

****Please read the DQA Measures User Guide prior to implementing this measure.****

DQA Measure Technical Specifications: Administrative Claims-Based Measures: Ambulatory Care Sensitive Emergency Department Visits for Dental Caries in Children

Description: Number of emergency department (ED) visits for caries-related reasons per 100,000 member months for children
Numerator: Number of ED visits with a caries-related diagnosis code among children 0 through 20 years
Denominator: All member months for children 0 through 20 years during the reporting year
Rate: (NUM/DEN)x100,000

Rationale: There are approximately 1 million ED visits per year for non-traumatic dental conditions in the United States and more than 200,000 visits are made by children (1, 2, 3). Untreated dental caries (tooth decay) and its sequelae (e.g., dental infections) account for almost 80% of these visits (2, 3). Dental caries is preventable, and use of the ED for dental caries related conditions results in substantial costs (1, 3) with 70% of ED visits for dental conditions among children in the United States being paid for by Medicaid (4). Because dental caries can be reduced and managed through outpatient care processes, caries-related ED visits represent "ambulatory care sensitive" visits - visits that are potentially avoidable through timely and effective use of the ambulatory health care system. Moreover, ED care for dental caries-related conditions is generally not definitive compared to that provided in primary care dental settings and often results in referral to primary care dental sites (5, 6, 7).

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2. Seu K, Hall KK, Moy E. Emergency Department Visits for Dental-Related Conditions, 2009. Healthcare Cost and Utilization Project Statistical Brief #143. Rockville, MD: Agency for Healthcare Research and Quality; November 2012. URL: <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb143.pdf> [accessed on May 25, 2021].
3. Allareddy V, Nalliah RP, Haque M, Johnson BS, Rampa SB, Lee MK. Hospital-based emergency department visits with dental conditions among children in the United States: nationwide epidemiological data. *Pediatr Dent* 2014;37(5):393-9.
4. Wall T, Nasseh K, Vujicic M. Majority of dental-related emergency department visits lack urgency and can be diverted to dental offices. Health Policy Institute Research Brief. American Dental Association.
5. Cohen LA, Bonito AJ, Eicheltinger C, Manski RJ, Macek MD, Edwards RR, Khanna N. Comparison of patient visits to emergency departments, physician offices, and dental offices for dental problems and injuries. *J Public Health Dent* 2011;71(1):13-22.
6. Hocker MB, Villani JJ, Borawski JB, Evans CS, Nelson SM, Gerardo CJ, Limkaken AT. Dental visits to a North Carolina emergency department: a painful problem. *N C Med J* 2012; 73(5):346-51.
7. Lewis C, Lynch H, Johnston B. Dental complaints in emergency departments: a national perspective. *Ann Emerg Med* 2003; 42(1):93-9.

National Quality Measures Clearing House Domain: Outcome¹

¹ **Outcome:** An outcome of care is a health state of a patient resulting from health care. Outcome measures are supported by evidence that the measure has been used to detect the impact of one or more clinical interventions. Measures in this domain are attributable to antecedent health care and should include provisions for risk-adjustment. Accessed from: <https://www.ahrq.gov/gam/summaries/domain-definitions/index.html>. Accessed May 25, 2021.

National Quality Forum Domain: Outcome²

Institute of Medicine Aim: Equity, Safety, Timeliness

National Quality Strategy Priority: Health and Wellbeing

Level of Aggregation: Program (NOTE: This measure only applies to programs such as Medicaid that have access to medical claims data. Use of this measure as a requirement for stand-alone dental benefit plans will result in feasibility issues due to lack of access to appropriate data. Use by health plans may be considered after assessment of data element feasibility within the plans' databases).

Improvement Noted As: A lower rate indicates better quality.

Data Required: Administrative enrollment and claims data (medical); single year. When using claims data to determine service receipt, include only paid claims.

