Recommended Guidelines for Surveillance of Non-Traumatic Dental Care in Emergency Departments

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Introduction

Dental care, and in particular care for non-traumatic dental conditions (NTDCs), provided in emergency departments has been identified as both an indication of lack of access to the traditional primary care dental system, and an expensive and mostly ineffective alternative source of care. EDs generally provide only palliative care for oral problems (e.g., antibiotics and pain medication), addressing the symptoms, but not the cause of the problems. This results in patients often returning to EDs multiple times for the same problem. This situation leads to high costs to patients, insurance companies, and taxpayers.

Many investigators have drawn the conclusion, particularly at the state level, that policies supporting increased access to dental care in dental offices or clinics would result in significant cost savings and better oral health outcomes. While many states have started assessing data on dental related ED visits, there has been no standardized protocol for collection and analysis of these data. Therefore, data interpretation and comparability of data between studies have been in question. Concerns with lack of standardized methods include sources of the data, data content, analysis methods, and the way the data are reported. The lack of standardization has impacted the ability of local, state, and national policy makers to address the problem. The premise of this project is that development of a standardized protocol for the collection, analysis, and reporting of ED data will allow local, state, and national policy makers to make better informed policy decisions that will result in more efficient use of scarce resources and promote better quality of life for individuals with improved access to "dental homes." The bases for the methods provided in this document are findings from the first phase of this project reported in the document, "Methods in Assessing Non-Traumatic Dental Care in Emergency Departments." The Executive Summary and Recommendations from that report are included in this document.

ASTDD ED Project and Purpose of this Document

The Association of State and Territorial Dental Directors (ASTDD) was funded by the DentaQuest Foundation beginning in 2015 to conduct this project. Phase 1 of the project was to develop a report from a literature review of research methods, data collection, analysis, and reporting in past studies of ED oral health care. The Phase 1 report has been used to guide Phase 2 of the project. ASTDD formed an advisory committee and workgroup for both phases. Some workgroup members continued through both phases, and some members with additional expertise or different perspectives on the issue were added for the second phase. All workgroup members provided input to the second phase to develop a standardized protocol and guidelines for the collection, analysis, and reporting of oral health ED data. The recommended methods from this project are intended to be used by states to contribute valid standardized data to national data repositories such as the National Oral Health Surveillance System (NOHSS).

To inform planning and development for this project, ASTDD initially convened conference calls with state oral health program directors, stakeholder organizations and individuals with an interest in the topic. Participants included the Centers for Disease Control and Prevention (CDC), Medicaid/Medicare/CHIP Services Dental Association, PEW Center on the States, Dental Quality Alliance, American Dental Association, state oral health program directors, and researchers studying ED dental care. Past surveillance and research activity on ED dental care, shortcomings of these activities, and available data were discussed. There was agreement on the need for standardization of methods contributing to best practices development for surveillance and intervention.

The two phases of this project addressed two DentaQuest Oral Health 2020 goals: 1) "Comprehensive national oral health measurement system" (target was "A comprehensive national and state oral health measurement system is in place.") and 2) "Mandatory inclusion of an adult dental benefit in publicly funded health insurance" (target was "By 2020, at least 30 states have a comprehensive Medicaid adult dental benefit and no states that currently have a Medicaid adult dental benefit roll back or eliminate that coverage."). It also addressed Healthy People 2020 Objective OH-16, "Increase the number of states and the District of Columbia that have an oral and craniofacial health surveillance system," as monitoring data on use of EDs for oral problems would be a component of surveillance of oral health and of the dental care system.

The overall project therefore, 1) describes ED dental care data and methods used to collect and report such data in the summarized findings from the literature review, and 2) introduces recommended data collection, analysis, and reporting protocol and guidelines. ASTDD will provide technical assistance to states for implementing the standardized ED oral health data methods protocol for collection, analysis, and reporting, along with the oral health surveillance technical assistance it already provides. Data from ED oral health data surveillance activities can be used to advocate for policy changes such as establishment of comprehensive adult Medicaid benefits and creation of ED diversion programs that will result in a reduction of dental related ED visits and better dental care and oral health outcomes for state populations.

