miles	135,583	19.7%	49,966	18.5%	.	.	2,960	2.6%
	>10-30 miles	153,202	22.2%	57,798	21.4%	.	.	3,586	3.1%
	>30-50 miles	22,468	3.3%	8,950	3.3%	.	.	595	0.5%
	>50 miles	26,960	3.9%	10,895	4.0%	.	.	865	0.8%
	NA	5,576	0.8%	17,179	6.4%	437,403	100.0%	98,698	86.2%

*Straight-line distance calculated to nearest Hospital/PCP, chosen PCP.

^Only SC Choice members choose a PCP. Members with NA in this field are either in SC Traditional, or with home address in 'OTHER' County.

Table 3: Frequency Distribution of ED Visits by SoonerCare Medicaid Members (N=1,126,233)

Number of Visits	Members	Percent
0 Visits	741,449	65.8%
1 Visit	189,244	16.8%
2 Visits	85,158	7.6%
3 Visits	43,776	3.9%
4 Visits	23,844	2.1%
5 Visits	14,094	1.3%
6 Visits	8,715	0.8%
7 Visits	5,421	0.5%
8 Visits	3,534	0.3%
9 Visits	2,509	0.2%
10 Visits	1,816	0.2%
11 to 20 Visits	5,362	0.5%
21 to 30 Visits	847	0.1%
31 to 40 Visits	217	0.0%
41 to 50 Visits	106	0.0%
51 Visits or More	131	0.0%

Table 4: Summary of ED Visits by SoonerCare Medicaid Members (N=1,126,233)

Number of Visits	Members	Percent
0 Visits	741,449	65.8%
1–5 Visit	356,116	31.6%
6+ Visits	28,658	2.5%

Table 5: Top 20 Diagnoses of ED Visits by SoonerCare Medicaid Members (N = 932,259 Visits)

Diagnosis Code	Diagnosis Description	Visits	Percent
465.9	INFCT UP RSPRT MLT SITES, ACUTE NO	40,290	4.3%
382.9	OTITIS MEDIA NOS	32,420	3.5%
462	PHARYNGITIS, ACUTE	19,981	2.1%
599	INFECTION, URINARY TRACT NOS	19,224	2.1%
780.6	FEVER, UNSPEC	18,550	2.0%
789	SYMPTOM, PAIN, ABDOMINAL, SITE NOS	17,815	1.9%
786.5	SYMPTOM, PAIN, CHEST NOS	14,867	1.6%
784	SYMPTOM, HEADACHE	13,180	1.4%
558.9	GASTROENTERITIS/COLITIS NONINFC NE	11,008	1.2%
79.99	INFECTION, VIRAL NOS	10,672	1.1%
787.03	SYMPTOM, VOMITING ALONE	10,633	1.1%
648.93	CND, OTH CE, MTHR CMPLG PRG ANTPRT	10,623	1.1%
486	PNEUMONIA, ORGANISM NOS	10,583	1.1%
490	BRONCHITIS NOS	10,094	1.1%
466	BRONCHITIS, ACUTE	9,788	1.0%
786.59	SYMPTOM, PAIN, CHEST NEC	9,725	1.0%
493.92	ASTHMA NOS W/ACUTE EXACERBATION	9,550	1.0%
845	SPRAIN/STRAIN, ANKLE NOS	9,052	1.0%
959.01	INJURY NOS, HEAD	8,922	1.0%
787.01	SYMPTOM, NAUSEA WITH VOMITING	8,723	0.9%

Table 6: Distribution of ED Visits by Distance to Visited Hospital by SoonerCare Medicaid Members (N = 932,259 Visits)

Distance to Visited Hospital	Visits	Percent
0–5 miles	399,979	42.9%
>10–30 miles	178,136	19.1%
>30–50 miles	32,335	3.5%
>5–10 miles	162,578	17.4%
>50 miles	55,278	5.9%
NA	103,953	11.2%

Table 7: Demographic Summary of ED Utilization Rates for SoonerCare Members (N=1,126,233)

Demographic Group		Members	Number of Member Months	Number of ED Visits	Rate/1,000 Member Months
All Members		1,126,223	14,693,205	932,259	63.4
Age Group	Newborn	6,435	9,610	255	26.5
	Infant	84,550	901,073	81,092	90.0
	2-10	320,100	4,681,137	226,051	48.3
	11-20	253,898	3,473,400	157,475	45.3
	21-64	388,740	4,554,168	395,497	86.8
	65+	72,500	1,073,817	71,889	66.9
Gender	Female	650,011	8,377,651	579,406	69.2
	Male	476,212	6,315,554	352,853	55.9
Race	American Indian or Alaskan Native	120,412	1,554,875	87,960	56.6
	Asian	17,205	211,867	5,315	25.1
	Black or African American	135,561	1,808,613	132,801	73.4
	Caucasian	743,194	9,657,905	616,043	63.8
	Multiracial	81,889	1,096,866	68,593	62.5
	Native Hawaiian or Other Pacific Islander	3,254	36,856	2,164	58.7
	Declined to answer	24,708	326,223	19,383	59.4
Ethnicity	Hispanic/Latino	180,759	2,345,825	110,059	46.9
	Non-Hispanic/Latino	945,464	12,347,380	822,200	66.6
County	ADAIR	10,951	152,824	10,505	68.7
	ALFALFA	1,159	14,023	643	45.9
	ATOKA	4,750	63,370	3,208	50.6
	BEAVER	1,037	12,481	428	34.3
	BECKHAM	6,675	83,875	5,538	66.0
	BLAINE	3,558	44,589	2,998	67.2
	BRYAN	16,336	212,373	15,069	71.0
	CADDO	11,340	144,443	7,714	53.4
	CANADIAN	21,836	278,565	14,900	53.5
	CARTER	17,574	230,150	16,679	72.5
	CHEROKEE	15,789	214,018	12,674	59.2
	CHOCTAW	6,970	94,319	5,530	58.6
	CIMARRON	722	9,639	381	39.5
	CLEVELAND	48,781	624,665	44,830	71.8
	COAL	2,161	29,591	1,758	59.4
	COMANCHE	33,034	414,691	28,747	69.3
	COTTON	1,831	23,695	1,243	52.5
	CRAIG	5,289	72,466	5,119	70.6
	CREEK	22,613	300,416	18,806	62.6
	CUSTER	7,747	94,315	5,408	57.3
	DELAWARE	13,274	177,810	10,269	57.8
	DEWEY	1,115	13,721	697	50.8
	ELLIS	719	8,495	525	61.8

Demographic Group		Members	Number of Member Months	Number of ED Visits	Rate/1,000 Member Months
	GARFIELD	18,112	231,959	15,106	65.1
	GARVIN	9,208	119,598	7,288	60.9
	GRADY	12,631	165,665	10,362	62.5
	GRANT	1,057	13,549	781	57.6
	GREER	1,898	25,005	1,757	70.3
	HARMON	1,109	14,927	1,342	89.9
	HARPER	851	10,719	416	38.8
	HASKELL	5,326	72,279	3,833	53.0
	HUGHES	4,904	65,952	4,369	66.2
	JACKSON	8,224	108,179	7,703	71.2
	JEFFERSON	2,692	35,549	2,614	73.5
	JOHNSTON	4,382	58,223	3,825	65.7
	KAY	17,097	224,738	15,778	70.2
	KINGFISHER	3,740	48,213	2,013	41.8
	KIOWA	3,337	44,477	2,831	63.7
	LATIMER	3,926	51,070	1,952	38.2
	LEFLORE	18,539	244,524	15,495	63.4
	LINCOLN	9,757	128,660	7,704	59.9
	LOGAN	9,495	125,018	7,709	61.7
	LOVE	3,151	40,971	2,524	61.6
	MAJOR	1,793	22,624	1,023	45.2
	MARSHALL	5,646	74,260	5,652	76.1
	MAYES	14,282	188,382	11,734	62.3
	MCCLAIN	8,739	114,726	8,008	69.8
	MCCURTAIN	15,205	205,393	10,227	49.8
	MCINTOSH	7,211	95,328	5,479	57.5
	MURRAY	4,103	53,730	3,856	71.8
	MUSKOGEE	26,768	360,111	20,626	57.3
	NOBLE	3,107	40,052	2,498	62.4
	NOWATA	3,203	42,067	2,433	57.8
	OKFUSKEE	4,897	65,414	2,887	44.1
	OKLAHOMA	222,595	2,929,497	212,179	72.4
	OKMULGEE	14,455	194,788	12,474	64.0
	OSAGE	7,641	103,161	6,889	66.8
	OTTAWA	13,937	183,189	12,910	70.5
	PAWNEE	5,519	73,098	4,147	56.7
	PAYNE	17,052	218,243	12,713	58.3
	PITTSBURG	14,141	186,136	10,376	55.7
	PONTOTOC	12,220	163,589	9,023	55.2
	POTTAWATOMIE	25,004	330,675	23,560	71.2
	PUSHMATAHA	4,497	59,597	2,714	45.5

