TennCare Delivery System Transformation: Episodes of Care Analytics Report

Report | October 2019

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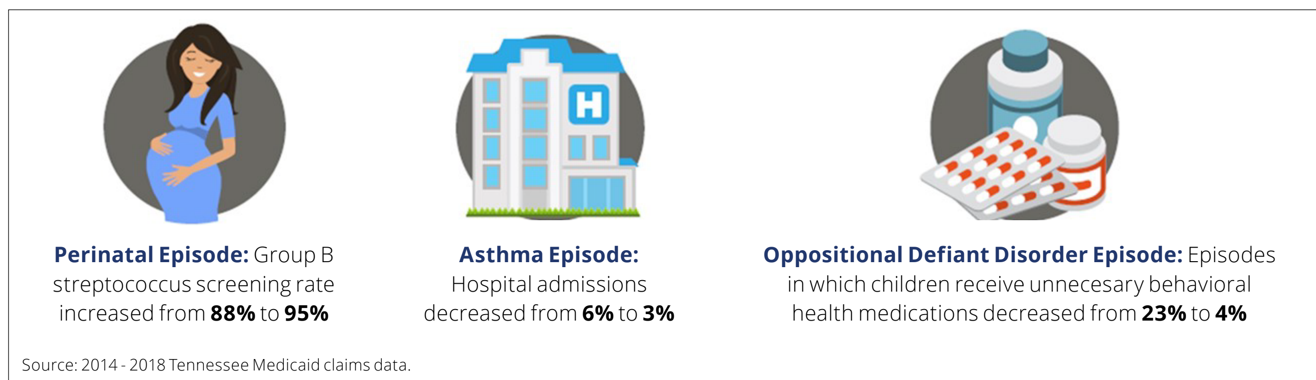
Introduction

TennCare's episodes of care program aims to transform the way specialty and acute healthcare services are delivered by incentivizing high-quality, cost-effective care, promoting evidence-based clinical pathways, encouraging care coordination, and reducing ineffective or inappropriate treatments. Episodes of care is part of the Tennessee Health Care Innovation Initiative, which is transforming the healthcare delivery system in Tennessee.

Following the launch and first design considerations in 2013, there have been improvements in both the quality of care patients receive and the costs associated with delivering that care. The program has incentivized providers to make improvements to their quality of care (see *Exhibit 1* for selected examples). In 2018, episodes of care achieved $38.3 million in estimated savings across 27 episode types.[1] Although factors outside of the episodes program have impacted the results in this report, interviews with a selection of providers indicate that quality improvement and episodes savings have occurred due to provider behavior changes, such as adopting best practices or eliminating duplicative care.

Exhibit 1: **Selected examples of how the episodes of care program has contributed to better care for TennCare members**[2]



Perinatal Episode: Group B streptococcus screening rate increased from **88%** to **95%**

Asthma Episode: Hospital admissions decreased from **6%** to **3%**

Oppositional Defiant Disorder Episode: Episodes in which children receive unnecesary behavioral health medications decreased from **23%** to **4%**

Source: 2014 - 2018 Tennessee Medicaid claims data.

Episodes of care involve acute or specialized patient interactions over a specific time period. The program assigns a single principal accountable provider (or "quarterback") who has the most impact on the overall cost and quality of a patient's treatment within an episode. The quarterback is the provider eligible for risk-sharing or gain-sharing payments. Besides delivering and coordinating care for the patient during the episode of care, the quarterback receives quarterly reports showing how their performance on quality and cost metrics compares to other TennCare quarterbacks for that same episode across the state. Quarterbacks who provide high-quality, cost-effective care are rewarded with a gain-sharing payment at the end of the performance year. Gain-sharing payments are made on an annual basis to those quarterbacks that met thresholds for episode specific quality metrics and have an average episode spend below a set "commendable" threshold. Likewise, quarterbacks owe risk-sharing payments if their average episode spend exceeds a set "acceptable" threshold.

Each episode has a "trigger" that initiates the start of an episode. For the perinatal episode, the trigger is the vaginal or Cesarean-section (C-section) delivery of a live infant. Each episode can include a period before the trigger ("pre-trigger window") and extend after the trigger ("post-trigger window"). The "pre-trigger window" covers prenatal care in the 40 weeks prior to delivery. The "post-trigger window" covers postnatal care in the 60 days after the mother is

1 Estimated episode savings are calculated as the difference between actual cost and projected cost. The projected cost includes a 3 percent annual medical inflation rate for specialty care services provided in TennCare, confirmed by TennCare's actuaries.

2 Unless otherwise noted, quality metric comparisons in this report compare 2018 performance year data to data from the year prior to each episode's first performance year. Note that the ODD analysis compares 2018 performance year data to data from 2015.

discharged from the hospital. The episode can include services from multiple providers, but the episode is designed to only include spend relevant to the episode.

Episodes of care is a retrospective payment model, meaning the value-based payments occur after included services have already been rendered and providers paid according to existing payment arrangements. The program is designed to financially reward high-quality, cost-effective providers. Each episode has defined quality metrics, such as the C-section rate for the perinatal episode. When providers meet all quality metric thresholds tied to gain-sharing and have an average episode spend lower than a set "commendable" threshold, they receive a gain-sharing payment. If their average episode spend is above an "acceptable" threshold, they owe a risk-sharing payment. The gain-sharing and risk-sharing thresholds are set annually so that the gain-sharing and risk-sharing payments are projected to be approximately equal by MCO. Notably, however, gain-sharing payments have exceeded risk-sharing payments in all four years of reporting, with gain-sharing payments in 2018 exceeding risk-sharing payments by $686,000.[3]

Providers first received episode reports in 2014, so the program can be assessed across multiple years. Episodes were introduced in waves, with the first wave consisting of the perinatal, total joint replacement, and asthma acute exacerbation episodes. As of the 2019 performance year, there are 48 episodes with reports going to providers (see *Exhibit 2*). This report only includes episodes in waves one through six, because those episodes were in performance as of 2018.[4]

Exhibit 2: **TennCare's 48 episodes of care as of 2019 performance year**

Status	Wave	Episode
In Performance	1	Perinatal
		Asthma acute exacerbation
		Total joint replacement
	2	COPD acute exacerbation
		Colonoscopy
		Cholecystectomy
		PCI – acute
		PCI – non acute
	3	GI hemorrhage
		EGD
		Respiratory infection
		Pneumonia
		UTI – outpatient
		UTI – inpatient
	4	ADHD
		CHF acute exacerbation
		ODD
		CABG
		Valve repair and replacement
		Bariatric surgery
In Performance	5	Breast biopsy
		Otitis media
		Tonsillectomy
	6	Skin and soft tissue infections
		HIV
		Pancreatitis
		Diabetes acute exacerbation
	7	Spinal fusion
		Spinal decompression
		Femur / pelvic fracture
		Knee arthroscopy
		Ankle non-operative injuries
		Wrist non-operative injuries
		Shoulder non-operative injuries
		Knee non-operative injuries
		Back / neck pain
In Performance	8	Acute Seizure
		Syncope
		Acute gastroenteritis*
		Bronchiolitis
		Pediatric pneumonia
		Colposcopy
		Hysterectomy
		Gastrointestinal obstruction
		Appendectomy
		Hernia repair
Preview	9	Acute kidney and ureter stones
		Cystourethroscopy

*delayed to 2020 performance period

3 Episode design also has exclusions in place for episodes with a different care pathway. There are several types of exclusions applied to all episodes (e.g., business exclusions, clinical exclusions, overlapping episode exclusions). After all exclusions have been applied, a set of valid episodes remain that are used for financial accountability.

4 Each wave begins with a preview period, where providers receive five quarterly informational-only episode reports. After the preview period, providers receive episode performance reports that are tied to financial accountability. Incentive payments are assessed after the fifth quarterly episode performance report.

This report focuses on a sample of episodes which were chosen because they were introduced earlier in the program and thus have multiple years of data and provider performance to analyze.