Measure Purpose: Examples of questions that can be answered through this measure at each level of aggregation:

1. What is the rate of emergency department visits for caries-related reasons in the enrolled population during the reporting period?
2. Over time, does the rate of emergency department visits by children for caries-related reasons stay stable, increase, or decrease?

Applicable Stratification Variables

1. Age: <1; 1-2; 3-5; 6-7; 8-9; 10-11; 12-14; 15-18; 19-20
2. ED Disposition Stratification: Discharged from ED; Inpatient Admissions

Ambulatory Care Sensitive Emergency Department Visits for Dental Caries Calculation

1. Calculate total eligible member months as the sum of all member months for subjects age 0 through 20 years (<21 years) as of the 15th or 30th day of the month as appropriate for when eligibility determinations are made. Either the 15th or the 30th should be selected and used consistently across all member months during the reporting year.

Reporting notes for age stratifications:

- Member months will be attributed to each age stratum based on the member's age as of the 15th or 30th day of the month. Either the 15th or the 30th should be selected and used consistently across all member months during the reporting year.
- One member can contribute member months to more than one age stratum.

YOU NOW HAVE DENOMINATOR (DEN) COUNT: Total member months

² **Outcome:** "The health state of a patient (or change in health status) resulting from healthcare— desirable or adverse." National Quality Forum. "NQF Glossary." Available at: http://www.qualityforum.org/Measuring_Performance/Measuring_Performance.aspx. Accessed May 25, 2021.

2. Identify all emergency department visits for caries-related reasons occurring during eligible member months within the reporting year:
 - a. Identify a health care encounter as an ED visit if ANY of the following are met:
 - CPT codes 99281-99285 (ED visit for patient evaluation/management); **OR**
 - Revenue codes 0450-0459 (Emergency Room) or 0981 (professional fees for ER services); **OR**
 - CMS place of service code for professional claims - 23 (Emergency Room)
 - b. Member must be <21 years on date of visit.
 - c. Identify an ED visit as being caries related if:
 - i. any of the ICD-10-CM diagnosis codes in Table 1 is listed as a FIRST-LISTED diagnosis code associated with the visitOR
 - ii. (a) any of the ICD-10-CM diagnosis codes in Table 2 is listed as a FIRST-LISTED diagnosis **AND** (b) any of the ICD-10-CM diagnosis codes in Table 1 is listed as an ADDITIONAL LISTED diagnosis. (Codes from Table 2 must be accompanied by a code from Table 1 to qualify.)
 - d. Count only one visit per member per day.
 - e. Sum the number of ED visits for caries-related reasons.

Reporting note for age stratifications: Numerator cases are stratified based on age on date of ED visit.

YOU NOW HAVE NUMERATOR (NUM) COUNT: Number of ED visits for caries-related reasons

3. Stratify the numerator by whether visit resulted in an inpatient admission or did not result in an inpatient admission:
 - a. Identify a caries-related ED visit as resulting in an inpatient admission if:
 - (i) the patient has an inpatient admission defined by UB Type of Bill = 11x OR 12x OR 41xAND
 - (ii) that admission occurred within 48 hours:
$$[\text{inpatient admit date}] - [\text{ED admit date}] \geq 0 \text{ days AND } \leq 2 \text{ days}$$
 - b. Sum the number of caries-related ED visits that resulted in an inpatient admission.

You now have the numerator stratum: caries-related ED visits that resulted in an inpatient admission

- c. Identify caries-related ED visits not resulting in an inpatient admission:
$$[\text{total caries-related ED visits}] - [\text{caries-related ED visits resulting in inpatient admission}]$$

You have the numerator stratum: caries-related ED visits that did not result in an inpatient admission

4. Report
 - a. Unduplicated number of ED visits in the numerator
 - b. Unduplicated number of member months in denominator
 - c. Rate per 100,000 member months: (NUM/DEN) x 100,000
 - d. Rates for ED visits resulting in an inpatient admission and those not resulting in an inpatient admission