Demographic Group		Members	Number of Member Months	Number of ED Visits	Rate/1,000 Member Months
	ROGER MILLS	776	9,210	456	49.5
	ROGERS	19,794	253,211	13,630	53.8
	SEMINOLE	10,106	135,272	8,962	66.3
	SEQUOYAH	17,071	228,890	17,920	78.3
	STEPHENS	13,188	168,615	13,450	79.8
	TEXAS	6,310	75,336	2,148	28.5
	TILLMAN	3,020	41,231	2,429	58.9
	TULSA	177,403	2,288,056	124,488	54.4
	WAGONER	15,964	211,047	9,828	46.6
	WASHINGTON	13,157	171,587	12,856	74.9
	WASHITA	2,996	36,835	2,361	64.1
	WOODS	1,776	21,799	1,128	51.7
	WOODWARD	5,295	64,343	5,030	78.2
	OTHER	12,655	139,904	7,094	50.7
County Type	Rural	525,673	6,910,248	435,151	63.0
	Urban	587,895	7,643,053	490,014	64.1
	OTHER	12,655	139,904	7,094	50.7
Aid Category	ABD	185,675	2,832,732	307,208	108.4
	BCC	1,484	12,296	920	74.8
	Family Planning	90,161	910,711	67	0.1
	Insure Oklahoma	47,815	533,846	8,809	16.5
	TANF	773,186	10,006,921	614,985	61.5
	TEFRA	515	8,147	119	14.6
	OTHER	27,387	388,552	151	0.4
Dual	No	990,671	12,645,974	753,856	59.6
	Yes	135,552	2,047,231	178,403	87.1
Pregnant	No	1,068,927	14,145,820	873,253	61.7
	Yes	57,296	547,385	59,006	107.8
Program	SoonerCare Choice	688,820	9,295,478	632,852	68.1
	SoonerCare Traditional	437,403	5,397,727	299,407	55.5
PCM	No	1,119,883	14,638,044	925,832	63.2
	Yes	6,340	55,161	6,427	116.5
HAN	No	972,253	12,566,758	790,763	62.9
	Yes	153,970	2,126,447	141,496	66.5
HMP	No	1,118,508	14,565,805	910,684	62.5
	Yes	7,715	127,400	21,575	169.3
Distance to Closest Hospital*	0-5 miles	781,370	10,217,613	676,873	66.2
	>5-10 miles	148,389	1,944,467	110,199	56.7
	>10-30 miles	172,656	2,269,769	127,853	56.3
	>30-50 miles	1,638	19,332	1,259	65.1
	>50 miles	9,425	101,160	8,897	87.9

Demographic Group		Members	Number of Member Months	Number of ED Visits	Rate/1,000 Member Months
	NA	12,745	140,864	7,178	51.0
Distance to Closest PCP*	0-5 miles	950,880	12,434,430	801,906	64.5
	>5-10 miles	113,904	1,505,040	85,609	56.9
	>10-30 miles	39,189	510,901	28,578	55.9
	>30-50 miles	837	9,191	871	94.8
	>50 miles	8,668	92,779	8,117	87.5
	NA	12,745	140,864	7,178	51.0
Distance to Chosen PCP*	0-5 miles	345,031	4,674,574	302,040	64.6
	>5-10 miles	135,583	1,851,701	124,169	67.1
	>10-30 miles	153,202	2,078,130	142,241	68.4
	>30-50 miles	22,468	298,375	23,050	77.3
	>50 miles	26,960	338,692	30,537	90.2
	NA	442,979	5,451,733	310,222	56.9

Table 8: Demographic Summary of SoonerCare Members Frequent ED Utilizers (N=1,097,565)

Demographic		Members With Fewer Than Six Visits to ED		Members With Six or More Visits to ED		
		Count	Percent of Total	Count	Percent of Total	Total Members
Age Group: >= 21	No	655,855	98.6%	9,128	1.4%	664,983
	Yes	441,710	95.8%	19,530	4.2%	461,240
Gender	Female	630,475	97.0%	19,536	3.0%	650,011
	Male	467,090	98.1%	9,122	1.9%	476,212
Pregnant	No	1,042,447	97.5%	26,480	2.5%	1,068,927
	Yes	55,118	96.2%	2,178	3.8%	57,296
Race: Caucasian	Declined to answer	24,186	97.9%	522	2.1%	24,708
	No	349,566	97.6%	8,755	2.4%	358,321
	Yes	723,813	97.4%	19,381	2.6%	743,194
Ethnicity: Non-Hispanic/Latino	Hispanic/Latino	178,421	98.7%	2,338	1.3%	180,759
	Non-Hispanic/Latino	919,144	97.2%	26,320	2.8%	945,464
County Type	Other	12,488	98.7%	167	1.3%	12,655
	Rural	512,692	97.5%	12,981	2.5%	525,673
	Urban	572,385	97.4%	15,510	2.6%	587,895
Aid Category: ABD	No	925,258	98.4%	15,290	1.6%	940,548
	Yes	172,307	92.8%	13,368	7.2%	185,675
Part A: Y	0	970,195	97.9%	20,865	2.1%	991,060
	1	127,370	94.2%	7,793	5.8%	135,163
Program	SoonerCare Choice	671,404	97.5%	17,416	2.5%	688,820
	SoonerCare Traditional	426,161	97.4%	11,242	2.6%	437,403
HAN	No	947,505	97.5%	24,748	2.5%	972,253
	Yes	150,060	97.5%	3,910	2.5%	153,970
HMP	0	1,092,097	97.5%	27,721	2.5%	1,119,818
	1	5,468	85.4%	937	14.6%	6,405
Distance to Closest Hospital: 0–5 miles	NA	12,575	98.7%	170	1.3%	12,745
	No	325,225	97.9%	6,883	2.1%	332,108
	Yes	759,765	97.2%	21,605	2.8%	781,370
Distance to Closest PCP: 0–5 miles	NA	12,575	98.7%	170	1.3%	12,745
	No	159,146	97.9%	3,452	2.1%	162,598
	Yes	925,844	97.4%	25,036	2.6%	950,880
Distance to Chosen PCP: 0–5 miles	NA	431,629	97.4%	11,350	2.6%	442,979
	No	329,023	97.3%	9,190	2.7%	338,213
	Yes	336,913	97.6%	8,118	2.4%	345,031

Table 9: Possible Factors of Frequent ED Utilizers Univariate Analysis (N=1,126,223, unless otherwise noted)

	Percent of Frequent ED Utilizers		
Possible Factor	If Factor Present	If Factor Absent	Estimate*
Age Group: >= 21	4.2%	1.4%	3.177
Gender: Female	3.0%	1.9%	1.59
Pregnant: Yes	3.8%	2.5%	1.56
Race: Non-Caucasian*	2.4%	2.6%	0.94
Ethnicity: Non-Hispanic/Latino	2.8%	1.3%	2.19
County Type: Rural**	2.6%	2.5%	1.07
Aid Category: ABD	7.2%	1.6%	4.70
Part A: Y	5.8%	2.1%	2.85
HMP: Y	14.6%	2.5%	6.75
Distance to Closest Hospital: 0–5 miles***	2.8%	2.1%	1.34
Distance to Closest PCP: 0–5 miles***	2.6%	2.1%	1.25
Distance to Chosen PCP: 0–5 miles	2.4%	2.6%	0.89

* p=<.0001.

*N= 1,101,515, excluded 24,708 with missing value.

**N= 1,113,568, excluded 12,655 with missing value.

***N = 1,113,478, excluded 12,745 with missing value, straight-line distance calculated to Hospital/PCP.

Table 10: Demographic Summary of Frequent ED Utilizers Limited to Members with 18 Months of Continuous Enrollment (N=462,730; Study Period July 1, 2012–December 31, 2013)

Possible Factor (label)		Members With Fewer Than Six Visits to ED		Members With Six or More Visits to ED	
		Count	Percent of Total	Count	Percent of Total
Age Group: >= 21	No	283,694	97.9%	6,058	2.1%
	Yes	160,245	92.6%	12,733	7.4%
Gender	Female	243,769	95.1%	12,538	4.9%
	Male	200,170	97.0%	6,253	3.0%
Pregnant	No	437,900	96.1%	17,932	3.9%
	Yes	6,039	87.5%	859	12.5%
Race: Caucasian	Declined to answer	9,841	96.9%	319	3.1%
	No	137,733	95.9%	5,860	4.1%
	Yes	296,365	95.9%	12,612	4.1%
Ethnicity: Non-Hispanic/Latino	Hispanic/Latino	70,912	97.9%	1,531	2.1%
	Non–Hispanic/Latino	373,027	95.6%	17,260	4.4%
County Type	Other	3,913	98.1%	74	1.9%
	Rural	212,125	96.0%	8,726	4.0%
	Urban	227,901	95.8%	9,991	4.2%
Aid Category: ABD	No	326,732	97.5%	8,413	2.5%
	Yes	117,207	91.9%	10,378	8.1%
Part A: Y	0	358,705	96.6%	12,746	3.4%
	1	85,234	93.4%	6,045	6.6%
Program	SoonerCare Choice	279,383	96.3%	10,708	3.7%
	SoonerCare Traditional	164,556	95.3%	8,083	4.7%
HAN	No	377,675	95.8%	16,382	4.2%
	Yes	66,264	96.5%	2,409	3.5%
HMP	No	439,794	96.1%	18,028	3.9%
	Yes	4,145	84.5%	763	15.5%
Distance to Closest Hospital: 0–5 miles	NA	3,930	98.1%	76	1.9%
	No	132,589	96.7%	4,511	3.3%
	Yes	307,420	95.6%	14,204	4.4%
Distance to Closest PCP: 0–5 miles	NA	3,930	98.1%	76	1.9%
	No	64,662	96.7%	2,231	3.3%
	Yes	375,347	95.8%	16,484	4.2%
Distance to Chosen PCP: 0–5 miles	NA	165,455	95.3%	8,124	4.7%
	No	136,089	96.0%	5,626	4.0%
	Yes	142,395	96.6%	5,041	3.4%