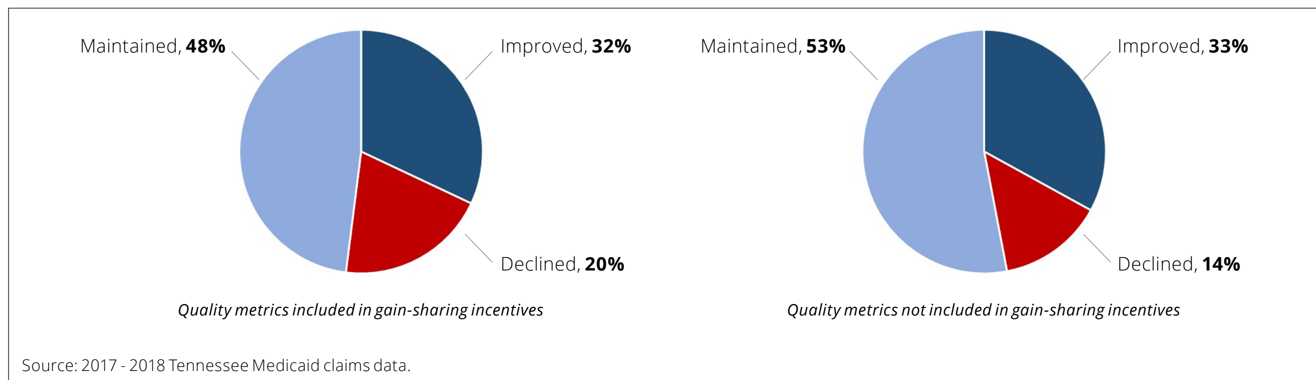
The perinatal episode was chosen for analysis as it is one of the largest in volume (approximately half of births in Tennessee are covered by TennCare), it is one of the first episodes designed (continuous data since 2014), and it is the episode that generates the largest estimated savings. It has also been implemented by some commercial payers in Tennessee and nationally. The asthma acute exacerbation episode was chosen because it is also one of the first episodes designed, it is high volume, and it stands out as having one of the highest estimated savings rates as a percentage of spend (39 percent savings per episode). The oppositional defiant disorder (ODD) episode was chosen because it is the behavioral health episode with the most years of performance data and because of its comparatively high percentage of estimated savings (35 percent savings per episode).

Within each of these episodes, provider groups with meaningful spend reductions and quality improvements, as well as engagement with the program, were identified. Some of these provider groups were interviewed to identify best practices and experiences that could further the improvement of care going forward.

Finding 1: Quality has improved or maintained across the majority of episodes

Overall, 80 percent of metrics tied to gain-sharing incentives between 2017 and 2018 showed either improvement or maintained performance, and 86 percent of metrics not tied to gain-sharing showed either improvement or maintained performance (see *Exhibit 3*).[5]

Exhibit 3: **Change in quality metrics tracked across episodes 2017 to 2018**



Source: 2017 - 2018 Tennessee Medicaid claims data.

For example, in the perinatal episode, the Human Immunodeficiency Virus (HIV) screening rate (tied to gain-sharing) improved from 2017 to 2018, while C-section rates (also tied to gain-sharing) were maintained, oscillating between 30 percent and 32 percent over the five years that were measured. In the asthma acute exacerbation episode, there were 471 fewer asthma acute exacerbations in an inpatient setting in 2018 compared to 2014,[6] representing an

5 The period 2017 to 2018 was chosen for comparison of quality metrics across all episodes because that is the most recent performance year, and that time period included the most episodes. This analysis is based on quality metrics that are indicative of performance and use a percentage rate. Improvement was defined as a change in the desired direction of greater than or equal to 1 percentage point. Decline was defined as a change against the desired direction of greater than or equal to 1 percentage point. Changes of less than 1 percentage point were defined as "maintained". In this analysis, 126 quality metrics were tracked from 2017 to 2018, of which 31 were gain-sharing. Some quality metrics are not indicative of performance or not presented as a percentage rate and have not been included in the analysis.

6 This figure is based on the absolute number of inpatient admissions triggering a valid episode. The figure excludes readmissions within 30 days of the episode trigger.

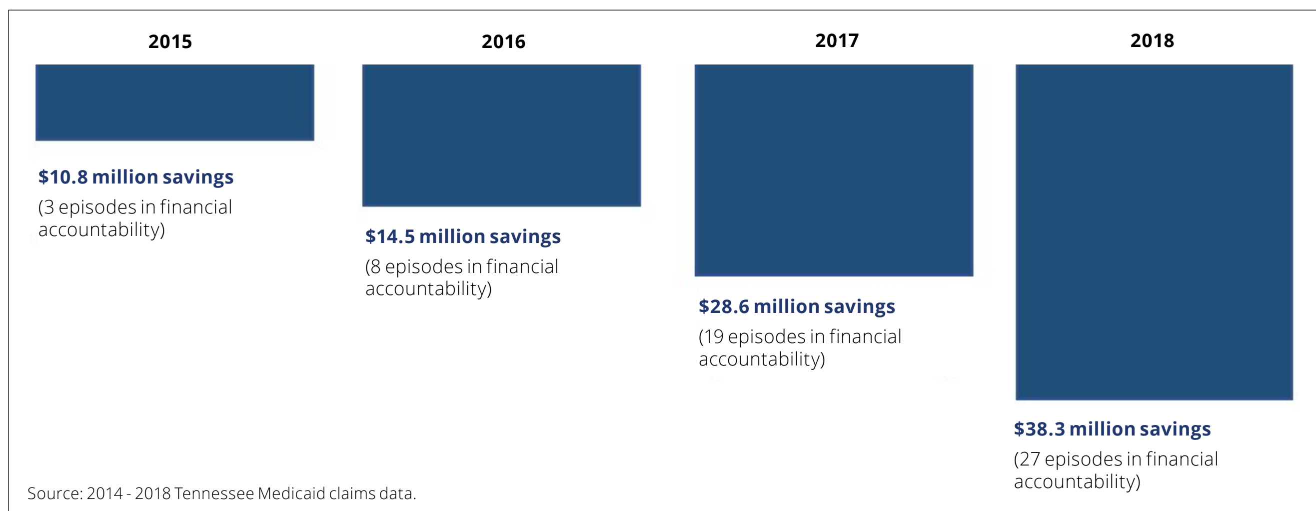
improvement each year from 2014 to 2018. Other quality metrics tied to gain-sharing that improved from 2017 to 2018 for this episode are appropriate asthma medications prescribed and the proportion of patients receiving asthma follow-up care within a month of the exacerbation. For the five asthma acute exacerbation quality metrics not tied to gain-sharing, four metrics maintained performance and one metric improved.

However, these trends of improvement or maintenance are not uniform across all episodes. For instance, though the ODD episode has seen 641 fewer children with non-comorbid ODD receiving inappropriate behavioral health medication in 2018 than in 2015, the proportion of children receiving at least six therapy and/or Level-I case management[7] visits in six months (the "minimum care requirement" quality metric) decreased from 36 percent in 2017 to 32 percent in 2018, despite improving from 27 percent in 2016.

Finding 2: The cost of care decreased

The majority of episodes have lower than projected spend (22 out of 27 episodes). As shown in *Exhibit 4*, the episodes program resulted in an estimated savings of $10.8 million in 2015, $14.5 million in 2016, $28.6 million in 2017, and $38.3 million in 2018.[8] All the episodes reporting since 2014 (asthma acute exacerbation, total joint replacement, and perinatal) realized spend reductions. Based on 2018 analyses, five episodes (acute percutaneous coronary intervention, non-acute percutaneous coronary intervention, gastrointestinal hemorrhage, bariatric surgery, and HIV) did not show estimated savings. Bariatric surgery, acute PCI, and non-acute PCI are low in volume, so they are subject to more significant variability.[9] Though GI hemorrhage did not show estimated savings in 2018, the episode showed estimated savings in 2017 (its first year of performance). 2018 is the first year of performance for the HIV infection episode, and TennCare will continue to monitor its performance alongside the performance of all the other episodes that did not show estimated savings.

Exhibit 4: **Estimated episodes savings by performance year**



Source: 2014 - 2018 Tennessee Medicaid claims data.

7 Level-1 case management services provide frequent and comprehensive support to individuals, with a focus on recovery and resilience. These services are for individuals with complex behavioral health needs, including those who are at high risk of future hospitalization or placement out of the home and require both community support and treatment interventions. These services are rendered through a team approach which includes a therapist and care coordinator who work under the direct clinical supervision of a licensed behavioral health professional. The primary goal of these services is to reach an appropriate point of therapeutic stabilization, so the individual can be transitioned to fewer home-based services and be engaged in appropriate behavioral health office-based services.