*** Note: Reliability of the measure score depends on quality of the data that are used to calculate the measure. The percentages of missing and invalid data for these data elements must be investigated prior to measurement. Data elements with high rates of missing or invalid data will adversely affect the accuracy and reliability of the measure rate.***

Table 1. Caries-Related ICD-10-CM Diagnosis Codes
(NOTE: Please reference the User Guide for ICD-9 CM and ICD-10 CM cross-mapping)

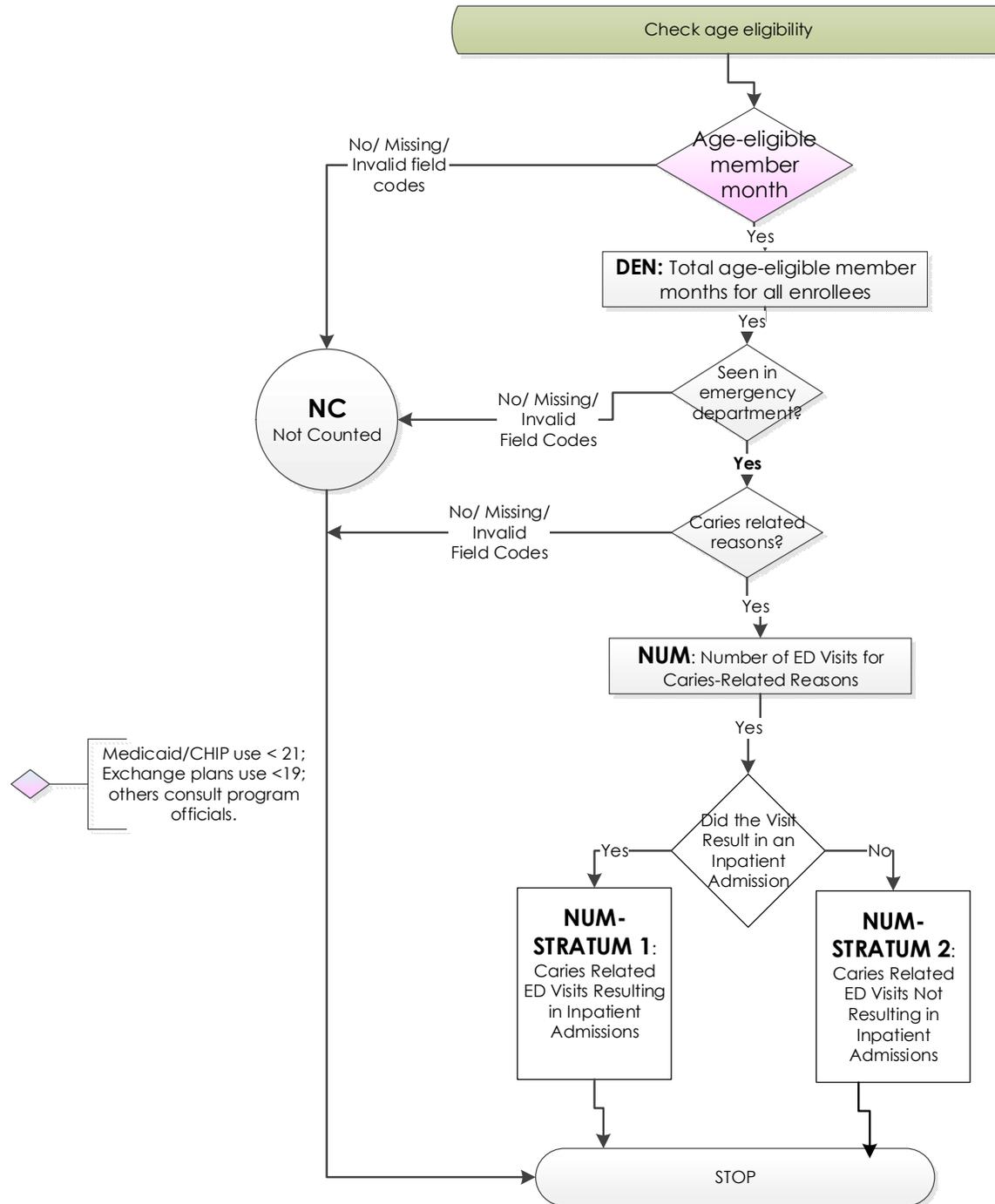
ICD-10 CODE	DESCRIPTION
K02.3	Arrested dental caries
K02.51	Dental caries on pit and fissure surface limited to enamel
K02.52	Dental caries on pit and fissure surface penetrating into dentin
K02.53	Dental caries on pit and fissure surface penetrating into pulp
K02.61	Dental caries on smooth surface limited to enamel
K02.62	Dental caries on smooth surface penetrating into dentin
K02.63	Dental caries on smooth surface penetrating into pulp
K02.7	Dental root caries
K02.9	Dental caries, unspecified
K03.89	Other specified diseases of hard tissues of teeth
K04.0	Pulpitis
K04.01	Reversible Pulpitis
K04.02	Irreversible pulpitis
K04.1	Necrosis of pulp
K04.2	Pulp degeneration
K04.3	Abnormal hard tissue formation in pulp
K04.4	Acute apical periodontitis of pulpal origin
K04.5	Chronic apical periodontitis
K04.6	Periapical abscess with sinus
K04.7	Periapical abscess without sinus
K04.8	Radicular cyst
K04.90	Unspecified diseases of pulp and periapical tissues
K04.99	Other diseases of pulp and periapical tissues
K08.131	Complete loss of teeth due to caries, class I
K08.132	Complete loss of teeth due to caries, class II
K08.133	Complete loss of teeth due to caries, class III
K08.134	Complete loss of teeth due to caries, class IV