Table 11: Possible Factors of Frequent ED Utilizers Univariate Analysis Limited to Members with 18 Months of Continuous Enrollment (N=462,730, unless otherwise noted)

	Percent of Frequent ED Utilizers		
Possible Factor	If Factor Present	If Factor Absent	Estimate*
Age Group: >= 21	7.4%	2.1%	3.721
Gender: Female	4.9%	3.0%	1.65
Pregnant: Yes	12.5%	3.9%	3.47
Ethnicity: Non−Hispanic/Latino	4.4%	2.1%	2.14
County Type: Rural**	4.0%	4.2%	0.94
Aid Category: ABD	8.1%	2.5%	3.44
Part A: Y	6.6%	3.4%	2.00
Program: SoonerCare Choice	3.7%	4.7%	0.78
HAN: Y	3.5%	4.2%	0.84
HMP: Y	15.5%	3.9%	4.49
Distance to Closest Hospital: 0–5 miles***	4.4%	3.3%	1.36
Distance to Closest PCP: 0–5 miles***	4.2%	3.3%	1.27
Distance to Chosen PCP: 0–5 miles	3.4%	4.4%	0.78

* p=<.0001.

*N= 452,570, excluded 10,160 with missing value.

*N= 452,570, excluded 10,160 with missing value.

**N= 458,743, excluded 3,987 with missing value.

***N = 458,724, excluded 4,006 with missing value.

^Note: Logistic regression fails to compute maximum likelihood estimates for this factor.

Straight-line distance calculated to Hospital/PCP.

Table 12: Demographic factors of Frequent ED Utilizers Multiple Logistic Regression Analysis (N=1,113,463, excluded 12,745 members with missing values of possible factors*; Study Period July 1, 2012–December 31, 2013)

	Adjusting for Months of Enrollment		
		Odds Ratio	
Demographic Factors	Estimate	Lower Confidence Limit	Upper Confidence Limit
Age >= 21 No vs Yes	0.323	0.312	0.334
Gender Female vs Male	1.351	1.315	1.387
Pregnant No vs Yes	0.522	0.495	0.549
Ethnicity: Hispanic/Latino vs Non–Hispanic/Latino	0.673	0.643	0.704
Aid Cat ABD No vs Yes	0.407	0.394	0.421
Rural vs Urban	0.894	0.871	0.917
Closest Hospital 0–5 miles No vs Yes	0.675	0.655	0.696
Member Months	1.179	1.175	1.184

*15 members also excluded from analysis that were coded as male and pregnant.

Table 13: Demographic factors of Frequent ED Utilizers Multiple Logistic Regression Analysis Limited to Members with 18 Months of Continuous Enrollment (N=458,721, excluded 4,006 members with missing values of possible factors*; Study Period July 1, 2012–December 31, 2013)

	Adjusting for Months of Enrollment		
		Odds Ratio	
Demographic Factors	Estimate	Lower Confidence Limit	Upper Confidence Limit
Age >= 21 No vs Yes	0.355	0.339	0.371
Gender Female vs Male	1.352	1.309	1.397
Pregnant No vs Yes	0.379	0.350	0.411
Ethnicity: Hispanic/Latino vs Non-Hispanic/Latino	0.719	0.680	0.761
Aid Cat ABD No vs Yes	0.424	0.407	0.442
Rural vs Urban	0.894	0.866	0.923
Closest Hospital 0–5 miles No vs Yes	0.671	0.646	0.697

*3 members also excluded from analysis that were coded as male and pregnant

Table 14: Analysis of Covariance — Response variable ED PMPM
(N=1,113,463, excluded 12,745 members with missing values of possible factors;
Study Period July 1, 2012–December 31, 2013)

Demographic Factors	Estimate*
Intercept	52.32
Age >= 21: No	-12.93
Gender: Female	2.13
Pregnant: N	-9.04
Ethnicity: Hispanic/Latino	-3.82
Rural	-1.35
Aid Cat ABD: N	-15.01
Closest Hospital 0-5 miles: N	-2.03
OHCA Program: SoonerCare Choice	12.53
Part A Medicare: N	19.44
HMP: N	-35.29
HAN: N	-11.60
HAN: N*HMP: N	10.99
Chosen PCP 0–5 miles: N	-13.83
HMP: N*Chosen PCP 0-5 miles: N	15.85
HAN: N*Chosen PCP 0-5 miles: N	14.93
HAN: N*HMP: N*Chosen PCP 0–5 miles: N	-15.39

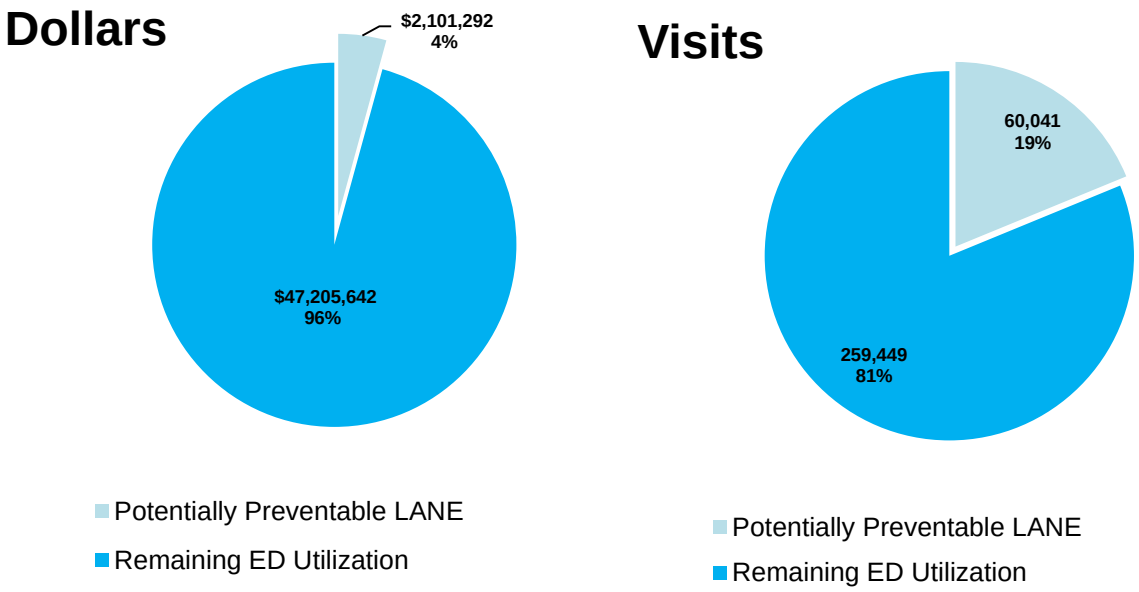
* p=<.0001.

Table 14 shows non-zero parameters. Model fitted with full hierarchy of interactions among program variables: OHCA Program, Part A Medicare, HMP, HAN, Chosen PCP 0-5 miles. 15 members also excluded from analysis that were coded as male and pregnant.

APPENDIX C

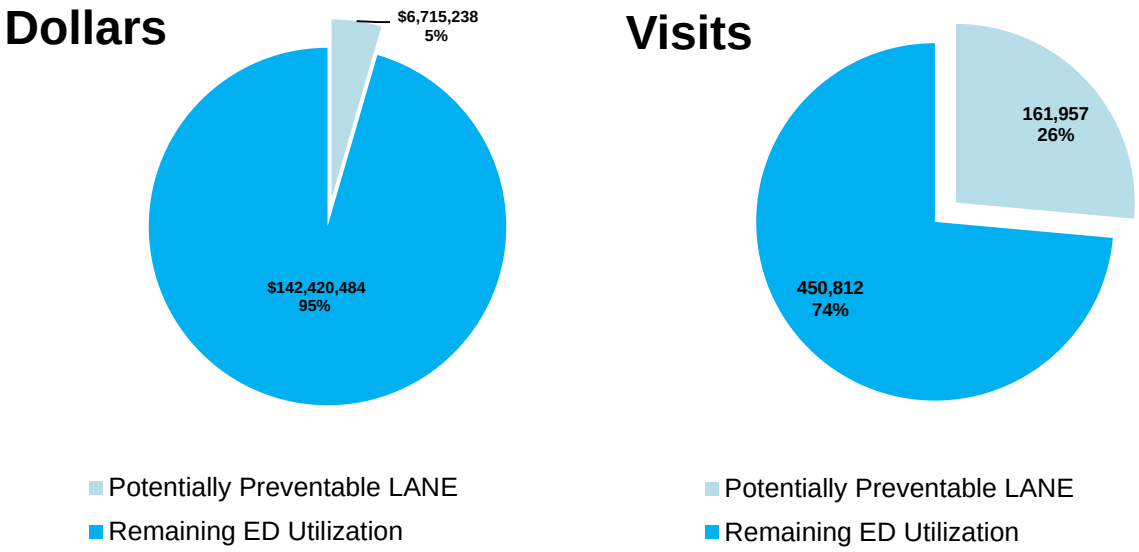
Low-Acuity Non-emergent Emergency (LANE) Utilization

Exhibit 24: SoonerCare Traditional Low-Acuity Non-Emergent (LANE) Analysis Results
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits.