8 Estimated episode savings are calculated as the difference between actual cost and projected cost. The projected cost includes a 3 percent annual medical inflation rate for specialty care services provided in TennCare, confirmed by TennCare's actuaries.

9 *Results: Episodes of Care 2018 Performance Period,* prepared by Division of TennCare, (September 27, 2019), https://www.tn.gov/content/dam/tn/tenncare/documents2/EpisodesOfCare2018PerformancePeriod.pdf.

As of 2018, episodes with the highest estimated reduction in average spend include perinatal (spend reduction of $13.5 million in 2018), respiratory infection (spend reduction of $6.8 million in 2018), and asthma acute exacerbation (spend reduction of $4.2 million in 2018). By percentage of total spend, the episodes with the highest estimated savings were valve repair and replacement (51 percent), asthma acute exacerbation (39 percent), and ODD (35 percent).

Finding 3: Individual provider groups and hospitals have made a variety of changes to improve quality and reduce spend

Some provider groups and hospitals were particularly successful with episodes. During interviews, these providers described their successful practices.

Perinatal episode: Individual provider groups have improved quality and reduced spend. Many provider groups improved their prenatal group B streptococcus screening rates. This screening is important for women prior to delivery, as group B streptococcus is usually asymptomatic in the mother, and transmission to the baby during delivery can lead to serious negative outcomes. Provider groups are also taking cost-effective measures to manage episode spend, such as using diagnostics more appropriately by limiting antenatal imaging and genetic testing to more appropriate levels.

Asthma acute exacerbation episode: Individual hospitals have improved quality and reduced spend. In the asthma acute exacerbation episode, there have been notable reductions in hospitalizations, potentially through improved screening and triage designed to identify patients in earlier and milder stages of exacerbation, as well as by providing emergency phone lines and environmental improvement support. A more holistic approach involving improved follow-up care may have contributed to lower repeat exacerbation rates. In addition, some provider groups changed their delivery model by introducing specialist asthma units with faster and more consistent care and by prescribing more appropriate medications. For example, one provider group interviewed started delivering oral dexamethasone in the hospital (usually a single dose is sufficient) instead of requiring that patients pick up a prescription for a whole course of glucocorticoids after discharge. Incentivizing quarterbacks in this episode to prescribe an appropriate drug during the acute exacerbation potentially reduces the need for future medications and improves the effectiveness of medications when required in the future.

Oppositional Defiant Disorder episode: Individual provider groups have improved quality and reduced spend. In the ODD episode, provider groups improved their ability to capture other behavioral health diagnoses occurring alongside ODD, which increased diagnostic accuracy in the data submitted to payers. They also reduced the amount of inappropriate behavioral health medication prescribed for children; the proportion of episodes in which children receive unnecessary behavioral health medications decreased from approximately 23 percent in 2015 to four percent in 2018. Through more accurate assessments, targeted treatment planning, and various internal administrative and clinical trainings focused on the ODD episode of care, provider groups increased the adherence to therapy sessions and made them easier to attend. Overall, provider groups have increased the mindfulness around clinical treatment of patients with ODD, ensuring they pay close attention to what affects their quality and cost of the care. The Tennessee Health Link program (another delivery system transformation strategy in Tennessee) may also be contributing to the more effective deployment of clinical services by providing additional data and care coordination resources.

Definition of terms

Term	Definition
Asthma acute exacerbation	Exacerbation is the temporary deterioration of a condition. In asthma, an exacerbation may be an attack of wheezing and difficulty breathing that requires immediate treatment but ultimately abates. In the context of the TennCare episodes program, this episode is triggered by an ED visit, observation stay, and/or an inpatient stay, the primary purpose of which is to treat acute symptoms attributed to the asthma exacerbation. Following discharge, the episode includes all asthma-related care (e.g., drug therapy and follow-up care such as home health visits). The episode also includes treatment for repeat asthma acute exacerbations occurring within 30 days and further treatment at a hospital if indicated. The complete asthma acute exacerbation episode begins with the ED or inpatient admission and ends 30 days after the patient is discharged.[A]
Care coordination	Care coordination is the management of services on behalf of an individual person and may involve a designated "case manager" visiting the person's household (e.g., identifying additional therapy needs).
Cesarean-section rate	The Cesarean-section (C-section) rate is defined as the share of total deliveries in valid episodes carried out as C-sections.
Comorbidity	Comorbidities are any other relevant conditions accompanying the main diagnosis that triggered the episode. In the context of the ODD episode, comorbidities are all behavioral health conditions other than ODD. In the context of risk-adjustment, comorbidities refer to all coded conditions that have a risk-adjustment weight attached to them.
Emergency department (ED)	An emergency department is the part of the hospital where acute patients receive acute emergency treatment–followed by either admission as an inpatient, discharge, or an observation period.
Episode of care	Episodes of care cover acute or specialist-driven health care delivered during a specified time period to treat a physical or behavioral health condition. Episodes have been designed to incentivize high-quality care, promote the use of clinical pathways and evidence-based guidelines, encourage coordination, and reduce ineffective and/or inappropriate care.
Gain-sharing	Gain-sharing is the term for a financial reward to providers for high-quality, cost-effective care. Providers who meet the quality metric thresholds and whose average risk-adjusted episode spend is below a "commendable" threshold receive 50 percent of the cost savings.

A *Executive Summary, Asthma Acute Exacerbation Episode,* prepared by the Division of TennCare, (December 6, 2016), https://www.tn.gov/content/dam/tn/tenncare/documents2/AsthmaSumm2017V3.pdf.

Term	Definition
Minimum care requirement	The "minimum care requirement" is a quality metric for the ODD episode that is tied to gain-sharing. It is fulfilled if, within 180 days of the episode window, at least six therapy and/or Level-I case-management visits have taken place. A higher rate is indicative of better performance.[B]
Oppositional defiant disorder (ODD)	Oppositional defiant disorder is a type of behavior disorder. Children with ODD are uncooperative, defiant, and hostile toward peers, parents, teachers, and other authority figures.[C] In the context of the TennCare episodes program, the trigger event is either a professional claim with a primary diagnosis of ODD, or diagnosis of ODD-specific symptoms and a secondary diagnosis code for ODD, accompanied by a procedure for an assessment, test, case management, evaluation & management, medication management, or therapy visit. Only care with a primary diagnosis of ODD, or a primary diagnosis for ODD-specific symptoms and a secondary diagnosis code for ODD, as well as a specific list of medications, are included in the episode spend. The quarterback is the provider with the plurality of visits for ODD during the episode window (see below). The ODD episode begins on the day of the triggering visit when ODD is first coded in the episode and extends for an additional 180 days.[D]
Patient journey	A patient journey is the series of events a patient experiences during the treatment of a healthcare condition over a specified period of time. Mapping services such as physician visits, hospital admissions, ED visits and prescriptions along the patient journey can highlight and visualize the impact of care improvements on patient experience and the typical course of events.
Percutaneous coronary intervention (PCI)	Percutaneous coronary intervention is a non-surgical intravascular (through blood vessels) procedure that treats narrowing of the coronary arteries arising from coronary artery disease.
Perinatal	Perinatal means "around the time of birth." In the context of the TennCare episodes program, the perinatal episode centers around pregnant women. The trigger event is the birth of a live infant. All pregnancy-related care, including prenatal visits, lab tests, ED visits, medications, ultrasound imaging, delivery of the baby (professional and facility components), and postnatal care of the mother are included in the perinatal episode. A complete perinatal episode begins 40 weeks (280 days) before delivery and ends 60 days after the mother is discharged from the hospital following the birth of her infant.[E]

B *Executive Summary, Oppositional Defiant Disorder Syndrome,* prepared by the Division of TennCare, (June 5, 2017), https://www.tn.gov/content/dam/tn/tenncare/documents2/OODSumm2017V14.pdf.

C "Oppositional Defiant Disorder in Children," Johns Hopkins Medicine, accessed December 5, 2018, https://www.hopkinsmedicine.org/healthlibrary/conditions/mental_health_disorders/oppositional_defiant_disorder_90,p02573.

D *Executive Summary, Oppositional Defiant Disorder Episode,* prepared by the Division of TennCare, (June 5, 2017), https://www.tn.gov/content/dam/tn/tenncare/documents2/OODSumm2017V14.pdf.

