

Measure #416: Emergency Medicine: Emergency Department Utilization of CT for Minor Blunt Head Trauma for Patients Aged 2 Through 17 Years - National Quality Strategy Domain: Efficiency and Cost Reduction

2017 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Efficiency

DESCRIPTION:

Percentage of emergency department visits for patients aged 2 through 17 years who presented within 24 hours of a minor blunt head trauma with a Glasgow Coma Scale (GCS) score of 15 and who had a head CT for trauma ordered by an emergency care provider who are classified as low risk according to the Pediatric Emergency Care Applied Research Network (PECARN) prediction rules for traumatic brain injury

INSTRUCTIONS:

This measure is to be reported for **each denominator eligible visit** for patients aged 2 through 17 years who present to the emergency department with a minor blunt head trauma during the performance period. It is anticipated that eligible clinicians who provide care in the emergency department will submit this measure.

Measure Reporting:

The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:

All emergency department visits for patients aged 2 through 17 years who presented within 24 hours of a minor blunt head trauma with a Glasgow Coma Scale (GCS) score of 15 and who had a head CT for trauma ordered by an emergency care provider*

***DENOMINATOR NOTE:** *This measure looks to determine if an emergency care provider ordered head CT services typically provided under CPT code 70450.*

Definitions:

Presented within 24 hours – The 24 hour timeframe is based on the time of injury reported by the patient or guardian

Minor Blunt Head Trauma – Includes only non-penetrating injuries

Denominator Criteria (Eligible Cases):

Patients aged 2 through 17 years on date of encounter

AND

Diagnosis for minor blunt head trauma (ICD-10-CM): S00.03XA, S00.33XA, S00.431A, S00.432A, S00.439A, S00.531A, S00.532A, S00.83XA, S00.93XA, S02.0XXA, S02.101A, S02.102A, S02.109A, S02.110A, S02.111A, S02.112A, S02.113A, S02.118A, S02.119A, S02.11AA, S02.11BA, S02.11CA, S02.11DA, S02.11EA, S02.11FA, S02.11GA, S02.11HA, S02.19XA, S02.2XXA, S02.30XA, S02.31XA, S02.32XA, S02.400A, S02.401A, S02.402A, S02.40AA, S02.40BA, S02.40CA, S02.40DA, S02.40EA, S02.40FA, S02.411A, S02.412A, S02.413A, S02.42XA, S02.600A, S02.601A, S02.602A, S02.609A, S02.610A, S02.611A, S02.612A, S02.620A, S02.621A, S02.622A, S02.630A, S02.631A, S02.632A, S02.640A, S02.641A, S02.642A, S02.650A, S02.651A, S02.652A, S02.66XA, S02.670A, S02.671A, S02.672A, S02.69XA, S02.80XA, S02.81XA, S02.82XA, S02.91XA, S02.92XA, S06.0X0A, S06.0X1A, S06.0X2A, S06.0X3A, S06.0X4A, S06.0X9A, S06.1X0A, S06.1X1A, S06.1X2A, S06.1X3A, S06.1X4A,

S06.1X9A, S06.2X0A, S06.2X1A, S06.2X2A, S06.2X3A, S06.2X4A, S06.2X9A, S06.300A, S06.301A, S06.302A, S06.303A, S06.304A, S06.309A, S06.340A, S06.341A, S06.342A, S06.343A, S06.344A, S06.349A, S06.350A, S06.351A, S06.352A, S06.353A, S06.354A, S06.359A, S06.360A, S06.361A, S06.362A, S06.363A, S06.364A, S06.369A, S06.4X0A, S06.4X1A, S06.4X2A, S06.4X3A, S06.4X4A, S06.4X9A, S06.5X0A, S06.5X1A, S06.5X2A, S06.5X3A, S06.5X4A, S06.5X9A, S06.6X0A, S06.6X1A, S06.6X2A, S06.6X3A, S06.6X4A, S06.6X9A, S06.810A, S06.811A, S06.812A, S06.813A, S06.814A, S06.819A, S06.820A, S06.821A, S06.822A, S06.823A, S06.824A, S06.829A, S06.890A, S06.891A, S06.892A, S06.893A, S06.894A, S06.899A, S06.9X0A, S06.9X1A, S06.9X2A, S06.9X3A, S06.9X4A, S06.9X9A, S09.10XA, S09.11XA, S09.19XA, S09.8XXA, S09.90XA, S09.92XA, S09.93XA, S10.0XXA, S10.83XA, S10.93XA