Exhibit 25: SoonerCare Choice Low-Acuity Non-Emergent (LANE) Analysis Results
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits

Exhibit 26: SoonerCare Choice Low-Acuity Non-Emergent (LANE) Average Cost Per Visit by Procedure Code
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013

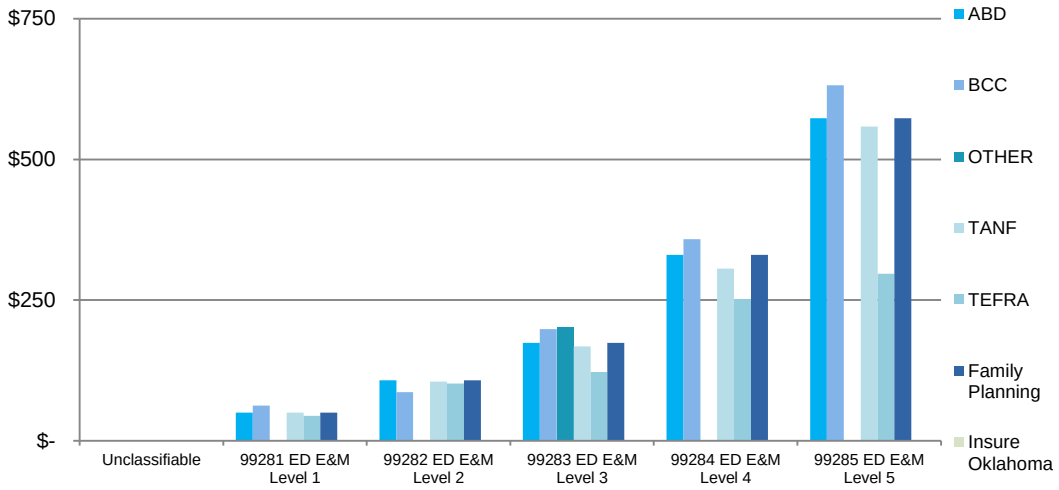


Exhibit 27: SoonerCare Traditional Low-Acuity Non-Emergent (LANE) Average Cost Per Visit by Procedure Code
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013

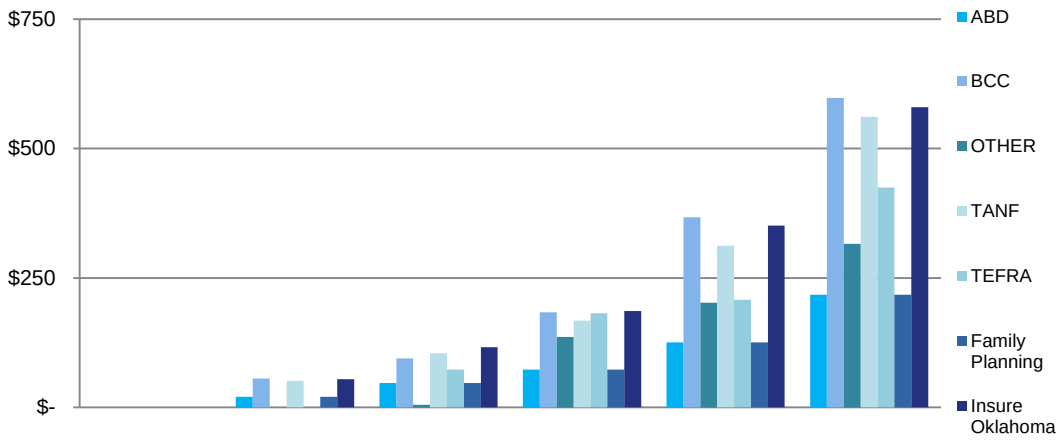
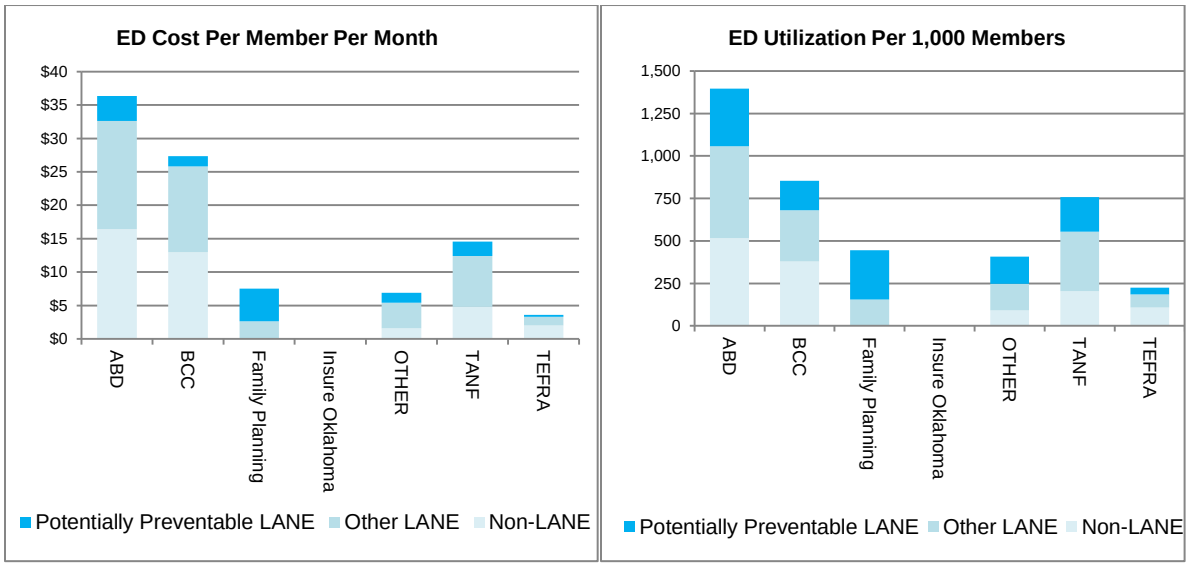
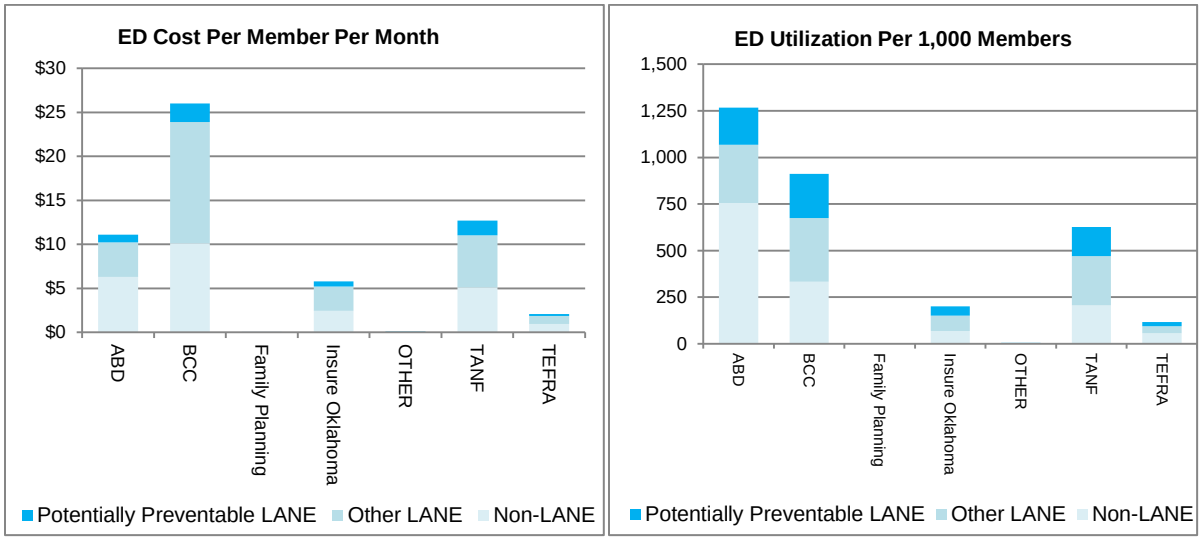


Exhibit 28: SoonerCare Choice ED PMPMs and Annual ED Utilization Per 1,000 Members
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



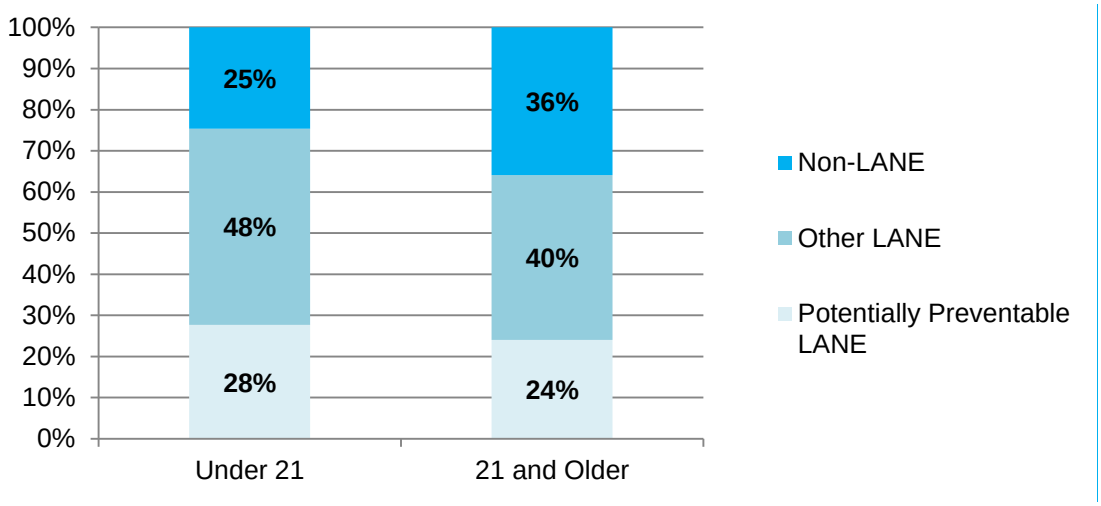
1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".
2. Grouping criteria established by OHCA. Members with multiple aid categories were assigned to only one grouping. "ABD" (Aged, Blind, and Disabled), "BCC" (Breast and Cervical Cancer), Family Planning, Insure Oklahoma, "TANF" (Temporary Assistance to Needy Families) and "TEFRA" (Tax Equity and Fiscal Responsibility Act of 1982). "Other" includes individuals whose aid category information did not meet the criteria for inclusion in one of the six aid categories, based on criteria from OHCA.