E *Executive Summary, Perinatal Episode,* prepared by the Division of TennCare, (January 12, 2017), https://www.tn.gov/content/dam/tn/tenncare/documents2/PeriSumm2017V3.pdf.

Term	Definition
Quarterback	In the context of the episodes program, the "quarterback", or principal accountable provider, is the provider that is in the best position to influence quality and cost of care. Often they are the provider that made the initial diagnosis and claim relating to the episode. The quarterback is the party financially accountable within episodes. They are therefore responsible for achieving quality and spend thresholds and are eligible for gain-sharing or risk-sharing payments.
Quality metric	Quality metrics are tools that measure healthcare processes, outcomes, patient perceptions, organizational structures, and/or systems associated with providing high-quality healthcare and/or one or more healthcare quality goals. These goals include effective, safe, efficient, patient-centered, equitable, and timely care.[F] Every episode has specific quality metrics. Some quality metrics are tied to gain-sharing payments, meaning gain-sharing payments are only paid if a quarterback meets the thresholds for the episode's specific quality metrics. Other quality metrics are tracked only for informational purposes.
Readmission	A readmission is a repeated admission to a hospital within the same episode (a defined number of days after the episode started). Readmission rates have increasingly been used as an outcome measure in health services research and as a benchmark of the quality of health systems.
Risk-adjustment	Risk-adjustment is a method used to scale the spend for medical services up or down so that the spend becomes comparable across providers regardless of the complexity of their patients. This adjustment is done on the basis of the comorbidities coded by providers. For example, an expecting mother with diabetes (a comorbidity) will need more complex care that is more expensive. Therefore, with risk-adjustment, the spend for this episode is scaled down to the equivalent of an expecting mother without diabetes.
Risk-sharing	Risk-sharing is the term for financial payments by providers to share a portion of any risk-adjusted spend above a set "acceptable" threshold.
Spend reduction	Reduction in the claims spend paid to providers by the Managed Care Organizations (MCOs)/payers for all the services provided as part of an episode. This does not include gain-sharing and risk-sharing payments.

F "Quality Measures," Centers for Medicare and Medicaid Services, accessed December 5, 2018, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/index.html.

Finding 1: Quality has improved or maintained across the majority of episodes

Improving or maintaining quality is an important goal of the TennCare episodes program. To measure quality, the program uses metrics based on claims data that quantify healthcare processes and outcomes associated with high-quality healthcare. Quality goals include effective, safe, efficient, patient-centered, equitable, and timely care.[10] The program is designed to make provider groups who meet defined thresholds for the quality metrics eligible for gain-sharing.

Providers have improved or maintained quality of care since the episodes program's inception. Within the 27 episodes in financial accountability during 2018, 31 of the 126 quality metrics indicative of performance are tied to gain-sharing. If provider groups meet the thresholds for gain-sharing metrics and their spend is below the "commendable" threshold, they are eligible for a gain-sharing payment. Between 2017 and 2018,[11] both gain-sharing metrics and metrics not tied to gain-sharing improved or maintained at similar rates; 80 percent of gain-sharing metrics improved or maintained performance, compared to 86 percent of metrics not tied to gain-sharing. Generally, quality metric performance declined in lower-volume episodes, which are subject to greater year-to-year variations in performance. When performance declines occurred, the rates typically declined by less than 5 percentage points. The following section discusses changes in quality metrics for a sample of three episode types that were introduced earlier in the program and thus have multiple years of data and provider performance to analyze: perinatal, asthma acute exacerbation, and ODD.

Perinatal

The perinatal episode was one of the first to be designed and is among the largest with 21,283 valid episodes in 2018. Group B streptococcus screening rate is the metric with the greatest overall improvement among those tied to gain-sharing; though the rate remained steady between 2017 and 2018, the metric shows an overall improvement from 88 percent in 2014 to 95 percent in 2018 (see *Exhibit 5*). Among metrics not tied to gain-sharing, the Tetanus, Diphtheria, Pertussis (Tdap) vaccination rate also showed a positive trend. Although the rate remained steady from 2017 to 2018, the metric increased from 23 percent in 2014 to 79 percent in 2018.[12] Note that most other metrics showed more modest improvements or maintained performance. For instance, the C-section rate[13] remained largely the same, oscillating between 30 percent and 32 percent from 2014 to 2018.

10 "Quality Measures," Centers for Medicare and Medicaid Services, accessed December 5, 2018, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/index.html.

11 The period 2017 to 2018 was chosen for comparison of quality metrics across all episodes because that is the most recent performance year, and that time period included the most episodes. This analysis is based on quality metrics that are indicative of performance and use a percentage rate. Improvement was defined as a change in the desired direction of greater than or equal to 1 percentage point. Decline was defined as a change against the desired direction of greater than or equal to 1 percentage point. Changes of less than 1 percentage point were defined as "maintained". In this analysis, 126 quality metrics were tracked from 2017 to 2018, of which 31 were gain-sharing. Some quality metrics are not indicative of performance or not presented as a percentage rate and have not been included in the analysis.

12 In 2013, the American College of Obstetricians and Gynecologists (ACOG) published an updated recommendation that a dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) should be administered during each pregnancy, irrespective of the prior history of receiving Tdap. *Update on immunization and pregnancy: tetanus, diphtheria, and pertussis vaccination. Committee Opinion No. 718. American College of Obstetricians and Gynecologists. Obstet Gynecol 2017;130:e153–7.*

13 The rate is equal to the percent of valid episodes where the patient undergoes a C-section within the trigger window.

Exhibit 5: **Average performance on gain-sharing and non-gain-sharing quality metrics for the perinatal episode**

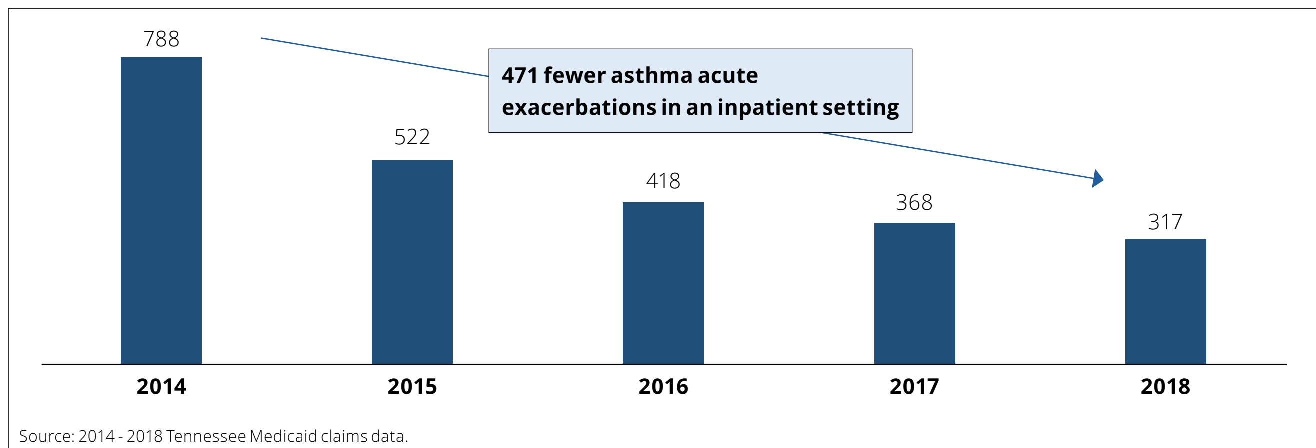
Perinatal Episode	Direction of Quality Metric	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018
Tied to gain-sharing payment						
1. HIV Screening (≥ 85%)	Higher is better	90.2%	88.3%	87.7%	89.1%	92.8%
2. Group B Streptococcus Screening (≥ 85%)	Higher is better	87.8%	85.9%	94.0%	95.5%	95.2%
3. C-Section Rate (≤ 41%)	Lower is better	30.5%	31.6%	30.6%	31.2%	30.8%
Not tied to gain-sharing payment						
1. Screening for gestational diabetes	Higher is better	80.5%	79.1%	83.7%	81.9%	82.6%
2. Screening for asymptomatic bacteriuria	Higher is better	81.1%	79.8%	82.0%	81.3%	82.8%
3. Screening for hepatitis B specific antigens	Higher is better	86.9%	83.7%	84.3%	82.4%	86.5%
4. Tdap vaccination	Higher is better	22.9%	29.4%	78.9%	78.7%	78.9%

Source: 2014 - 2018 Tennessee Medicaid claims data.