The Executive Summary and Recommendations from the Phase 1 report, "Methods in Assessing Non-Traumatic Dental Care in Emergency Departments," are included here to orient the reader to the development of guidelines presented later in this Phase 2 report.

Executive Summary – Phase 1 Report

Background

Access to dental care continues as a major topic of interest among health organizations, state departments of health, state oral health programs, and the public. This includes the use of hospital emergency departments (EDs) for dental care. Though some ED usage for dental care due to oral trauma can be expected, particularly for oral trauma occurring during non-business hours and over weekends when many primary dental care offices and clinics are not open, a large proportion of oral problems presenting at EDs are not a result of trauma. These non-traumatic dental conditions (NTDCs) can be treated more effectively, or prevented altogether, through regular dental care in a primary dental care setting. Many investigators are exploring potential cost savings and improvements in quality of life through interventions designed to prevent or divert people from using EDs for oral problems, especially for NTDCs.

As with most public health problems, the first steps in addressing the issue are to confirm its existence and quantify its extent. Problems arise, however, when datasets and methods vary, resulting in a muddied picture of the problem's extent, distribution, and causal or predictive factors.

Purpose of the Report

The DentaQuest Foundation funded the Association of State and Territorial Dental Directors from December 1, 2014 through November 30, 2015 to search the scientific literature and online sources for reports on the use of

EDs for dental care. The intended purpose of this project is to fully explore the extent of variation in the different aspects of research conducted, including target populations, outcomes of interest, predictive factors investigated, data sources used, and specific research methods employed including the diagnostic codes used in defining ED dental care. This report presents the findings of the investigation, summarizes the positive and negative aspects of the findings, and provides recommendations on the conduct of future research. Specifically, standardization of methodology, to the extent possible, is recommended to provide for consistency in data collection, analysis, and reporting, and to aid in the collection of data for state and national surveillance of ED dental care. Standardized surveillance of the use of EDs for NTDCs would support national tracking and provide states with actionable data to plan and implement effective interventions.

Research Methods

Information on ED dental care investigations was gathered and thoroughly evaluated. Searches of the scientific literature in published scientific journals and posted internet reports focusing on government or organization websites was conducted. The scientific literature search involved multiple searches in PubMed using different combinations of terms to discover studies related to different aspects of dental care provided in emergency settings. An ongoing search was also established through an account with "My NCBI," the National Center for Biotechnology Information (NCBI) at the US National Library of Medicine (NLM). This provided a comprehensive listing of the most recent publications through October, 2015.

The search for online publications involved Google searching. The searches included both general and more specific search code, with more specific searches limited to online posting on government and organization websites, filtering out general opinion and other non-scientific postings on the subject.

The resulting collection of studies from these searches was then systematically reviewed to determine the specific population and research design aspects for each study. Findings were summarized and methods compared to explore similarities and differences. Findings were evaluated to form conclusions and recommendations for future research and investigation.

Summary of Findings

1. Investigations varied widely in terms of target populations of interest. Target populations ranged from national, state, and local levels down to a single hospital or ED. Some target populations were further defined by limiting the study population to those with specific demographic or other characteristics, or by specific aspects of patient care processes or outcomes.
2. Investigation outcomes of interest varied widely, including general access to dental care and ED use, counts and rates of ED general dental and NTDC usage, rates of ED return visits, rates of hospital admission for dental conditions, and trends or changes in rates of ED utilization for dental care.
3. Predictive factors investigated varied widely. Though some basic demographic and insurance status predictors were commonly investigated, other factors included urban/rural status and other environmental factors, psychological factors, other concurrent conditions, and changes in insurance coverage or policy (e.g., adult Medicaid coverage).
4. Data sources for investigations varied widely, though some national and state data systems were commonly used. Some studies (e.g., local hospital studies) used different sources of data but had similar variable content in the datasets.

