DQA
DENTAL QUALITY ALLIANCE™
Improving Oral Health Through Measurement

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# DQA Measure Technical Specifications: Administrative Claims-Based Measures
## Follow-Up after Emergency Department Visits for Dental Caries in Children

**Description:** The percentage of caries-related emergency department visits among children 0 through 20 years in the reporting period for which the member visited a dentist within (a) 7 days and (b) 30 days of the ED visit
**Numerators:** Number of caries-related ED visits in the reporting period for which the member visited a dentist within (a) 7 days (NUM1) and (b) 30 days (NUM2) of the ED visit
**Denominator:** Number of caries-related ED visits in the reporting period
**Rates**: NUM1/DEN and NUM2/DEN

**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). This process of care measure can be used to assess if the patient had timely follow-up with a dentist for more definitive care.

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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.
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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 Clearinghouse Domain:** Process[1]

**National Quality Forum Domain:** Process

**Institute of Medicine Aims:** Equity, Safety, Timeliness

**National Quality Strategy Priority:** Health and Wellbeing

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*Measure is endorsed by the Centers for Medicare and Medicaid Services (CMS) Consensus-Based Entity (CBE), formerly the National Quality Forum. Endorsed measures can now be found at https://p4qm.org/measures.

[1] **Process (measure type):** "A process of care is a health care-related activity performed for, on behalf of, or by a patient. Process measures are supported by evidence that the clinical process—that is the focus of the measure—has led to improved outcomes. These measures are generally calculated using patients eligible for a particular service in the denominator, and the patients who either do or do not receive the service in the numerator." NQMC Measure Domain Definitions. Available at: https://www.ahrq.gov/gam/summaries/domain-definitions/index.html. Accessed July 19, 2023.

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**Level of Aggregation:** Program *(NOTE: This measure requires claims data from medical encounters. Consequently, this measure only applies to programs, such as Medicaid, or plans that provide both medical and dental benefits. Use of this measure for stand-alone dental benefit plans may result in feasibility issues due to lack of access to necessary data. Use by health plans that provide both medical and dental benefits may be considered after assessment of data element feasibility within the plans' databases.)*

**Improvement Noted As:** A higher score indicates better quality.

**Data Required**: Administrative enrollment and claims data (medical and dental); 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 percentage of ED visits for caries-related reasons for which children see a dentist for follow-up within 7 days and 30 days, respectively?
2. Does the percentage caries-related ED visits that are followed up by visit with a dentist within 7 days and 30 days, respectively, stay stable, increase or decrease over time?

**Applicable Stratification Variables**

1. Age: <1; 1-2; 3-5; 6-7; 8-9; 10-11; 12-14; 15-18; 19-20

## Follow-up after Emergency Department Visit for Dental Caries Calculation

1. Identify all emergency department visits for caries-related reasons occurring during eligible member months **<u>between January 1 and December 1</u>** of the reporting year:

   a. Identify a health care encounter as an ED visit if <u>ANY</u> of the following codes are present:

      - 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.

      **Reporting note:** Age stratifications will be based on subject's age on date of ED 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 visit

      **OR**

      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.

      **Note:** Codes from Table 2 must be accompanied by a code from Table 1 to qualify as a caries-related ED visit.

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d. Exclude visits that result in inpatient admissions where inpatient admissions are identified as:

(i) the patient has an inpatient admission defined by UB Type of Bill = 11x OR 12x OR 41x

**AND**

(ii) that admission occurred within 48 hours:

[inpatient admit date] – [ED admit date] >= 0 days AND <= 2 days.

**Note:** If there are 2 or more caries-related ED visits that occurred within 2 days of the same inpatient admission, **only one** of those ED visits should be counted as resulting in an inpatient admission. [Example: If there is one caries-related ED visit on Saturday and a second caries-related ED visit on Sunday with an inpatient admission also occurring on Sunday, then this would be counted as 2 ED visits with one being excluded as "resulting in an inpatient admission" and one retained in the denominator as "did not result in an inpatient admission."]

e. Count only one visit per member per day.

f. Member must be enrolled on date of ED visit and through 30 days following the visit.

g. Sum the number of ED visits for caries-related reasons.

**YOU NOW HAVE THE DENOMINATOR (DEN): Number of ED visits for caries-related reasons**

2. Check if subject had a visit with a dentist (any dental service) within 30 days of the ED visit:

a. If [CDT CODE] = D0100 – D9999 (any dental service), **AND**

b. [DATE OF DENTAL VISIT]-[DATE OF ED VISIT] <=30 days, **AND**

**Note:** If two or more caries-related ED visits occur for same child within 30 days of one another, then use the first ED visit as the index date for follow-up. Both ED visits will count in the denominator. A follow-up dental visit within 30 days of the first ED visit will be counted once in the numerator.

c. If [RENDERING PROVIDER TAXONOMY] code = any of the NUCC maintained Provider Taxonomy Codes in Table 3 below.[2]

d. If all a **AND** b **AND** c are met, then include in **numerator 2;** proceed to next step (#3).

e. If any of a **OR** b **OR** c is NOT met, then a "follow-up dental service" within 30 days was not provided; STOP processing. This ED visit is already included in the denominator but is not included in the subsequent counts.