Asthma acute exacerbation

The asthma acute exacerbation episode was also one of the first to be designed and is one of the largest, with 11,298 valid episodes in 2018. The episode has seen a reduction in the proportion of patients admitted, with 471 fewer asthma acute exacerbations in an inpatient setting in 2018 than in 2014 (see *Exhibit 6*).

Exhibit 6: **The asthma acute exacerbation episode saw a reduction in the number of patients first treated in the inpatient setting**[14]



Source: 2014 - 2018 Tennessee Medicaid claims data.

The two quality metrics tied to gain-sharing improved from 2017 to 2018 (see *Exhibit 7*). Follow-up care given during the 30 days following the initial presentation improved from 30 percent in 2017 to 32 percent in 2018, after holding steady from 30 percent in 2016. Note that the data for 2014 and 2015 are not shown due to a change in the metric's definition.[15] The metric of appropriate medications also improved from 65 percent in 2017 to 70 percent in 2018, after improving from 60 percent in 2016. Among the five metrics not tied to gain-sharing, four metrics maintained performance while one metric improved. The metric that improved is chest X-ray utilization, which dropped from 63

14 Data is only shown for valid episodes.

15 The follow-up metric definition included preventive visits but not confirming diagnostic visits from 2014 to 2015, whereas the 2016 to 2017 definition included confirming diagnostic treatment visits but not preventive visits.

percent in 2017 to 22 percent in 2018 (a lower rate is indicative of better performance). Chest X-rays are often not medically necessary in an asthma exacerbation episode.

Exhibit 7: **Average performance on gain-sharing and non-gain-sharing quality metrics for the asthma acute exacerbation episode**

Asthma Episode	Direction of Quality Metric	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018
Tied to gain-sharing payment						
1. Follow-up Visit with Physician (≥ 30%)	Higher is better	N/A	N/A	29.6%	30.3%	32.4%
2. Patient on Appropriate Medication (≥ 30%)	Higher is better	N/A	N/A	60.3%	65.4%	69.5%
Not tied to gain-sharing payment						
1. Repeat Acute Exacerbation within 30 days	Lower is better	6.4%	6.9%	6.5%	7.2%	7.3%
2. Inpatient Episodes	Lower is better	6.0%	4.1%	3.2%	3.1%	2.8%
3. Smoking Cessation Counseling	Higher is better	0.6%	0.8%	2.1%	2.4%	2.5%
4. Patient Education	Higher is better	27.1%	45.6%	20.3%	24.8%	24.9%
5. Chest X-ray	Lower is better	46.1%	54.2%	62.8%	62.9%	22.0%

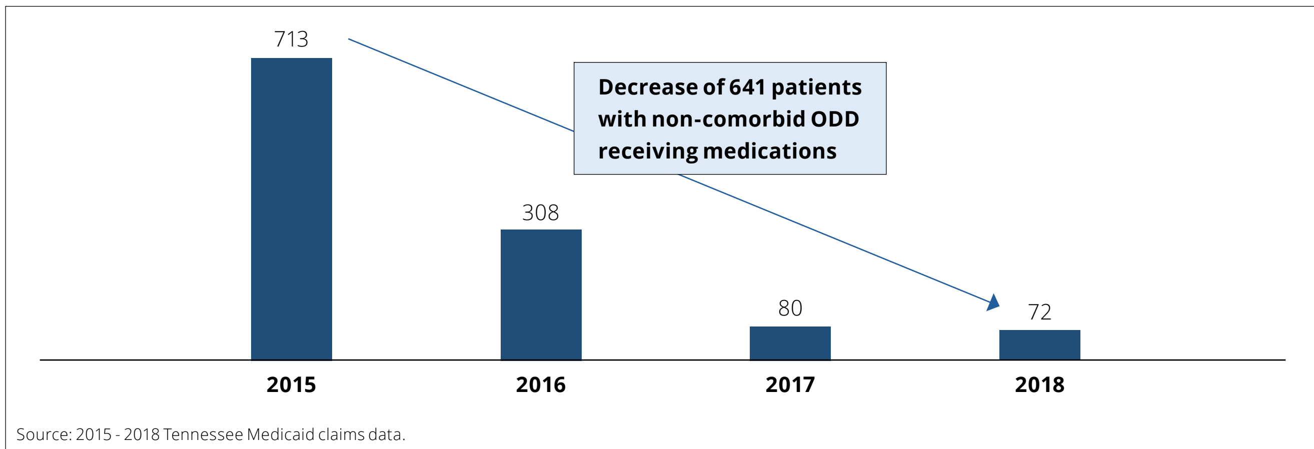
Source: 2014 - 2018 Tennessee Medicaid claims data.

Oppositional defiant disorder

For the ODD episode, there was mixed improvement in quality. Based on input from Tennessee clinicians who helped to design the ODD episode, therapy and family-based interventions are the appropriate treatments for ODD. Inappropriate behavioral health medication use in children with ODD as their only behavioral health condition (i.e., no comorbidities such as attention deficit hyperactivity disorder (ADHD)) improved from 23 percent of children in 2015 to four percent of children in 2018. As shown in *Exhibit 8*, this finding suggests that in 2018, 641 fewer children received inappropriate behavioral health medication than in 2015. The reduction reflects two improvements. First, there is a movement to reduce the use of inappropriate behavioral health medication in children with ODD as their only behavioral health diagnosis, as behavioral health medication use in these children is not generally recommended.[16] Second, provider groups are coding more behavioral health conditions in addition to ODD as part of an intentional effort to improve diagnostic accuracy. This increase in coded comorbidities results in a relative decrease in the proportion of cases with only ODD and, within this smaller group, a decrease in the proportion of children receiving behavioral health medication (see also the ODD discussion in Finding 3).

16 "Condensed Clinical Practice Guidelines Oppositional Defiant Disorder (ODD)", PerformCare, accessed November 28, 2018, https://pa.performcare.org/pdf/providers/quality-improvement/cpg/cpg-oppositional-defiant-disorder.pdf; *ODD: A Guide for Families by the American Academy of Child and Adolescent Psychiatry*, prepared by the American Academy of Child & Adolescent Psychiatry, 2009, https://www.aacap.org/app_themes/aacap/docs/resource_centers/odd/odd_resource_center_odd_guide.pdf; "Oppositional Defiant Disorder (ODD)," Mayo Clinic.

Exhibit 8: **There was a reduction in the number of ODD episodes with ODD as the only behavioral health diagnosis receiving inappropriate behavioral health medication**[17]



Source: 2015 - 2018 Tennessee Medicaid claims data.

However, the gain-sharing metric for the "proportion achieving the minimum care requirement" decreased from 36 percent in 2017 to 32 percent in 2018, despite having improved from 27 percent in 2016 (see *Exhibit 9*). The minimum care requirement is six therapy and/or Level-I case management[18] visits during the 180 days of the episode. Clinical best practice suggests weekly visits for at least eight weeks. In turn, the year-to-year rate fluctuations indicate that some provider groups may not be following best practices yet. Further analysis reveals that though the overall rate was 32 percent in 2018, 34 percent of quarterbacks with at least five valid ODD episodes (accounting for roughly two-thirds of ODD quarterbacks) met the requirement, while only 21 percent of quarterbacks with less than five valid ODD episodes met the requirement. These findings suggest that opportunities for improvement exist, and further research of quarterback characteristics can be conducted to help drive such improvement.

Exhibit 9: **Average performance on gain-sharing and non-gain-sharing quality metrics for the ODD episode**

ODD Episode	Direction of Quality Metric	CY 2015	CY 2016	CY 2017	CY 2018
Tied to gain-sharing payment					
1. Minimum Care Requirement (≥ 70%)	Higher is better	29.8%	26.7%	35.8%	31.9%
Not tied to gain-sharing payment					
1. Medication with No Coded Behavioral Health Comorbidities	Lower is better	22.8%	8.2%	3.7%	3.6%
2. ODD as the Primary Diagnosis	Higher is better	45.6%	46.1%	46.7%	42.7%
3. Utilization (excluding medication) (Includes Evaluation and Management, Medication Management, Therapy, or Case Management Visits)	Rate not indicative of performance	11.30	9.74	9.41	7.76
4. Utilization of therapy and level I case management	Rate not indicative of performance	5.77	5.54	8.62	6.93

Source: 2015 - 2018 Tennessee Medicaid claims data.