Exhibit 29: SoonerCare Traditional ED PMPMs and Annual ED Utilization Per 1,000 Members
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



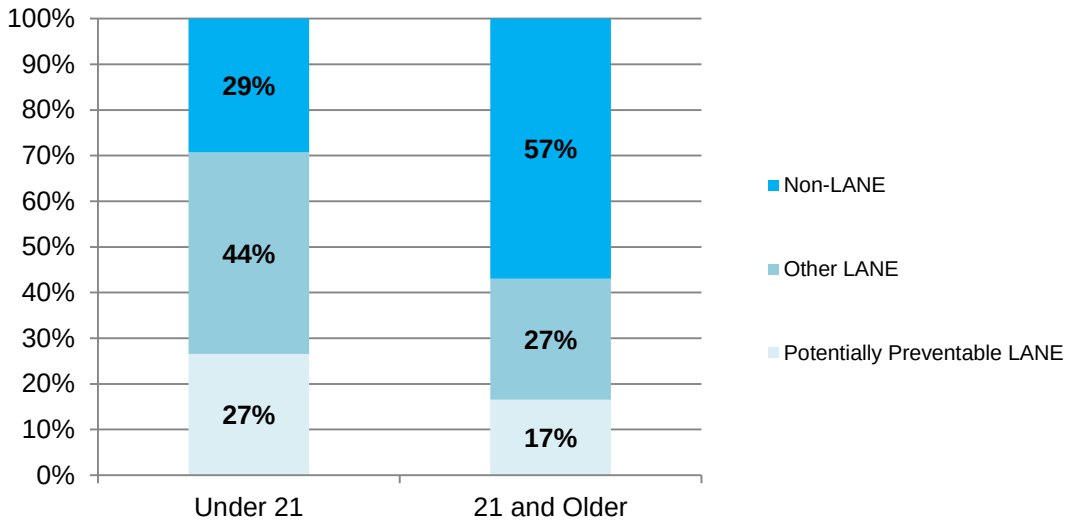
1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".
2. Grouping criteria established by OHCA. Members with multiple aid categories were assigned to only one grouping. "ABD" (Aged, Blind, and Disabled), "BCC" (Breast and Cervical Cancer), Family Planning, Insure Oklahoma, "TANF" (Temporary Assistance to Needy Families) and "TEFRA" (Tax Equity and Fiscal Responsibility Act of 1982). "Other" includes individuals whose aid category information did not meet the criteria for inclusion in one of the six aid categories, based on criteria from OHCA.

Exhibit 30: SoonerCare Choice Low-Acuity Non-Emergent (LANE) Visit Statistics by Age Group
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



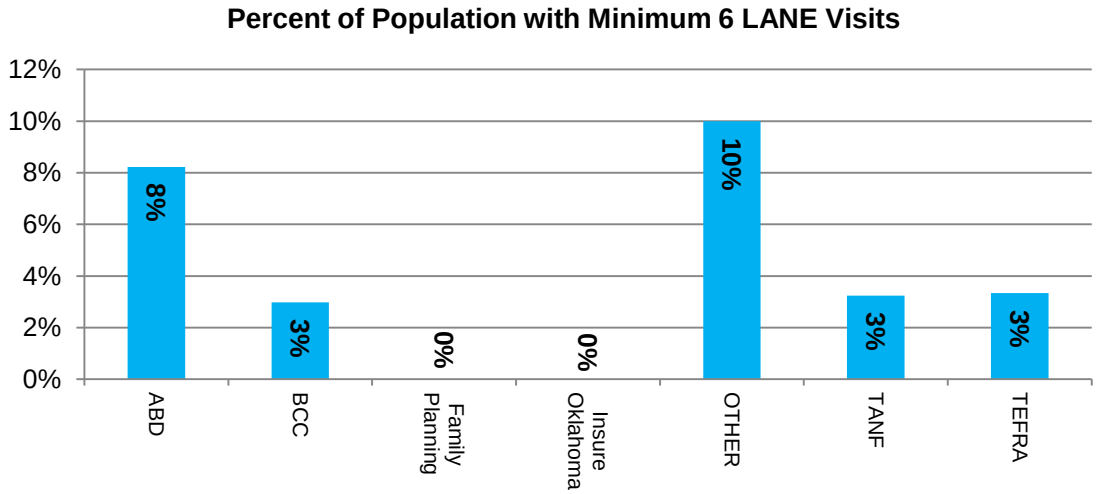
1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".

Exhibit 31: SoonerCare Traditional Low-Acuity Non-Emergent (LANE) Visit Statistics by Age Group
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



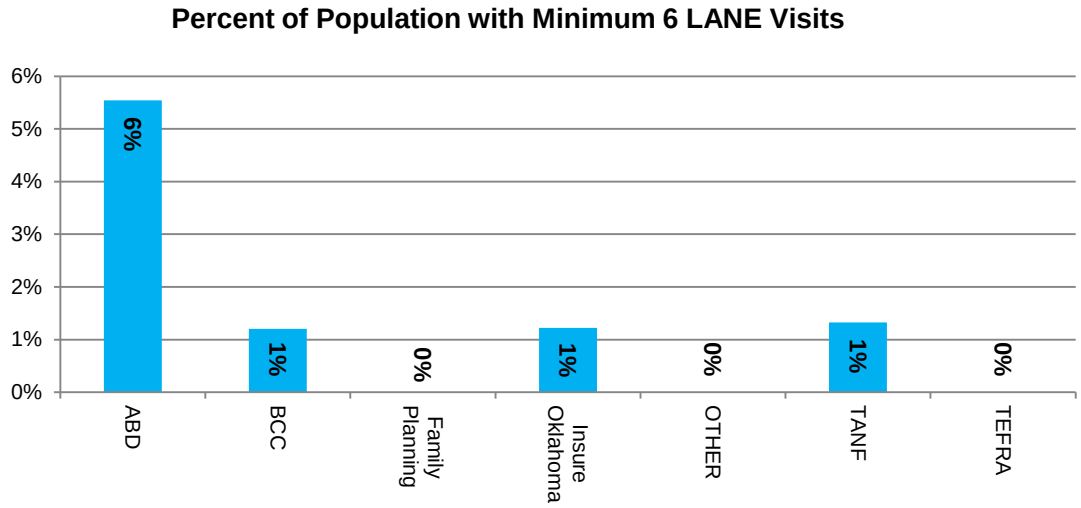
1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE. Mercer applies a specific percentage to each diagnosis code to adjust the LANE dollars and visits to the "Potentially Preventable LANE" subset of ED visits. The remaining visits, including all visits with CPT E&M codes 99284 and 99285, are considered "Other LANE".

Exhibit 32: SoonerCare Choice Frequent Low-Acuity Non-Emergent (LANE) Utilizers
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE.
2. Grouping criteria established by OHCA. Members with multiple aid categories were assigned to only one grouping. "ABD" (Aged, Blind, and Disabled), "BCC" (Breast and Cervical Cancer), Family Planning, Insure Oklahoma, "TANF" (Temporary Assistance to Needy Families) and "TEFRA" (Tax Equity and Fiscal Responsibility Act of 1982). "Other" includes individuals whose aid category information did not meet the criteria for inclusion in one of the six aid categories, based on criteria from OHCA.