5. Specific sets of diagnosis codes used to define dental care, or more specifically, NTDCs, varied. Few investigators used exactly the same sets of codes. Some investigators used similar codes with slight variations, while other investigators used very different sets of codes to define the same dental care category (e.g., NTDCs).

6. While there have been many investigations of the use of EDs for dental care that explored different aspects of the issue, the variation in studies and the methods employed have resulted in inconsistent data that often are not comparable. This does not allow for effective standardized surveillance of ED dental care at the state and local levels.

7. Standardized research protocols, including data collection, analysis, and reporting methods need to be developed and promoted, particularly at the state level, to ensure reliable comparable data sufficient for tracking and comparing state trends.

Recommendations Summary

- Specifically define study populations of interest, assess usability of data sources, and follow good investigation protocol in assessing ED dental care and planning interventions.
- Develop sets of codes and analysis methods, including important predictive factors that will most appropriately answer research questions with the underlying motivation of standardizing methods to the extent possible to allow for comparison to other studies on other populations.
- Encourage specific research on ED use for NTDCs, which includes the majority of unnecessary visits and costs and could most effectively be addressed in the primary dental care setting.
- Develop and promote standardized sets of codes and analysis methods providing appropriate basic ED dental use data for state oral health surveillance systems and for state data submission to a national data repository for tracking national ED dental care, allowing for comparability across states. Additional optional data analyses can be conducted by states as desired.

Recommendations from Phase 1 Report

General Recommendations

- Thoroughly define specific study populations to determine the presence and extent of the problem and for whom effective interventions can be implemented.
- Assess data sources to determine if the required information for the study population and research question(s) of interest are included.
- Establish whether a problem exists and quantify the size of the problem as the first stage of any study of predictive factors or interventions.
- Identify and promote research of specific risk or predictive factors that will aid in determining what types of interventions might be most effectively implemented or best targeted.
- Develop sets of codes and analysis methods that will most appropriately answer research questions with the underlying motivation of standardizing methods to the extent possible to allow for comparison to other studies on other populations.
- Promote specific code sets and guidelines for analysis methods for commonly used datasets in determining NTDC or general dental ED visit count and proportion outcomes to establish the extent of the problem, and to standardize basic data collection for surveillance.

- Encourage inclusion of commonly identified, associated predictive factors that will help determine effective intervention strategies and promote basic levels of consistency across studies, while also accounting for possible confounding effects in studies of additional predictive factors.
- Encourage specific research on ED use for NTDCs, which includes the majority of unnecessary visits and costs, and could most effectively be addressed in the primary dental care setting.

Recommendations Specific to States

- Thoroughly define whether the research or surveillance is for the entire state population or for a specific state sub-population of interest to determine the presence and extent of the problem, and for whom effective interventions could be implemented.
- Assess data sources to determine if the required information for the target population and research question(s) of interest are included. If the state is part of the State Emergency Department Databases (SEDD) system, there should be some consistency in data with other states in SEDD. If the state is not in the SEDD system, research should determine if there is a sufficient data source to investigate ED dental care and how consistent the data source is with SEDD.
- Establish whether a problem exists and quantify the size of the problem as a first stage of any investigation of predictive factors or interventions; this should be a part of state level oral health surveillance.
- Identify and promote research on use of specific risk or predictive factors that will aid in determining what types of interventions might be most effectively implemented or best targeted.
- Develop standardized sets of codes and analysis methods providing appropriate basic ED dental use data for state oral health surveillance systems and for state data submission to a national data repository for tracking national ED dental care, allowing for comparability across states. Additional optional data analyses can be conducted by states as desired.
- Promote standardized sets of codes and guidelines for analysis methods for commonly used state level datasets in determining NTDC and general dental ED visit data as part of standardized state and national oral health surveillance systems. Specifically explore further use of Medicaid data for tracking ED dental care in this population.
- Encourage inclusion of commonly identified associated predictive factors that will help determine effective intervention strategies and promote basic levels of consistency across studies, while also accounting for possible confounding effects in studies of additional predictive factors.
- Encourage specific research on ED use for NTDCs, which includes the majority of unnecessary visits and costs, and could most effectively be addressed with state and local level interventions, and data used to promote support and resources for such intervention programs.