AND

Patient encounter during the performance period (CPT): 99281, 99282, 99283, 99284, 99285

AND

Patient presented within 24 hours of a minor blunt head trauma with a GCS score of 15 and had a head CT ordered for trauma by an emergency care provider: G9594

AND NOT

DENOMINATOR EXCLUSION:

Patient has documentation of ventricular shunt, brain tumor, coagulopathy, including thrombocytopenia: G9595

NUMERATOR:

Emergency department visits for patients who are classified as low risk according to the PECARN prediction rules for traumatic brain injury

Definition:

Low Risk for Traumatic Brain Injury according to PECARN predication rules –

Patients can be classified as low risk if all of the following are met:

- No signs of altered mental status (e.g., agitation, somnolence, repetitive questioning, slow response to verbal communication)
- No signs of basilar skull fracture (signs include haemotympanum, “raccoon” eyes, cerebrospinal fluid leakage from the ear or nose, Battle’s sign)
- No loss of consciousness
- No vomiting
- No severe mechanism of injury (i.e., motor vehicle crash with patient ejection, death of another passenger, or rollover; pedestrian or bicyclist without helmet struck by a motorized vehicle; falls of more than 5 feet; or head struck by a high-impact object)
- No severe headache

Numerator Instructions:

INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The “Performance Not Met” numerator option for this measure is the representation of the better clinical quality or control. Reporting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures, a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.

Numerator Options:

Performance Met:

Pediatric patient with minor blunt head trauma classified as low risk according to the PECARN prediction rules
(G9593)

OR

Performance Not Met:

Pediatric patient with minor blunt head trauma not classified as low risk according to the PECARN prediction rules (**G9597**)

RATIONALE:

This measure is needed to close the gap in provider performance as patients with mild closed head injuries without guideline indications for CT or MRI imaging are receiving such studies. The results of this are increased healthcare expenditures, unnecessary patient radiation exposure, and possibly prolonged evaluation times.

This measure is an overuse measure - its intention is to capture those instances in which a pediatric patient is characterized as low risk yet still receives a CT. As such, the measure is scored such that a lower score indicates better quality. The measure is constructed in this manner due to the available evidence; the PECARN clinical policy defines the low-risk population, but does not clearly define the medium and high risk populations. The measure then uses the definable population as its numerator, necessitating an "overuse" construction.

CLINICAL RECOMMENDATION STATEMENTS:

The following evidence statements are quoted verbatim from the referenced clinical guidelines and other references:

Suggested CT algorithm for children aged 2 years and older with GCS scores of 14-15 after head trauma (PECARN, 2009):