Exhibit 33: SoonerCare Traditional Frequent Low-Acuity Non-Emergent (LANE) Utilizers
Source: Oklahoma Health Care Authority Medicaid Management Information System, July 2012–December 2013



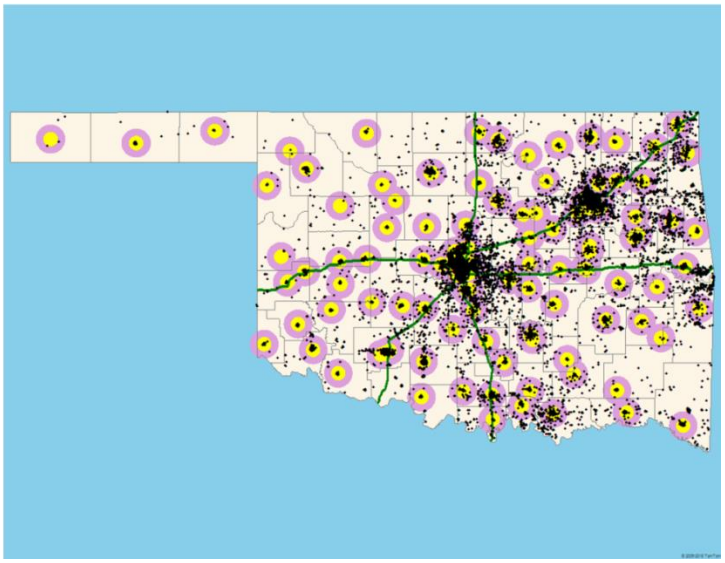
1. All ED visits with a primary diagnosis on the list of 701 codes are identified as LANE.
2. Grouping criteria established by OHCA. Members with multiple aid categories were assigned to only one grouping. "ABD" (Aged, Blind, and Disabled), "BCC" (Breast and Cervical Cancer), Family Planning, Insure Oklahoma, "TANF" (Temporary Assistance to Needy Families) and "TEFRA" (Tax Equity and Fiscal Responsibility Act of 1982). "Other" includes individuals whose aid category information did not meet the criteria for inclusion in one of the six aid categories, based on criteria from OHCA.

Geospatial Analysis Maps

SoonerCare Medicaid Members with 6+ Emergency Department Visits Plotted with Hospitals

Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 28,142)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



Rural SoonerCare Medicaid Members with 6+ Emergency Department Visits Plotted with Hospitals

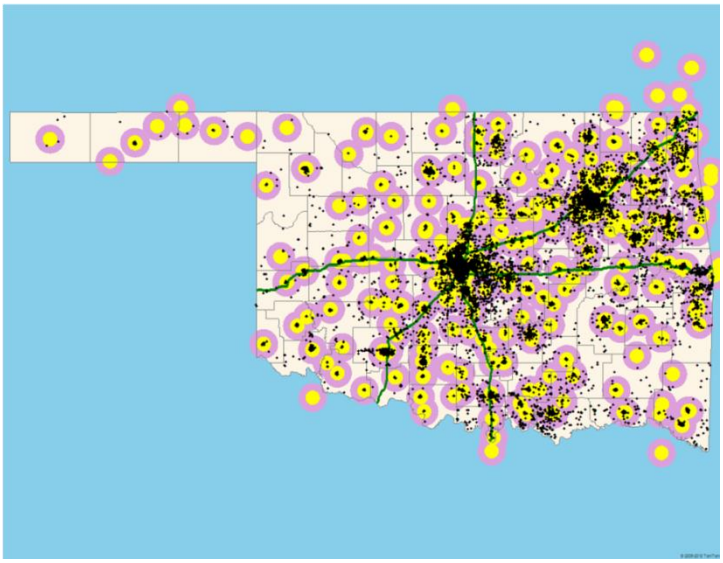
Rural Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 12,667)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines

SoonerCare Medicaid Members with 6+ Emergency Department Visits Plotted with PCPs

Members with 6+ Emergency Department Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

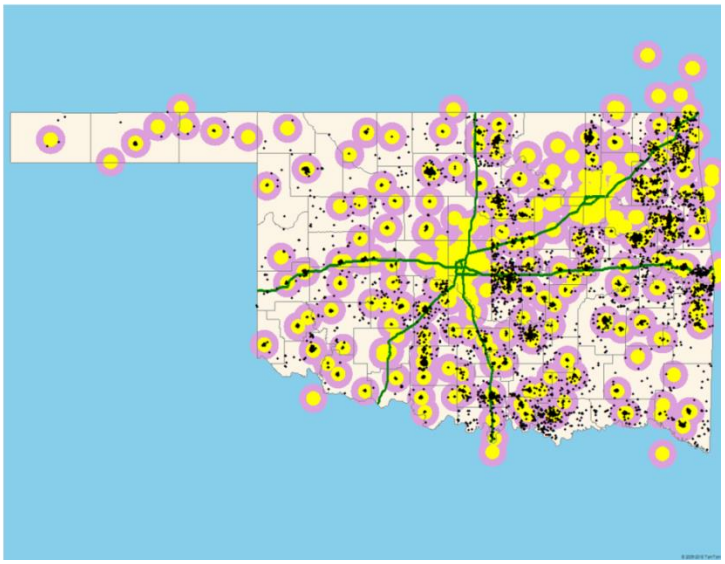
- Members (n = 28,142)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Medicaid Members with 6+ Emergency Department Visits Plotted with PCPs

Rural Members with 6+ Emergency Department Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

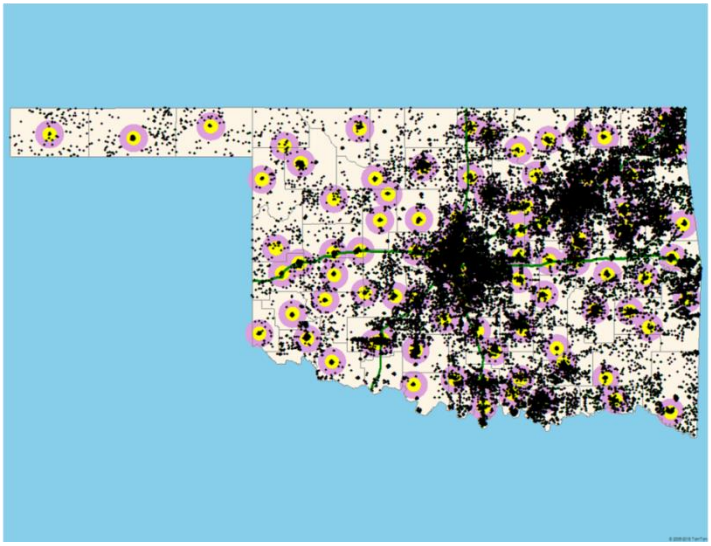
- Members (n = 12,667)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



SoonerCare Medicaid Members with LANE Visits Plotted with Hospitals

Members with Low Acuity, Non-Emergent (LANE) Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 302,546)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



Rural SoonerCare Medicaid Members with LANE Visits Plotted with Hospitals

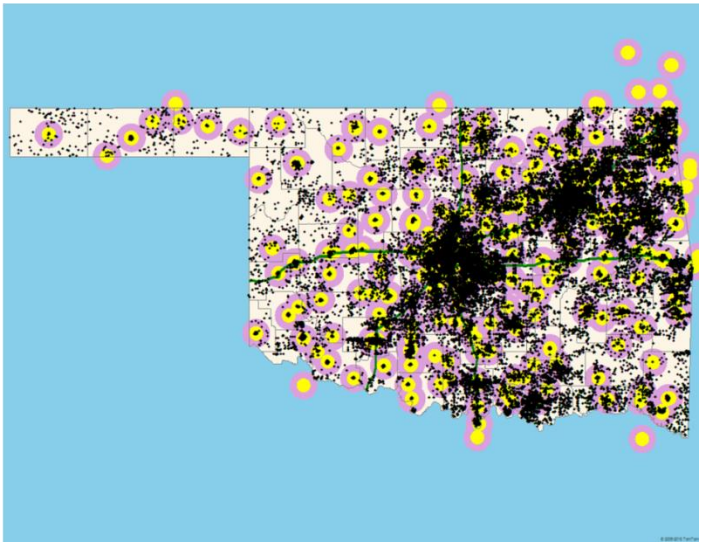
Rural Members with LANE Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 143,698)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines

SoonerCare Medicaid Members with LANE Visits Plotted with PCPs

Members with LANE Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

- Members (n = 302,546)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Medicaid Members with LANE Visits Plotted with PCPs

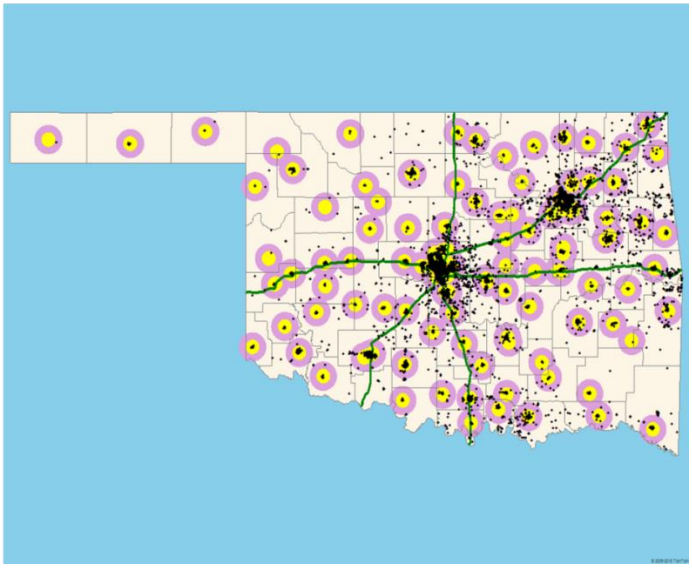
Rural Members with LANE Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