Methods for Project Phase 2

The development of guidelines for ED oral care surveillance has been based on evaluation of past methods summarized in the Phase 1 report. The thorough literature search of past research and studies focused on the following aspects: 1) target populations, 2) outcomes of interest to the investigations, 3) predictive factors investigated, 4) data sources used, and 5) analysis methods and diagnosis codes employed. These are the key aspects considered in development of the ED oral care surveillance guidelines. The following sections will address guidelines and specific protocols as appropriate for each aspect of ED oral care surveillance.

Based on findings from the first phase of the project, the workgroup was formed for the second phase. Initial contacts and conference calls were conducted to discuss the purpose and goals for the project. Work proceeded on outcomes for the different aspects of ED oral care surveillance, materials were distributed, and a face to face meeting was held in Washington, D.C. Members discussed materials and provided input toward the final products and outcomes for the project. This document contains the components and guidance developed for use in ED oral care surveillance.

Target Populations/Outcomes of Interest/Predictor Variables/Data Sources and Codes

As addressed in the Phase 1 report, investigators have different motivations when conducting surveillance vs. conducting research studies to address hypotheses, with numerous research questions posed. Researchers may be interested in specific unique populations, specific predictive factors directly impacting access to dental care, or effects of changes in policy. Because of these differences, there has been great variation in target populations studied, data sources and elements used, and the statistical methods employed. When conducting surveillance, there is a need for standardization of methods for comparisons between populations and for trend assessment over time within a population. While the Phase 1 report summarized the variation in these factors among published research and studies, Phase 2 of this project addresses and recommends standardized methods and protocols for surveillance, particularly focusing on state level surveillance. While, these standardized methods and protocols can potentially be used for any investigation of any target population, the primary goal is to provide uniform surveillance methods for states, resulting in uniform nationwide state level surveillance activity.

The following sections will address each component of research/surveillance, including target population, outcome of interest, predictive factors, data sources used to address the research question, and data and analysis methods employed, and provide suggested guidance for conducting state level surveillance of ED dental care.

Target Populations

International Studies

Though this report will focus on assessing research on dental care in the ED within the United States, such research is not limited to the United States. The Phase 1 report summarized the array of work that has been published from other countries. A perception of the problems of people seeking dental care from EDs is not unique to the United States. The guidelines presented from this project may have some generalizable use in other countries, but differences in health systems, insurance systems, and datasets will likely limit the applicability of many of the specific protocols presented.

National and Local Level

Within the United States, many researchers have assessed the ED dental care issue at the national level using nationally representative datasets with data elements to assess aspects of ED dental care, and more specifically, NTDCs. Different studies have used national datasets including the Nationwide Emergency Department Sample (NEDS) dataset of the Healthcare Cost and Utilization Project (HCUP), the Medical Expenditure Panel Survey (MEPS), and the National Hospital Ambulatory Medical Care Survey (NHAMCS). National subpopulations also have been investigated using these same datasets, for example limiting investigations to working-age adults, children, or very specific subpopulations such as sickle cell disease patients or people with Autism Spectrum disorders.

Other investigators have focused on national surveys specifically designed to address national subpopulations, for example the National Survey of Children's Health, a national survey limited to children.

Many investigators have selected a specific local population to research. Sometimes this will simply involve a specific convenience population (e.g. those presenting at the ED of a hospital) for simple assessments such as characterizing users and repeat users of the ED for oral care, or assessing barriers to oral care such as the impact of insurance coverage to those presenting at EDs for NTDCs. Other studies have focused on factors such as prescribing guidelines or drug seeking behavior.