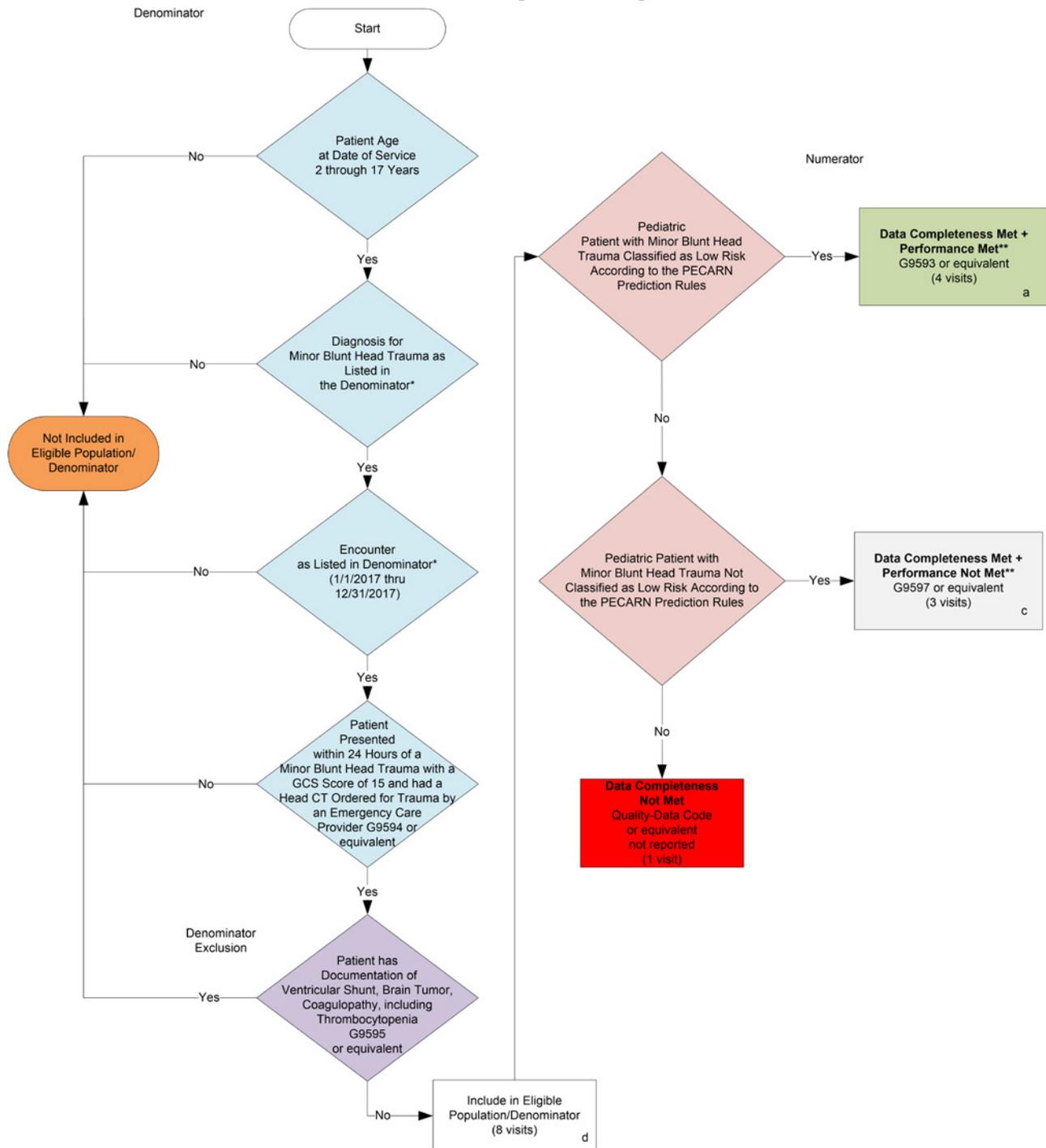
- 1.4.9 For children who have sustained a head injury and have any of the following risk factors, perform a CT head scan within 1 hour of the risk factor being identified:
- Suspicion of non-accidental injury.
 - Post-traumatic seizure but no history of epilepsy.
 - On initial emergency department assessment, GCS less than 14.
 - At 2 hours after the injury, GCS less than 15.
 - Suspected open or depressed skull fracture or tense fontanelle.
 - Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign).
 - Focal neurological deficit. (NICE, 2014)
- 1.4.10 For children who have sustained a head injury and have more than 1 of the following risk factors (and none of those in recommendation 1.4.9), perform a CT head scan within 1 hour of the risk factors being identified:
- Loss of consciousness lasting more than 5 minutes (witnessed).
 - Abnormal drowsiness.
 - Three or more discrete episodes of vomiting.
 - Dangerous mechanism of injury (high-speed road traffic accident either as pedestrian, cyclist or vehicle occupant, fall from a height of greater than 3 meters, high-speed injury from a projectile or other object).
 - Amnesia (antegrade or retrograde) lasting more than 5 minutes. (NICE, 2014)
- 1.4.11 Children who have sustained a head injury and have only 1 of the risk factors in recommendation 1.4.10 (and none of those in recommendation 1.4.9) should be observed for a minimum of 4 hours after the head injury. If during observation any of the risk factors below are identified, perform a CT head scan within 1 hour:
- GCS less than 15.
 - Further vomiting.
 - A further episode of abnormal drowsiness. (NICE, 2014)

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2017 Registry Individual Measure Flow #416: Emergency Medicine: Emergency Department Utilization of CT for Minor Blunt Head Trauma for Patients Aged 2 Through 17 Years



*See the posted Measure Specification for specific coding and instructions to report this measure.
**A lower calculated performance rate for this measure indicates better clinical care or control.