**Note:** In this step, all **claims** with missing or invalid CDT CODE, missing or invalid NUCC maintained Provider Taxonomy Codes, or NUCC maintained Provider Taxonomy Codes that do not appear in Table 3 should be excluded.

**YOU NOW HAVE NUMERATOR 2 (NUM2): ED visits for caries-related reasons for which the child had a visit with a dentist within 30 days**

[2] **Identifying "dental" services**: Programs and plans that do not use standard NUCC maintained provider taxonomy codes should use a valid mapping to identify providers whose services would be categorized as "dental" services. Stand-alone dental plans that reimburse ONLY for services rendered by or under the supervision of the dentist can consider all claims as "dental" services.

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3. Among the ED visits identified in Step 2, check if the subject had a visit with a dentist (dental service) within 7 days of the ED visit:

   [DATE OF DENTAL VISIT]-[DATE OF ED VISIT] <=7 days

**YOU NOW HAVE NUMERATOR 1 (NUM1): ED visits for caries-related reasons for which the child had a visit with a dentist within 7 days**

4. Report
   a. Unduplicated count of caries-related ED visits with 7-day dentist visit follow-up in numerator (NUM1)
   b. Unduplicated count of caries-related ED visits with 30-day dentist visit follow-up in numerator (NUM2)
   c. Unduplicated count of caries-related ED visits in denominator (DEN)
   d. Rates: (NUM1/DEN), (NUM2/DEN)

*** Note: Reliability of the measure score depends on the quality of the data elements that are used to calculate the measure. The percentages of missing or invalid data for each data element used to calculate the measure must be investigated prior to measurement. Data elements with high rates of missing or invalid data will adversely affect the subsequent counts that are recorded. For example, subjects who have records with missing or invalid CDT CODE may be counted in the denominator but not in the numerator. These records are assumed to not have had a qualifying service. In this case, a low-quality data set will result in a measure score that will not be reliable.***

**Table 1. Caries-Related ICD-10-CM Diagnosis Codes**

| ICD-10-CM CODE | DESCRIPTION |
|---|---|
| KØ2.3 | Arrested dental caries |
| KØ2.51 | Dental caries on pit and fissure surface limited to enamel |
| KØ2.52 | Dental caries on pit and fissure surface penetrating into dentin |
| KØ2.53 | Dental caries on pit and fissure surface penetrating into pulp |
| KØ2.61 | Dental caries on smooth surface limited to enamel |
| KØ2.62 | Dental caries on smooth surface penetrating into dentin |
| KØ2.63 | Dental caries on smooth surface penetrating into pulp |
| KØ2.7 | Dental root caries |
| KØ2.9 | Dental caries, unspecified |
| KØ3.89 | Other specified diseases of hard tissues of teeth |
| KØ4.Ø | Pulpitis |
| KØ4.Ø1 | Reversible Pulpitis |
| KØ4.Ø2 | Irreversible pulpitis |

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| KØ4.1 | Necrosis of pulp |
|---|---|
| KØ4.2 | Pulp degeneration |
| KØ4.3 | Abnormal hard tissue formation in pulp |
| KØ4.4 | Acute apical periodontitis of pulpal origin |
| KØ4.5 | Chronic apical periodontitis |
| KØ4.6 | Periapical abscess with sinus |
| KØ4.7 | Periapical abscess without sinus |
| KØ4.8 | Radicular cyst |
| KØ4.9Ø | Unspecified diseases of pulp and periapical tissues |
| KØ4.99 | Other diseases of pulp and periapical tissues |
| KØ8.131 | Complete loss of teeth due to caries, class I |
| KØ8.132 | Complete loss of teeth due to caries, class II |
| KØ8.133 | Complete loss of teeth due to caries, class III |
| KØ8.134 | Complete loss of teeth due to caries, class IV |
| KØ8.139 | Complete loss of teeth due to caries, unspecified class |
| KØ8.3 | Retained dental root |
| KØ8.431 | Partial loss of teeth due to caries, class I |
| KØ8.432 | Partial loss of teeth due to caries, class II |
| KØ8.433 | Partial loss of teeth due to caries, class III |
| KØ8.434 | Partial loss of teeth due to caries, class IV |
| KØ8.439 | Partial loss of teeth due to caries, unspecified class |
| KØ8.5Ø | Unsatisfactory restoration of tooth, unspecified |
| KØ8.51 | Open restoration margins of tooth |
| KØ8.53Ø | Fractured dental restorative material without loss of material |
| KØ8.531 | Fractured dental restorative material with loss of material |
| KØ8.539 | Fracture dental restorative material, unspecified |
| KØ8.8 | Other specified disorders of teeth and supporting structures |
| KØ8.89 | Other specified disorders of teeth and supporting structures |
| KØ8.9 | 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 |