Some of these studies were conducted by patient interview. Many studies have used data from hospitals/hospital systems in a community or metropolitan area. Somewhat more comprehensive studies include an entire geographic or demographic subpopulation of a state. Combinations of geographic areas and demographic subpopulations can also define a target population to track changes in health care access, for example enrollees or new enrollees in regional health insurance programs for low-income, uninsured residents.

Furthermore, variables can be used in defining target sub-populations for patient characteristics related to health care processes or outcomes. For example, some study populations are defined by outcomes of the ED for oral care visit, e.g. ED visit resulting in patient discharge; ED visit resulting either in discharge or hospital admission; or ED visit resulting in hospital admission. Subject demographics believed to be related to ED use for NTDCs often are investigated. Combinations of these factors have been used, for example, people covered by Medicaid who had been admitted to hospitals due to NTDCs.

The recommendations from this project can be used as general guidelines for assessing and conducting surveillance of ED dental care at a national or local level. However, the primary aim of ASTDD is to aid states, and specifically state oral health programs (SOHPs), in effectively improving the oral health of their state populations. State oral health surveillance systems are essential for providing accurate and reliable data for assessing aspects of oral health, contributing to effective program planning to address oral health related problems. Therefore, while the provided guidelines can generally be used, they are specifically intended to address ED oral care surveillance at the state level.

State Level
Many investigations have assessed ED visits for dental care at the state level to determine the extent of the problem and to use the information for planning intervention strategies or for advocating for state level policy change. The target population may be all people in the state, or a subpopulation of the state (e.g., children), and may simply seek to determine people in the state with ED visits specifically for dental care, or more specifically, for NTDCs. Rates and predictors of ED use for NTDCs have also been investigated.

Basic ED oral care usage can be assessed through hospital administrative data, such as emergency department discharge datasets. Studies sometimes have supplemented administrative data with interviews of ED dental users and community stakeholders, looking at such factors as insurance mix and Medicaid eligibility/ enrollment. Other studies used telephone interviews of statewide representative samples of people who had sought care for oral problems at EDs. Other state level subpopulations included members of specific healthcare plans to assess changes in accessing dental care and EDs for health care before and after healthcare plan enrollment. Examples

of state level healthcare plans investigated include plans for those with low income, WIC nutrition programs among those with Medicaid, and children participating in a food stamp program. State level changes in healthcare plans have also been studied, for example, rates and trends of ED dental visits before and after state elimination of dental benefits within a plan. State level investigation has also included analysis of data from different states to make comparisons. Between state comparisons require consistency in methods of data collection and analysis. Examples of data sources by target population level are summarized in Table 1.

Table 1: Examples of Data Sources for Different Target Population Levels

Target Population	Data Source
National	National Emergency Department Sample (NEDS)
National	Medical Expenditure Panel Survey (MEPS)
National	National Hospital Ambulatory Medical Care Survey (NHAMCS)
State	State Emergency Department Databases (SEDD)
State	Non-SEDD Individual State ED Discharge Data
Local	Individual Hospital ED data
Local	Community Data from Hospital EDs
Local	County Data from Hospital EDs
Special sub-population	Pediatric or Adults Only Subset of a Dataset
Special sub-population	Medicaid Data (or other low income related data)
Special sub-population	Race/Ethnicity Subset of Dataset

Outcomes of Interest

ED Utilization for Dental Care and NTDC Care – Counts and Rates

As with other aspects of ED dental care research, the specific outcomes investigated in published research vary widely. While some studies assess issues such as oral health status and access to care in relation to ED visits in general or ED visits for dental problems, the focus of this project is specific outcomes related to oral care provided in EDs. Basic outcomes specifically related to ED utilization for oral/dental care generally, or more specifically for NTDCs, include simple assessments of counts of ED visits for dental care or NTDCs, proportions of populations using EDs for dental care or NTDCs (e.g., in the past year), rates of ED visits among the populations (e.g., visits per 100,000 population), proportions of total ED visits that are for dental care or NTDCs, costs or charges associated with ED visits for dental care or NTDCs, and trends of any of these measures over time. ED oral/dental visits can be categorized by type of visit, such as visits for any dental condition or complaint, visits for oral/dental conditions not involving trauma (NTDC), visits for dental diagnoses considered to have low severity (treatable in dental offices during normal business hours), visits associated with caries diagnoses, or visits associated with a chief complaint of toothache. ED waiting times for care of NTDCs has also been an outcome of interest.