- Members (n = 143,698)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines

SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with Hospitals

SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

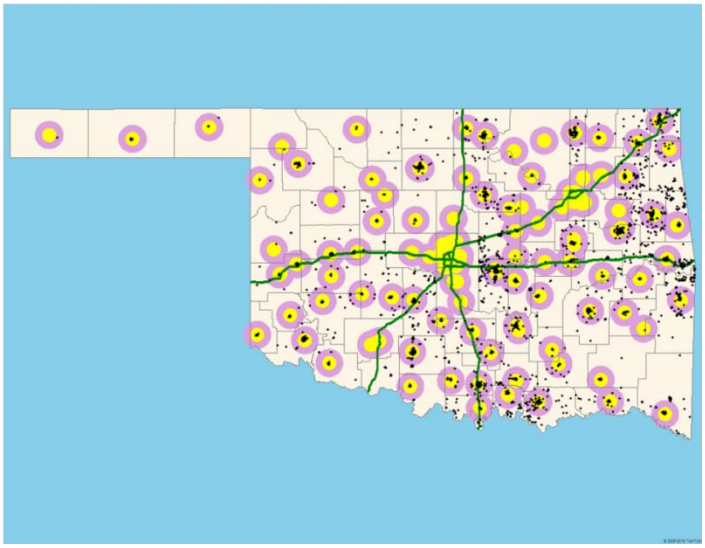
- Members (n = 9100)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



Rural SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with Hospitals

Rural SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

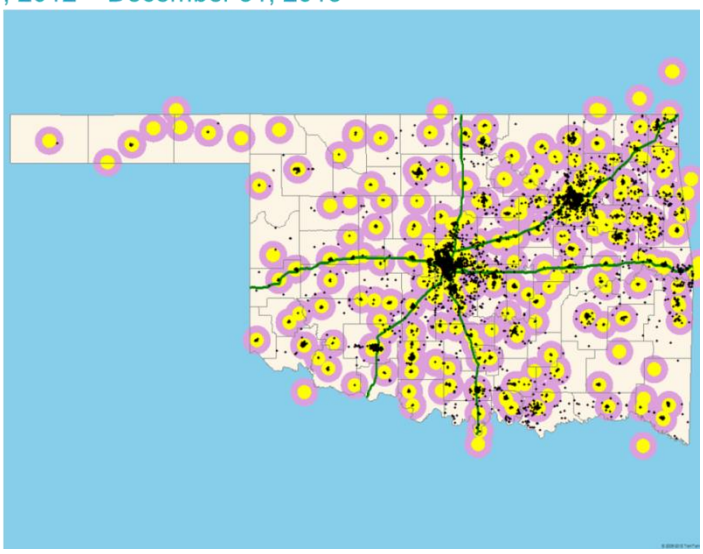
- Members (n = 3746)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with SoonerCare Choice Contracted PCPs

SoonerCare Choice Members with 6+ Emergency Department Visits
Plotted with SoonerCare Choice Contracted PCPs
Study Period July 1, 2012 – December 31, 2013

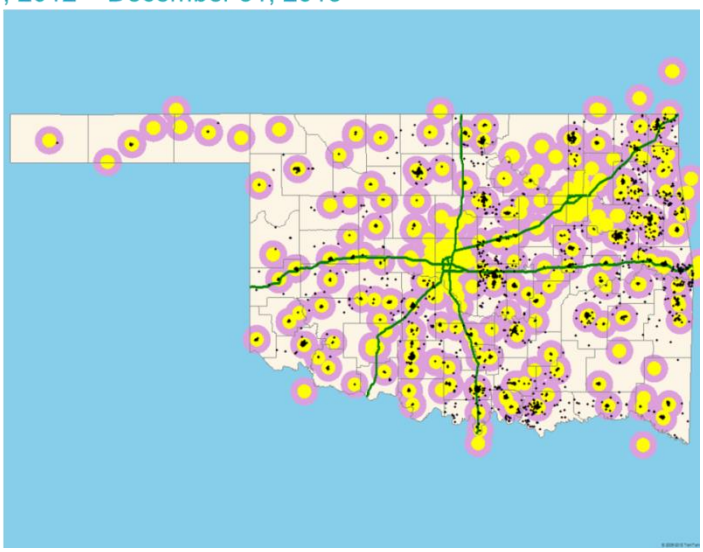
- Members (n = 9100)
  - Black icons
- PCPs (n = 1048)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Choice Members with 6+ Emergency Department Visits Plotted with SoonerCare Choice Contracted PCPs

Rural SoonerCare Choice Members with 6+ Emergency Department Visits
Plotted with SoonerCare Choice Contracted PCPs
Study Period July 1, 2012 – December 31, 2013

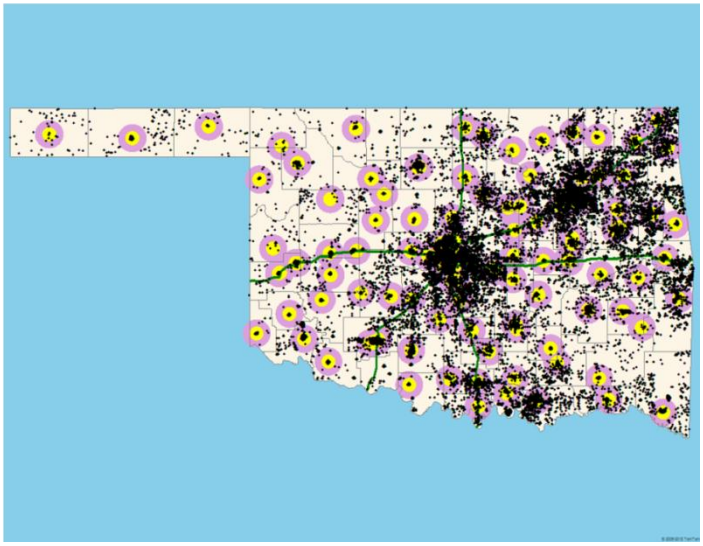
- Members (n = 3746)
  - Black icons
- PCPs (n = 1048)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



SoonerCare Choice Members with LANE Visits Plotted with Hospitals

SoonerCare Choice Members with LANE Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

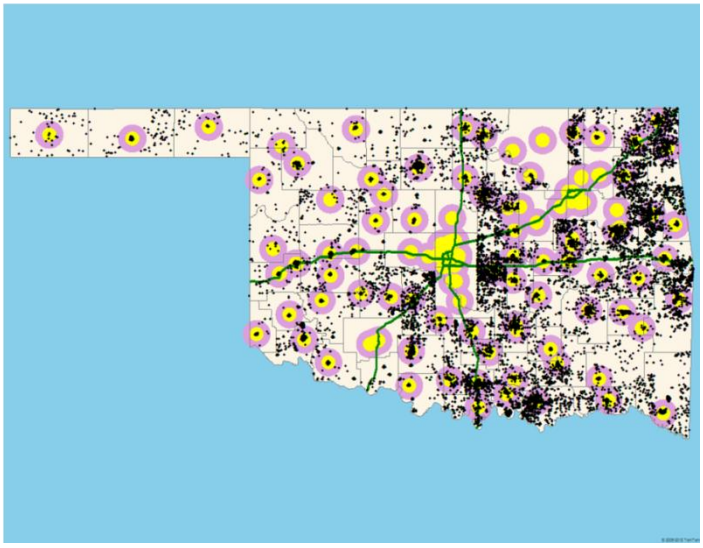
- Members (n = 127,843)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



Rural SoonerCare Choice Members with LANE Visits Plotted with Hospitals

Rural SoonerCare Choice Members with LANE Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

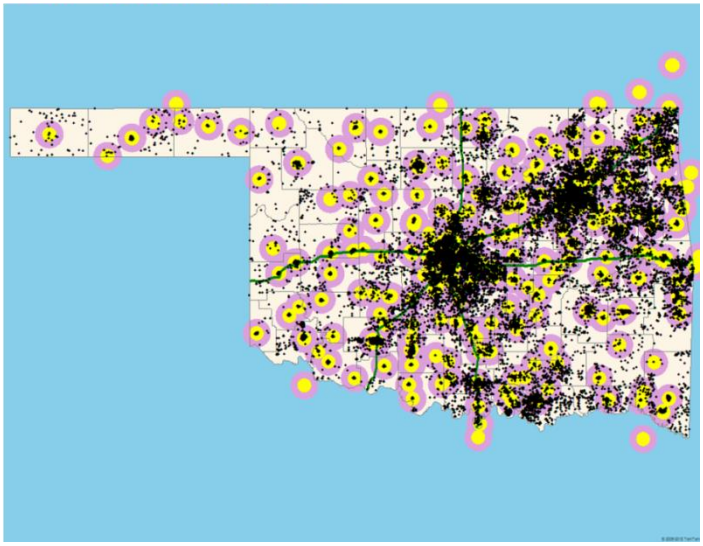
- Members (n = 57,143)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



SoonerCare Choice Members with LANE Visits Plotted with SoonerCare Choice Contracted PCPs

SoonerCare Choice Members with LANE Visits Plotted with SoonerCare Choice Contracted PCPs
Study Period July 1, 2012 – December 31, 2013

