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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: 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.

1. Allareddy V, Rampa S, Lee MK, Allareddy V, Nalliah RP. Hospital-based emergency department visits involving dental conditions: profile and predictors of poor outcomes and resource utilization. *J Am Dent Assoc* 2014;145(4):331-7.
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, Eichelinger 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 Clearinghouse Domain: Process¹

National Quality Forum Domain: Process

Institute of Medicine Aims: Equity, Safety, Timeliness

National Quality Strategy Priority: Health and Wellbeing

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 August 29, 2022.

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 between January 1 and December 1 of 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. 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 41xAND
 - (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 dental 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 dental-related ED visit on Saturday and a second dental-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.”]

- c. 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.

- d. 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.)
- 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 (dental service) within 30 days of the ED visit:

- a. If [CDT CODE] = D0100 – D9999 (any dental service), AND;
- b. [DATE OF ED VISIT]-[DATE OF DENTAL 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 then proceed to next step (#3).
- d. If a **AND** b **AND** c are not met, then the service was not a "follow-up dental service"; STOP processing. This ED visit is already included in the denominator but will not be 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.

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:

$$[\text{DATE OF ED VISIT}] - [\text{DATE OF DENTAL VISIT}] \leq 7 \text{ days}$$

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)

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

ICD-10-CM 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

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
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
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

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.

*** 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 score. ***

Check qualifying ED Visits

No/ Missing/ Invalid field codes	ED visit for caries-related reason?
NC Not Counted	Yes
DEN Total number of ED visits for caries-related reasons	

Yes

No/ Missing/ Invalid Field Codes	Visit to a dentist following ED visit within 30 days?
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Medicaid/CHIP use < 21;
Exchange plans use <19;
others consult program
officials.

Yes

No	Visit to a dentist following ED visit within 7 days?	Yes
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NUM 1: Caries-
related ED visits with
follow-up dental visit
within 30 days

NUM 2: Caries-
related ED visits with
follow-up dental visit
within 7 days

STOP

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