Other Outcomes Related to ED Utilization for Dental Care

An outcome of great interest has been the rate of same subject return visits to EDs for the same oral problem (if that can be determined), which has an obvious direct impact on total ED related costs for NTDCs. Some investigations have defined "high users" based on the number of patient ED visits in a given period of time. High users are of interest in terms of primary and secondary dental diagnoses, charges/costs, use of multiple hospitals

and subject characteristics. Factors influencing return visits of high users will be addressed in the Predictive Factors section.

Another outcome is dental related ED visits that for a small proportion of patients result in hospital admission, an outcome that can be studied among specified subpopulations as well. The typically high charges/costs associated with these hospital admissions also may be of interest.

Other Care Related Outcomes

Many investigations have explored the actual care received for NTDCs in EDs. Virtually all formal and informal reports find that in EDs where no dental personnel or dental clinics are present, care primarily is prescriptions for pain medications and antibiotics. Some studies have focused on dental related ED prescriptions, and more specifically on antibiotics and analgesics, including opioid, non-opioid, and combination analgesics. Drug seeking behavior (DSB) has been a related important topic of interest, given that DSB can result in oral pain given as the chief complaint, skewing the picture of true oral care in EDs. Efforts to curb DSB can be associated with lower rates of oral related ED visits.

Another outcome of interest is whether those presenting at an ED with NTDCs had follow-up care with a dentist. Where possible, investigations may assess whether subsequent dental office visits took place, how much time had passed since the ED visit, and what type of treatment was provided at the dental office.

Trends or Changes in Dental ED Utilization

In addition to point in time outcomes, there is interest in changes between two points in time or trends in ED use for oral conditions over time. This interest often is associated with factors such as the effects of enrollment in a new or established insurance plan or program, implementation of a program to divert patients with dental complaints to an urgent dental care clinic, or changes after health care reform or, more specifically, changes in Medicaid dental benefits for adults. The same outcomes mentioned previously can be measured at different points in time to assess such changes or trends.

Recommended and Optional State ED Oral/Dental Care Surveillance Outcomes

With the aim of promoting a standardized state level framework for states to use in evaluating and documenting the ED usage for oral care, the multitude of potential outcomes was assessed and a basic standard set of outcomes developed for state level ED oral care surveillance. These basic population statistics should provide a good picture of ED oral care for a given state. The data necessary to generate statistics for these outcomes should be readily available for most states. Data from SEDD can be used by most states, and many states not participating in SEDD will have state ED discharge databases similar to SEDD.

Most states participate in SEDD, but those states not participating usually still collect data in a similar format to data provided to the SEDD surveillance network. SEDD or equivalent state data are likely the most readily available data for states and SOHPs to access for surveillance activities related to ED oral/NTDC care. Specific guidelines and protocols provided in this report for SEDD data should have general applicability to non-SEDD state ED discharge data. More detailed information on SEDD is provided later in this document.

Table 2 summarizes the recommended outcomes for state ED oral care surveillance and provides the State Emergency Department Datasets variables that can be used to generate these outcome measures. These

recommended measures all assess ED care for NTDCs, which is the category of oral care that is generally accepted as ideally being addressed in the primary dental care system. While trauma related oral conditions might be expected to present in the ED, NTDCs would not, and is the area of oral ED care that states would desire to address through various forms of intervention. Further details in specifically defining NTDCs are presented later in this report.