NOTE: Reporting Frequency: Visit

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2017 Registry Individual Measure Flow
#416: Emergency Medicine: Emergency Department Utilization of CT for Minor Blunt Head Trauma for Patients Aged 2 Through 17 Years

SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=4 visits)} + \text{Performance Not Met (c= 3 visits)}}{\text{Eligible Population / Denominator (d=8 visits)}} = \frac{7 \text{ visits}}{8 \text{ visits}} = 87.50\%$$

**Performance Rate*=
_____**

$$\frac{\text{Performance Met (a=4 visits)}}{\text{Data Completeness Numerator (7 visits)}} = \frac{4 \text{ visits}}{7 \text{ visits}} = 57.14\%$$

*A lower calculated performance rate for this measure indicates better clinical care or control.

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NOTE: Reporting Frequency: Visit

2017 Registry Individual Measure Flow

#416: Emergency Medicine: Emergency Department Utilization of CT for Minor Blunt Head Trauma for Patients Aged 2 Through 17 Years

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator
2. Check Patient Age:
 - a. If the Age is 2 through 17 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing.
 - b. If the Age is 2 through 17 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Diagnosis.
3. Check Patient Diagnosis:
 - a. If Diagnosis for Minor Blunt Head Trauma as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Diagnosis for Minor Blunt Head Trauma as Listed in the Denominator equals Yes, proceed to check Current Encounter Performed.
4. Check Encounter Performed:
 - a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Encounter as Listed in the Denominator equals Yes, proceed to check Patient Presented Within 24 Hours of a Minor Blunt Head Trauma With a GCS Score of 15 and had a Head CT Ordered for Trauma by an Emergency Care Provider
5. Check Patient Presented Within 24 Hours of a Minor Blunt Head Trauma With a GCS Score of 15 and had a Head CT Ordered for Trauma by an Emergency Care Provider:
 - a. If Patient Presented Within 24 Hours of a Minor Blunt Head Trauma With a GCS Score of 15 and had a Head CT Ordered for Trauma by an Emergency Care Provider equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Patient Presented Within 24 Hours of a Minor Blunt Head Trauma With a GCS Score of 15 and had a Head CT Ordered for Trauma by an Emergency Care Provider equals Yes, proceed to Denominator Exclusion.
6. Check Denominator Exclusion:
 - a. If Patient has documentation of ventricular shunt, brain tumor, coagulopathy, including thrombocytopenia equals Yes, do not include in Eligible Patient Population. Stop Processing.
 - b. If Patient has documentation of ventricular shunt, brain tumor, coagulopathy, including thrombocytopenia equals No, include in Denominator Eligible Population.
7. Denominator Population:

- a. Denominator Population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 visits in the sample calculation.
8. Start Numerator
 9. Check Pediatric Patient With Minor Blunt Head Trauma Classified as Low Risk According to the PECARN Prediction Rules:
 - a. If Pediatric Patient With Minor Blunt Head Trauma Classified as Low Risk According to the PECARN Prediction Rules equals Yes, include in Data Completeness Met and Performance Met.
 - b. Data Completeness Met and Performance Met letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 visits in Sample Calculation.
 - c. If Pediatric Patient With Minor Blunt Head Trauma Classified as Low Risk According to the PECARN Prediction Rules equals No, proceed to Pediatric Patient With Minor Blunt Head Trauma Not Classified as Low Risk According to the PECARN Prediction Rules.
 10. Check Pediatric Patient With Minor Blunt Head Trauma Not Classified as Low Risk According to the PECARN Prediction Rules.
 - a. If Pediatric Patient With Minor Blunt Head Trauma Not Classified as Low Risk According to the PECARN Prediction Rules equals Yes, include in Data Completeness Met and Performance Not Met.
 - b. Data Completeness Met and Performance Not Met letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c equals 3 visits in the Sample Calculation.
 - c. If Pediatric Patient With Minor Blunt Head Trauma Not Classified as Low Risk According to the PECARN Prediction Rules equals No, proceed to Data Completeness Not Met.
 11. Check Data Completeness Not Met
 - a. If Data Completeness Not Met equals No, Quality Data Code or equivalent not reported. 1 visit has been subtracted from the Data Completeness numerator in sample calculation.

SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=4 visits)} + \text{Performance Not Met (c= 3 visits)}}{\text{Eligible Population / Denominator (d=8 visits)}} = \frac{7 \text{ visits}}{8 \text{ visits}} = 87.50\%$$

Performance Rate* =

$$\frac{\text{Performance Met (a=4 visits)}}{\text{Data Completeness Numerator (7 visits)}} = \frac{4 \text{ visits}}{7 \text{ visits}} = 57.14\%$$