17 Data is only shown for valid episodes.

18 Level-I case management services provide frequent and comprehensive support to individuals with a focus on recovery and resilience. These services are for individuals with complex behavioral health needs, including those who are at high risk of future hospitalization or placement out of the home and require both community support and treatment interventions. These services are rendered through a team approach which includes a therapist and care coordinator who work under the direct clinical supervision of a licensed behavioral health professional. The primary goal of these services is to reach an appropriate core of therapeutic stabilization so the individual can be transitioned to less in-home based services and be engaged in appropriate behavioral health office-based services.

Finding 2: The cost of care decreased

In addition to improving or maintaining the quality of care, incentivizing cost-effective care is a another key objective of the episodes program. The gain-sharing mechanism rewards provider groups financially if their average episode spend is below a set "commendable" level and if they meet the quality thresholds set by the program.

The majority of episodes have lower than projected spend (22 out of 27 episodes)

The episodes program resulted in spend reductions of $38.3 million in 2018 (see *Exhibit 10*).[19] Episodes that realized the highest estimated savings included perinatal (estimated savings of $13.5 million in 2018), respiratory infection (estimated savings of $6.8 million in 2018), and asthma acute exacerbation (estimated savings of $4.2 million in 2018). Of all episodes that were in financial accountability in 2018, acute percutaneous coronary intervention, non-acute percutaneous coronary intervention, gastrointestinal hemorrhage, and bariatric surgery, and HIV achieved no estimated savings. Bariatric surgery, acute PCI, and non-acute PCI are low in volume for TennCare. Due to their low volume, the estimated saving associated with these episodes are subject to more significant variability. Though GI hemorrhage did not achieve estimated savings in 2018, the episode did achieve estimated savings in 2017 (its first year of performance). 2018 is the first year of performance for the HIV infection episode. TennCare will continue to monitor performance in these episodes.

19 *Results: Episodes of Care 2018 Performance Period,* prepared by Division of TennCare, (September 27, 2019), https://www.tn.gov/content/dam/tn/tenncare/documents2/EpisodesOfCare2018PerformancePeriod.pdf. Estimated episode savings are calculated as the difference between actual cost and projected cost. The projected cost includes a 3 percent annual medical inflation rate for specialty care services provided in TennCare, confirmed by TennCare's actuaries.

Exhibit 10: **Episodes impact on healthcare spend**

CY 2018 Episodes	Average Episode Spend (Projected)	Average Episode Spend (Actual)	Estimated Savings per Episode	Percent Savings per Episode	Number of Valid Episodes	Total Estimated Savings
Total	-	-	-	-	**739,197**	**$38,253,650**
Perinatal	$7,533	$6,900	$632	9.2%	21,283	$13,456,251
Acute Asthma Exacerbation	$1,326	$951	$375	39.4%	11,298	$4,235,643
Total Joint Replacement	$13,638	$12,432	$1,207	9.7%	419	$505,532
Cholecystectomy	$4,936	$4,627	$309	6.7%	1,828	$565,725
Colonoscopy	$1,180	$995	$184	18.5%	2,776	$511,264
COPD	$2,535	$2,099	$436	20.8%	3,916	$1,706,887
Acute PCI	$9,947	$10,633	-$686	-6.5%	376	-$258,034
Non-acute PCI	$7,348	$7,430	-$82	-1.1%	125	-$10,253
GIH	$3,781	$3,933	-$152	-3.9%	1,309	-$198,963
EGD	$1,284	$1,163	$121	10.4%	7,650	$926,970
Respiratory Infection	$128	$112	$16	14.4%	421,079	$6,776,796
Pneumonia	$1,298	$1,240	$57	4.6%	2,825	$162,329
UTI-Outpatient	$160	$137	$23	16.4%	36,927	$834,223
UTI-Inpatient	$4,329	$3,673	$656	17.9%	1,260	$826,774
CHF	$6,094	$5,887	$206	3.5%	2,251	$464,635
ODD	$1,405	$1,042	$363	34.9%	2,000	$726,499
CABG	$30,584	$27,426	$3,158	11.5%	172	$543,118
Valve Repair and Replacement	$74,825	$49,478	$25,347	51.2%	73	$1,850,354
Bariatric Surgery	$8,310	$9,092	-$782	-8.6%	644	-$503,718
ADHD	$1,326	$1,285	$41	3.2%	25,695	$1,059,918
Breast Biopsy	$1,783	$1,701	$82	4.8%	969	$79,306
Otitis Media	$162	$149	$13	8.4%	137,276	$1,731,699
Tonsillectomy	$2,720	$2,565	$156	6.1%	6,264	$975,411
Skin and Soft Tissue Infection	$225	$204	$21	10.4%	47,286	$1,000,952
Pancreatitis	$6,207	$5,747	$459	8.0%	707	$324,700
Acute Diabetes Exacerbation	$5,623	$5,530	$94	1.7%	891	$83,371
HIV	$1,014	$1,079	-$65	-6.0%	1,898	-$123,740

Source: 2014 - 2018 Tennessee Medicaid claims data.

The spend reduction trends for the episodes selected for this report are detailed below:

Perinatal The perinatal episode saw the largest estimated savings in the program, which is attributable to the large number of episodes (21,283 valid episodes in 2018) and the meaningful estimated savings per episode ($632).[20]

Asthma acute exacerbation The asthma acute exacerbation episode stands out as having one of the highest estimated savings rates as a percentage of spend (39 percent estimated savings). It is second only to the valve repair episode (51 percent estimated savings), which has a much smaller volume (73 valid episodes in 2018) and is therefore subject to significant average-spend fluctuations.

Oppositional defiant disorder With a 35 percent estimated savings rate as a percentage of spend, the ODD episode also resulted in meaningful estimated savings. Note that ODD was the only behavioral health episode included in both the 2017 and 2018 performance periods.

20 This estimated savings calculation is based on comparing 2018 performance year data to data from the year prior to the episode's first performance year. This prior year data is adjusted by a three percent annual medical inflation rate for specialty services, as confirmed by TennCare actuaries.

Finding 3: Individual provider groups and hospitals have made a variety of changes to improve quality and reduce spend

The average quality improvements and spend reductions described in this report are the result of individual provider groups and hospitals changing the ways they deliver care. This section will examine these changes in greater detail and comment on the extent to which they have improved quality and reduced spend based on findings from data analysis and interviews with provider groups and hospitals.

Perinatal episode: Individual provider groups have improved quality and reduced spend

Overall, perinatal providers made slight improvements on episode quality metrics, although there are individual provider groups who were able to make larger improvements to the quality of perinatal care. As shown in *Table 1,* factors that can reduce spend while enhancing the quality of care include reduced complications, fewer readmissions, a more appropriate C-section rate, and more appropriate use of imaging.

Table 1: **Changes made by providers to improve quality and reduce spend for the perinatal episode**

What is changing	Why it is changing
Individual provider groups are ensuring more appropriate deliveries with fewer complications	• Appropriate C-section rate through more advanced care planning and patient education
Individual provider groups are reducing readmissions	• Appropriate C-section rate through more advanced care planning and patient education • Provision of 24/7 call centers to guide patients without requiring them to visit the hospital • Greater access to outpatient or community follow-up
Individual provider groups are reducing prenatal imaging (esp. ultrasounds) and genetic testing	• Appropriate type of imaging based on clinical need (e.g., 2D instead of 3D ultrasound) • Appropriate frequency of imaging based on clinical need (e.g., appropriate use of ultrasonographic monitoring in the third trimester) • More appropriate use of genetic testing (e.g., not for patients only interested in determining the sex of their unborn child early)
Individual provider groups are moving perinatal care to appropriate lower-cost locations, such as midwife units	• Greater access to alternative sites of care • Shifts in patient preference and acceptance of mid-level providers • Appropriate use of specialty care

There was not a particular source of value that stood out as the main change that most provider groups made; instead, different provider groups focused on the different components of care necessary for their practice. By implementing the episodes of care program, providers are getting new information about the quality and cost of care for their patients. This new information includes comparisons between the accountable provider and his or her peers.