K08.139	Complete loss of teeth due to caries, unspecified class
K08.3	Retained dental root
K08.431	Partial loss of teeth due to caries, class I
K08.432	Partial loss of teeth due to caries, class II
K08.433	Partial loss of teeth due to caries, class III
K08.434	Partial loss of teeth due to caries, class IV
K08.439	Partial loss of teeth due to caries, unspecified class
K08.50	Unsatisfactory restoration of tooth, unspecified
K08.51	Open restoration margins of tooth
K08.530	Fractured dental restorative material without loss of material
K08.531	Fractured dental restorative material with loss of material
K08.539	Fracture dental restorative material, unspecified
K08.8	Other specified disorders of teeth and supporting structures
K08.89	Other specified disorders of teeth and supporting structures
K08.9	Disorder of teeth and supporting structures, unspecified
K12.2	Cellulitis and abscess of mouth
M26.79	Other specified alveolar anomalies
M27.2	Inflammatory conditions of jaws
M27.3	Alveolitis of jaws
M27.51	Perforation of root canal space due to endodontic treatment
M27.52	Endodontic overfill
M27.53	Endodontic underfill
M27.59	Other periradicular pathology associated with previous endodontic treatment

Table 2. Additional First-Listed ICD-10-CM Diagnosis Codes to Identify Caries-Related Visits when Paired with an Additional Listed Diagnosis Code from the Caries-Related ICD-10-CM Codes in Table 1

(NOTE: Please reference the User Guide for ICD-9 CM and ICD-10 CM cross-mapping)

ICD-10 CODE	DESCRIPTION
L03.211	Cellulitis of face
L03.212	Acute lymphangitis of face
L03.213	Periorbital cellulitis
L03.221	Cellulitis of neck
L03.222	Acute lymphangitis of neck
L03.90	Cellulitis, unspecified
L03.91	Acute lymphangitis, unspecified
R22.0	Localized swelling, mass and lump, head
R22.1	Localized swelling, mass and lump, neck
R60.0	Localized edema
R60.1	Generalized edema
R60.9	Edema, unspecified



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