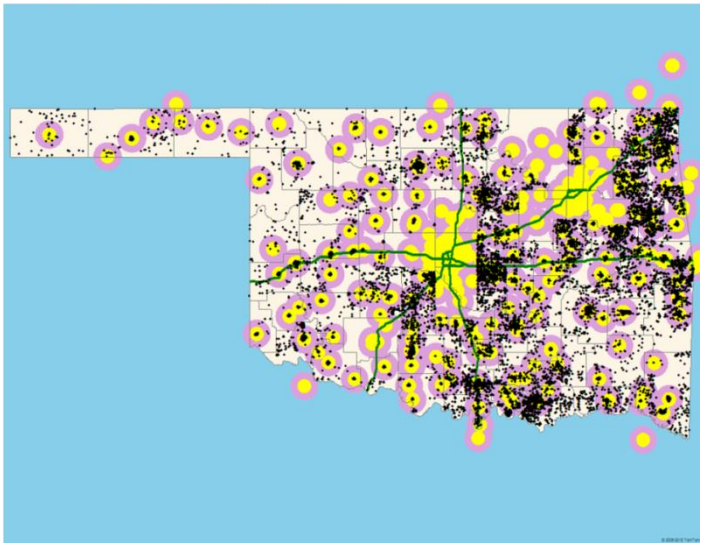
- Members (n = 127,843)
  - Black icons
- PCPs (n = 1048)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Choice Members with LANE Visits Plotted with SoonerCare Choice Contracted PCPs

Rural SoonerCare Choice Members with LANE Visits Plotted with SoonerCare Choice Contracted PCPs
Study Period July 1, 2012 – December 31, 2013

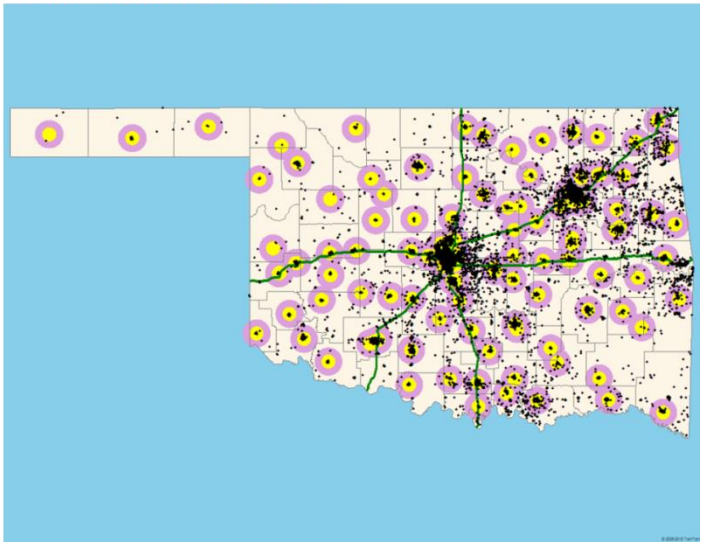
- Members (n = 57,143)
  - Black icons
- PCPs (n = 1048)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with Hospitals

SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

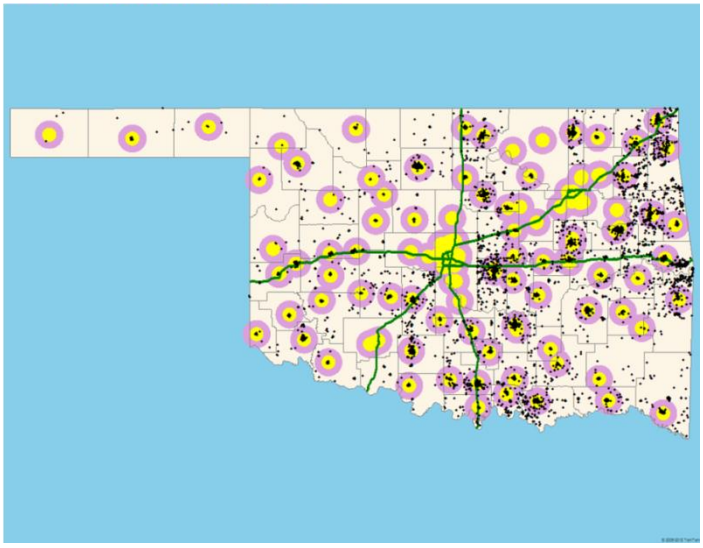
- Members (n = 19,042)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



Rural SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with Hospitals

Rural SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

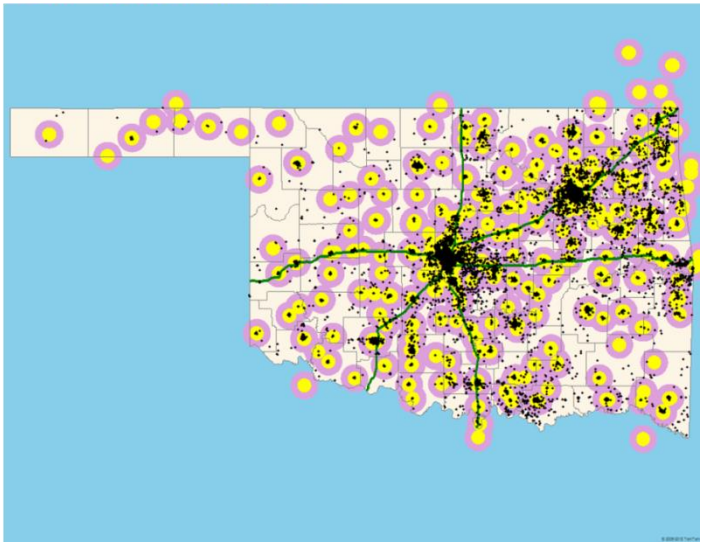
- Members (n = 8921)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines



SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with PCPs

SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

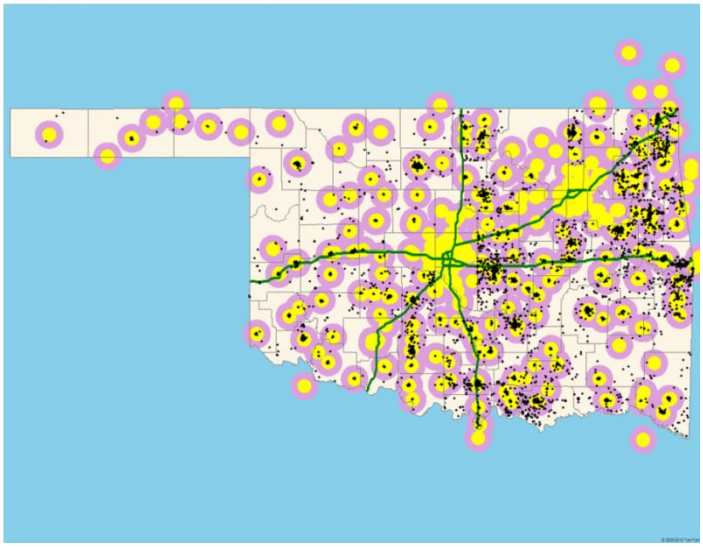
- Members (n = 19,042)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with PCPs

Rural SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

- Members (n = 8921)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



SoonerCare Traditional Members with LANE Visits Plotted with Hospitals

SoonerCare Traditional Members with LANE Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 174,703)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines

Rural SoonerCare Traditional Members with 6+ Emergency Department Visits Plotted with Hospitals

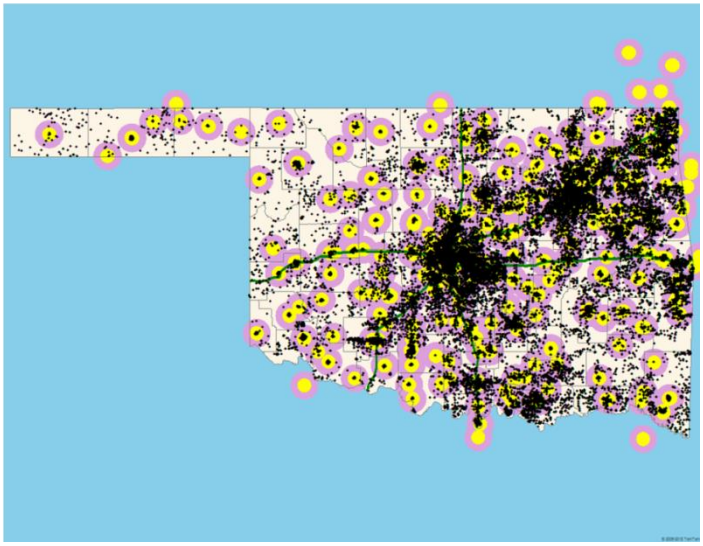
Rural SoonerCare Traditional Members with LANE Visits Plotted with Hospitals
Study Period July 1, 2012 – December 31, 2013

- Members (n = 86,555)
  - Black icons
- Hospitals (n = 188)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from hospital
  - Purple halo – 10 mile radius from hospital
- Interstate highways
  - Green lines

SoonerCare Traditional Members with LANE Visits Plotted with PCPs

SoonerCare Traditional Members with LANE Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

- Members (n = 174,703)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines



Rural SoonerCare Traditional Members with LANE Visits Plotted with PCPs

Rural SoonerCare Traditional Members with LANE Visits Plotted with PCPs
Study Period July 1, 2012 – December 31, 2013

- Members (n = 86,555)
  - Black icons
- PCPs (n = 1297)
  - Located in the center of the yellow halo
  - Yellow halo – 5 mile radius from PCP
  - Purple halo – 10 mile radius from PCP
- Interstate highways
  - Green lines

Government Human Services Consulting
Mercer Health & Benefits LLC
2325 East Camelback Road, Suite 600
Phoenix, AZ 85016
+1 602 522 6500