A reduction in the rate of elective C-sections is both an indicator of quality and a means of spend reduction. One East Tennessee multispecialty physician group, for example, saw a one percent yearly spend decrease from 2014 to 2017, driven mostly by a reduction in elective C-sections. The 2017 spend difference between an episode with a C-section and one without for this provider group was more than $500. TennCare has a policy of paying the same amount for vaginal and C-section deliveries; however, C-section birth episodes are more expensive on average in part because the higher complication rate commonly seen in C-section episodes[21] leads to additional services and therefore additional costs. Providers have managed to reduce C-section rates through a variety of means. Examples include educating patients more about the risks of the procedure and earlier detection of problems that may trigger Maternal-Fetal Medicine referrals and thus more appropriate specialist treatment.

Reducing prenatal imaging was another cost-effective change in practice. For one obstetrician-gynecologist performing deliveries in multiple West Tennessee locations, previously nine percent of their episode spend was on imaging. Since the episodes program was introduced, the provider has reduced imaging use by bringing it in line with common medical practices and the guidelines set by the American College of Obstetricians and Gynecologists (ACOG),[22] thereby reducing the imaging share of episode spend to five percent in 2017. Similarly, some provider groups are reducing their spend on genetic testing. One Middle Tennessee multi-specialty physician group interviewed, for example, reduced its genetic testing spend by more than half in 2017 by changing laboratories and providing education on appropriate utilization of testing for patients who were interested exclusively in early determination of the sex of their unborn child.

Asthma acute exacerbation episode: Individual hospitals have reduced spend and improved quality

As shown in *Table 2,* changes that can contribute to spend reduction while enhancing quality of care for the asthma acute exacerbation episode include more appropriate use of diagnostic imaging, moving care to more appropriate sites (more outpatient care and specialized units instead of inpatient wards and EDs), and reducing repeat exacerbations. Repeat exacerbations can be reduced through a variety of methods. Examples include prescribing appropriate medications after the initial exacerbation, increasing follow-up, and improving patient education.

21 Farnaz Zandvakili et al., "Maternal Outcomes Associated with Caesarean versus Vaginal Delivery," *Journal of Clinical and Diagnostic Research.* 11 vol. 7, (July 2017): QC01-QC04.

22 ACOG has published position statements that all women should be offered fetal aneuploidy screening and if done in the first trimester, this may include an ultrasound to examine nuchal translucency. All women should also receive a second trimester anatomy scan. This means a total of two ultrasounds for a healthy, normal, low risk pregnancy.

Table 2: **Changes made by hospitals to improve quality and reduce spend for the asthma acute exacerbation episode**

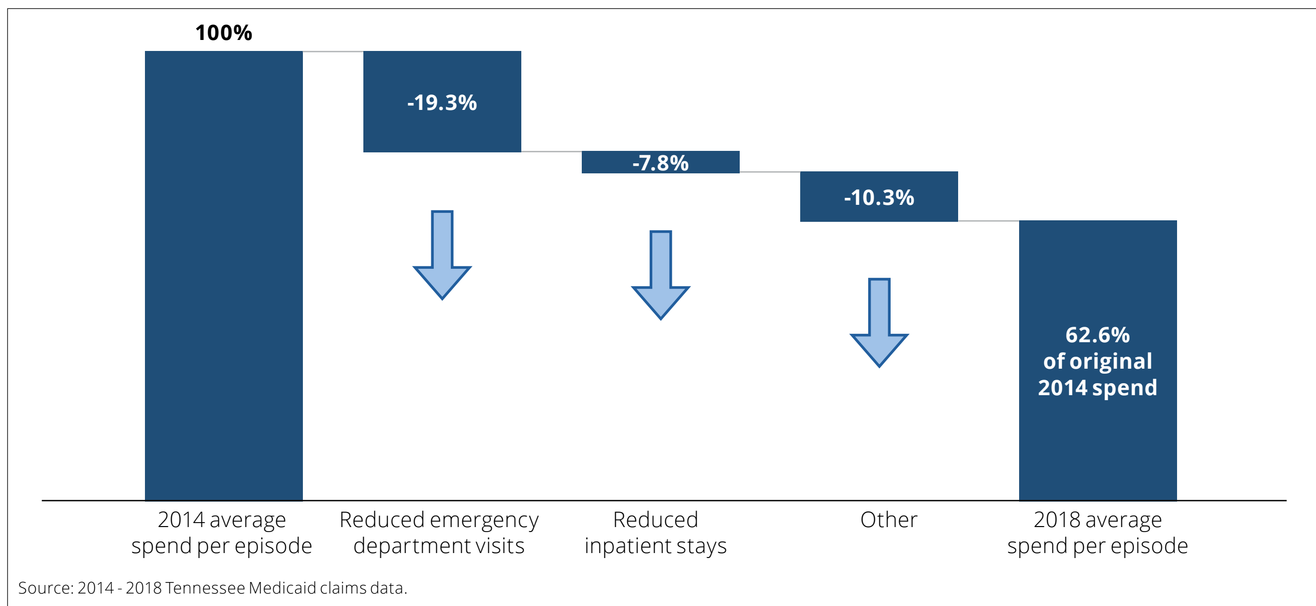
What is changing	Why it is changing
Individual hospitals are reducing inpatient utilization in the trigger window	• More stringent admission criteria and changed admissions processes (e.g., triage, referral hotline, specialist advice to community physicians) • Increased ability to manage high-complexity cases in the ED without a need to admit • Increased use of observation units • Earlier detection through screening, patient education, and outreach
Individual hospitals are reducing repeat exacerbations	• Appropriate glucocorticoid prescribing, especially providing the patient with a single dose of oral dexamethasone while still inside the hospital, instead of giving patients with mild to moderate episodes a prescription for a course of glucocorticoids to pick up themselves • More appropriate escalation of chronic medication (e.g., appropriate step therapy escalation) • Improved patient education • More effective follow-up care (e.g., follow-up phone calls, scheduling primary care physician visit prior to discharge, increased access to next-day primary care physician or specialist appointments, improved care coordination with ambulatory providers) • Environmental interventions (e.g., removing allergens from the home environment)
Individual hospitals are providing more appropriate care in ED	• Use of specialized asthma units / fast-track areas • Lower complexity / intensity of evaluation and management services • Appropriate use of imaging (e.g., chest X-ray) • Early provision of systemic glucocorticoids

Across the asthma acute exacerbation episode, reductions in inpatient admissions have contributed to spend reductions for many provider groups. Between 2014 and 2017, a major East Tennessee hospital interviewed reduced inpatient admissions by 17 percent per year. Their holistic approach, including an asthma screening program, contributed to this result by screening children for risk of an exacerbation and then having qualified respiratory therapists educate the patient and family about the condition. Parents of high-risk children receive training by asthma educators on how to respond to an acute asthma attack and avoid complications that could lead

to an inpatient admission.[23] The hospital has also made a deliberate effort to standardize the education they give to patients across different departments so that it aligns with best practice.

A major West Tennessee hospital interviewed introduced a similar holistic asthma management program.[24] Since its inception in 2013, this program is exclusive to TennCare children and involves children being looked after by a care team of community health workers, asthma care educators, nurses, and social workers that support families in their homes and communities. The care team makes referrals and advocates on behalf of patients. The program also provides environmental interventions, reinforces asthma education, and helps patients navigate psychosocial issues. Since 2013, more than 400 high-risk children have been enrolled, and this program has led to reductions in inpatient admissions, from 10 percent to six percent of enrolled children per quarter, as well as reductions in ED admissions and costs. These reductions have reduced spending in the associated hospital system's asthma episodes, as evidenced in *Exhibit 11*.

Exhibit 11: **Factors driving asthma acute exacerbation episode spend reduction at a West Tennessee hospital system 2014 to 2018**



Source: 2014 - 2018 Tennessee Medicaid claims data.

Other providers have reduced repeat exacerbations by increasing the number of patients who are prescribed appropriate medication. "Appropriate" in this context means the administration of a course of oral glucocorticoids or a single dose of oral or injected dexamethasone upon discharge from the ED. Appropriate medication has been shown to reduce repeat exacerbations, and thus costly ED and inpatient admissions. Some hospitals interviewed

23 Interview with provider on December 6, 2018.

24 Interview with provider on December 7, 2018.

have moved to providing the patient with a single dose of oral dexamethasone while still inside the hospital, instead of giving patients with mild to moderate episodes a prescription for a course of glucocorticoids to pick up themselves. They report this practice has meaningfully increased adherence. Other providers have moved to injecting dexamethasone in the ED, which has been shown in at least one study to be of equal efficacy.