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| | |
|---|---|
| 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**

| ICD-10-CM CODE | DESCRIPTION |
|---|---|
| LØ3.211 | Cellulitis of face |
| LØ3.212 | Acute lymphangitis of face |
| LØ3.213 | Periorbital cellulitis |
| LØ3.221 | Cellulitis of neck |
| LØ3.222 | Acute lymphangitis of neck |
| LØ3.9Ø | Cellulitis, unspecified |
| LØ3.91 | Acute lymphangitis, unspecified |
| R22.Ø | Localized swelling, mass and lump, head |
| R22.1 | Localized swelling, mass and lump, neck |
| R6Ø.Ø | Localized edema |
| R6Ø.1 | Generalized edema |
| R6Ø.9 | Edema, unspecified |

**Table 3: NUCC maintained Provider Taxonomy Codes classified as "Dental Service"***

| | | | | |
|---|---|---|---|---|
| 122300000X | 1223P0106X | 1223X0008X | 125Q00000X | 126800000X |
| 1223D0001X | 1223P0221X | 1223X0400X | 261QF0400X | 261QD0000X |
| 1223D0004X | 1223P0300X | 124Q00000X+ | 261QR1300X | 204E00000X |
| 1223E0200X | 1223P0700X | 125J00000X | 1223X2210X | 261QS0112X |
| 1223G0001X | 1223S0112X | 125K00000X | 122400000X | |

*Services provided by County Health Department dental clinics may also be included as "dental" services.
+Only dental hygienists who provide services under the supervision of a dentist should be classified as "dental" services.

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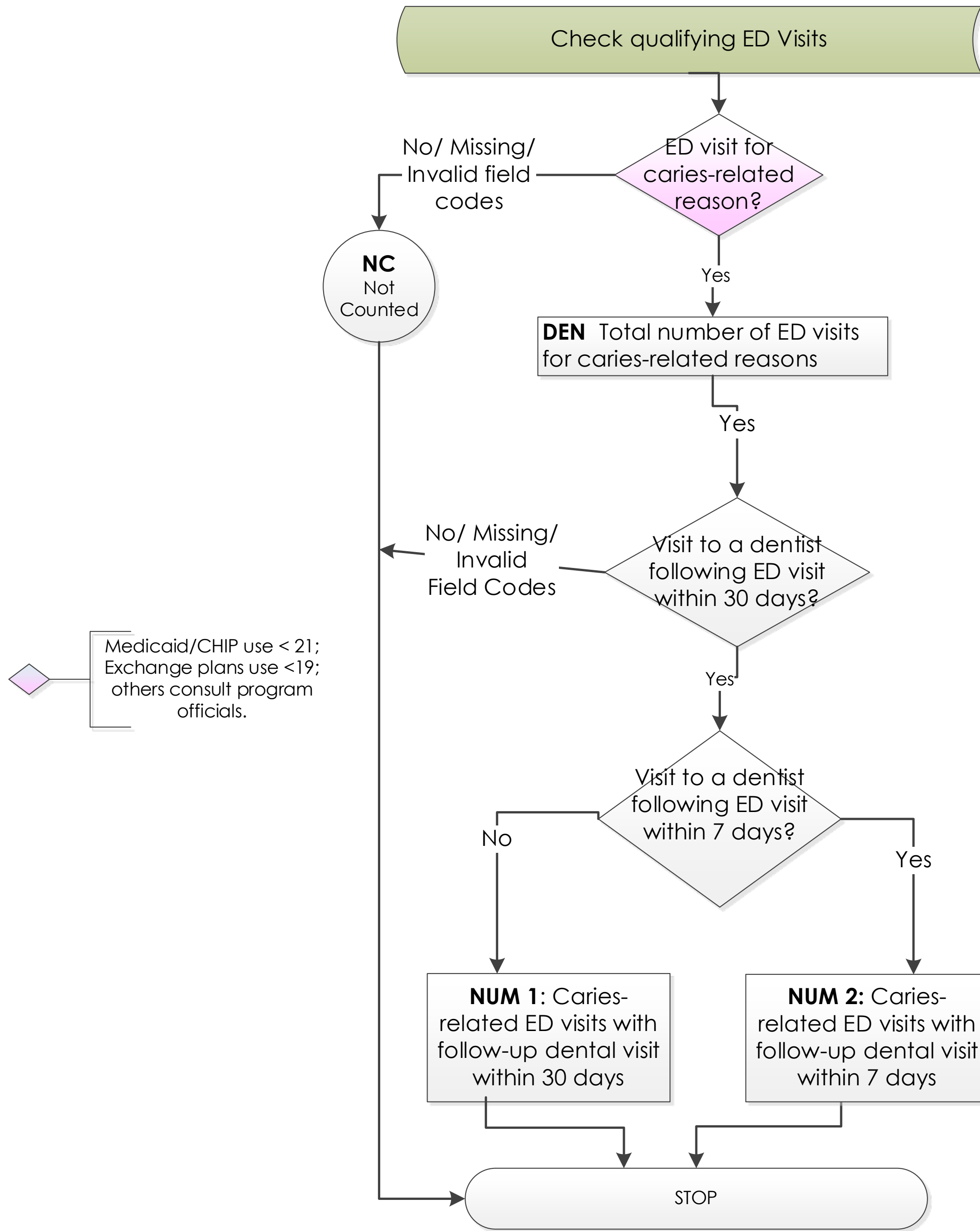


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