More consistency in adhering to best practice guidelines is another driver for quality improvement and spend reduction. A West Tennessee hospital system interviewed achieved this by introducing a specialized asthma unit with specifically trained nursing staff. Monthly reports on the department's performance on asthma care are posted in the ED and in relevant wards. Deviations from best practice guidelines must be documented. Other providers have emphasized timely administration of medications, setting the goal to give every asthma patient systemic glucocorticoids within 15 minutes.

Increased follow-up is another way providers have reduced repeat exacerbations. Providers with meaningful spend reductions have increased their follow-up rates by scheduling follow-up appointments with a primary care provider or specialist at the same time they discharge patients from the ED. If the patient does not have a primary care provider or needs specialist follow-up, a physician call schedule can facilitate this action. A different approach to ensure more regular follow-up that has been tested by some providers is asking primary care providers not to provide multiple inhaler refills. A simple intervention like this can encourage more follow-up visits.[25] An academic study of follow-up in patients with asthma showed that the factors most likely to improve follow-up were scheduling the appointment from the ED and nurse follow-up phone calls.[26]

Oppositional defiant disorder episode: Individual provider groups have improved quality and reduced spend

As shown in *Table 3*, the two main changes that can contribute to spend reduction while enhancing the quality of care in the ODD episode are more appropriate use of medication and consistent use of therapy and care coordination. Care coordination is the management of services on behalf of an individual person and may involve a designated "case manager" visiting the child's household, advising parents, and identifying additional therapy needs. If a patient receives at least six therapy and/or Level-I case management visits during the 180 days of the episode, the minimum care requirement is met, which is a quality metric tied to gain-sharing for the ODD episode.

25 Interview with provider on December 7, 2018.

26 Michael Schatz, Gary Rachelefsky, and Jerry A. Krishnan, "Follow-up after acute asthma episodes: What improves future outcomes?," *The Journal of Allergy and Clinical Immunology*, Volume 124, Issue 2, Supplement (August 2009): S35–S42, https://www.jacionline.org/article/S0091-6749(09)00798-2/fulltext.

Table 3: **Changes made by providers to improve quality and reduce spend for the ODD episode**

What is changing	Why it is changing
Individual provider groups are reducing medication use in the treatment of non-comorbid ODD	• Greater provision of and appropriate referrals to alternative management options, such as family therapy, cognitive behavioral therapy, and parenting techniques • Appropriate coordination across providers, caregivers, and institutions (e.g., schools) • Appropriate use of integrated care, including care coordination • Increased diagnosis and documentation of comorbid conditions, leading to cases of medication use in patients with comorbidities currently identified as non-comorbid being appropriately reclassified
Individual provider groups are reducing medication use in the treatment of comorbid ODD (e.g., with ADHD)	• Greater access to alternative management options, such as family therapy, cognitive behavioral therapy, and parenting techniques • Appropriate coordination across providers, caregivers, and institutions (e.g., schools) • Appropriate use of integrated care, including care coordination
Individual provider groups are increasing the use of therapy and care coordination	• The Tennessee Health Link program provides additional support, care coordination, and additional data insights • Increasing evidence of the effectiveness of therapy and care coordination in the treatment of ODD

Evidence across providers suggests that reduced use of behavioral health medication in children with ODD as their only behavioral health diagnosis[27] drives spend reductions. This trend points to more appropriate use of behavioral health medication, as behavioral health medication in children with no other behavioral health conditions is not considered effective for most children.[28] Incentivizing proper utilization of these stimulants helps to appropriately manage their costs. In addition, a conscious effort to improve the diagnostic accuracy of additional behavioral health conditions may have contributed to reducing the medication spend for children without other behavioral health conditions.

One Middle Tennessee behavioral health services provider interviewed described an intentional change in policy. Staff, including physicians and therapists, were trained on appropriate diagnostic coding and documentation. This training included reviewing the patient's diagnosis over time, instead of deferring to the initial diagnosis. Before, only the primary diagnosis was usually documented in TennCare claims; now, all diagnoses that apply are documented. This trend has also led to treating comorbid patients in a more individualized way. As a result, the provider group

27 Comorbidities (accompanying other behavioral disorders) are common with ODD and may require additional treatments, including medication.

28 "Oppositional Defiant Disorder (ODD)," Mayo Clinic, accessed November 28, 2018, https://www.mayoclinic.org/diseases-conditions/oppositional-defiant-disorder/diagnosis-treatment/drc-20375837.

saw their coding of comorbidities in ODD episodes on claims increase by 11 percent from 2015 to 2017 and their medication rate in children without comorbidities reduced from 49 percent in 2015 to two percent in 2017.[29]

Based on input from Tennessee clinicians who helped to design the ODD episode, therapy and family-based interventions are the appropriate treatments for ODD. Providers have historically struggled to engage families of children with ODD and ensure they attend an adequate number of therapy sessions or case management visits. However, some provider groups have successfully increased the number of therapy sessions the patients attend through both provider-directed and patient-directed activities. As providers review the diagnoses, they have instructed the counselors to pay special attention to patients with ODD and make sure those patients are being seen in therapy sessions. Providers have also implemented new patient engagement techniques including increased patient education on expectations for attending therapy, creating group therapy sessions for patients to attend after completing individual therapy sessions, or offering therapy sessions via telemedicine. Additionally, the Tennessee Health Link program (another delivery system transformation strategy in Tennessee) may also be contributing to the more effective deployment of clinical services by providing additional data and care coordination resources.

29 Interview with provider group on December 3, 2018.

Conclusion

Since the episodes program was launched, there have been improvements in quality of care and cost

The TennCare episodes of care program currently includes approximately 2,000 quarterbacks, and two million episodes have been completed to date. The quality improved or maintained in the majority of episodes, and there were spend reductions of $38.3 million in 2018. Gain-sharing payments have exceeded risk-sharing payments in all four years of reporting, with gain-sharing payments in 2018 exceeding risk-sharing payments by $686,000. The program has tangibly affected the healthcare Tennesseans receive every day. In the perinatal episode, the group B streptococcus screening rate has increased from 88 to 95 percent from 2014 to 2018. Screening is important because the mother is often asymptomatic, but group B streptococcus can be transmitted to the baby during delivery without preventive treatment. In the asthma acute exacerbation episode, there were 471 fewer asthma acute exacerbations in an inpatient setting in 2018 compared to 2014. As part of the ODD episode, 641 fewer children received inappropriate behavioral health medication from 2015 to 2018 (based on input from Tennessee clinicians who helped to design the ODD episode, therapy and family-based interventions are the appropriate treatments for ODD). Provider groups with meaningful spend reductions and quality improvements, as well as engagement with the program, have adopted best practices and made behavior changes that resulted in success within the episodes program.

Tennessee's episodes program is at the forefront of delivery system transformation

These successes affirm Tennessee's leadership in delivery system transformation in the country. Tennessee was one of the earliest adopters of the model, and episode-based payment has since been adopted by a large number of public and private payers over the past five years because of its potential to achieve more consistent, positive health impacts than other alternative payment models. Tennessee is also one of the first places where longer term success of the episodes program can be measured, which has motivated the private sector to start adopting episodes of care as a payment model. In fact, Cigna and Blue Cross Blue Shield have implemented commercial episodes of care in the state of Tennessee, and Humana recently implemented three episodes nationally based on TennCare's design.

Additionally, the TennCare episodes of care program was recently approved as an Advanced Alternative Payment Model (APM) by CMS through the year 2025, which gives Tennessee providers more flexibility to join the Advanced Payment Model (APM) track of Medicare's Quality Payment Program (QPP) and earn potential bonuses from Medicare. TennCare secured this designation for the episodes program to ensure that it is easier than ever for providers in TennCare to be able to participate in and get rewarded for high-quality, cost-effective care in other, broader delivery system transformation efforts.

There is opportunity for additional learning and best practice exchange

There is still significant potential for future learning. Detailed analysis could be expanded beyond the three episodes (perinatal, asthma acute exacerbation, and ODD) that are the focus of this report. Additionally, the varying levels of quality and spend between provider groups revealed in this report suggest that there is opportunity for the state, managed care organizations, and providers to continue to learn from each other and exchange and promote best practices with one another.

Division of TennCare