Recommended indicators (refer to Table 2 for additional detail):
1. ED visit for NTDC based on *first listed* diagnosis
2. ED visit for NTDC based on *any listed* diagnosis
3. ED visit for NTDC based on *first listed reason for visit*
4. ED visit for NTDC based on *any listed reason for visit*
5. ED visit for NTDC based on *any listed diagnosis and/or any listed reason for visit (most inclusive).*

Recommended reporting: for each of the five recommended indicators, ASTDD suggests that states report, at a minimum:
- o Count – number of ED visits associated with specific outcome in a given year
- o Rate per 100,000 population using   Census Bureau population estimates
  - ▪ Count divided by population multiplied by 100,000
- o Rate per 10,000 ED visits
  - ▪ Count divided by total ED visits multiplied by 10,000
- o Total charges associated with each indicator (use SEDD variable – TOTCHG. Generally, TOTCHG does not include professional fees and non-covered charges. Refer to SEDD's state specific notes for additional detail.)

Table 2: Recommended Outcomes and Associated SEDD Variables to Assess

Indicator	SEDD Data Element, ICD-9	SEDD Data Element, ICD-10	Comments/Notes
1. NTDC 1st diagnosis	DX1	I10_DX1	Include 1st listed diagnosis only
2. NTDC any diagnosis	DXn	I10_DXn	Include all listed diagnoses
3. NTDC 1st reason visit	DX_Visit_Reason1	I10_Visit_Reason1	Include 1st listed reason only
4. NTDC any reason visit	DX_Visit_Reasonn	I10_Visit_Reasonn	Include all listed reasons
5. NTDC any diagnosis/visit	DXn & DX_Visit_Reasonn	I10_DXn & I10_Visit_Reasonn	Include all listed diagnoses & reasons

States may wish to do analyses of ED discharge data to explore additional outcomes. Table 3 summarizes optional outcomes developed for state ED oral care surveillance and provides the State Emergency Department Databases variables that can be used to generate these outcome measures. These measures address two additional ED oral care definitions. Any oral diagnosis includes all diagnoses for oral/dental conditions, including those related to trauma. Caries/Periodontal/Prevention (CPP) diagnoses include a subset of NTDC diagnoses that are considered to be related to caries, periodontal disease, or prevention procedures that are routinely provided in primary care general dental practices or clinics, and exclude procedures that would more likely be addressed by specialists. More details on defining these outcomes are provided later in this report, with specific codes used for the definitions displayed in Appendix 1.

Table 3: Optional Outcomes and Associated SEDD Variables to Assess

Optional Indicator	SEDD Data Element, ICD-9	SEDD Data Element, ICD-10	Comments/Notes
1. CPP 1st diagnosis	DX1	I10_DX1	Include 1st listed diagnosis only
2. CPP any diagnosis	DXn	I10_DXn	Include all listed diagnoses
3. CPP 1st reason visit	DX_Visit_Reason1	I10_Visit_Reason1	Include 1st listed reason only
4. CPP any reason visit	DX_Visit_Reasonn	I10_Visit_Reasonn	Include all listed reasons
5. CPP any diagnosis/visit	DXn & DX_Visit_Reasonn	I10_DXn & I10_Visit_Reasonn	Include all listed diagnoses & reasons
6. Any oral 1st diagnosis	DX1	I10_DX1	Include 1st listed diagnosis only
7. Any oral any diagnosis	DXn	I10_DXn	Include all listed diagnoses
8. Any oral 1st reason visit	DX_Visit_Reason1	I10_Visit_Reason1	Include 1st listed reason only
9. Any oral any reason visit	DX_Visit_Reasonn	I10_Visit_Reasonn	Include all listed reasons
10. Any oral any diagnosis/visit	DXn & DX_Visit_Reasonn	I10_DXn & I10_Visit_Reasonn	Include all listed diagnoses & reasons

States may wish to conduct additional analyses to those described. Other potential analyses that may be possible to conduct with SEDD or other similar state ED discharge data, State Inpatient Databases (SID), or other health/insurance databases are summarized in Table 4.

Table 4: Additional Optional Analyses if Data Available

Outcome
Prevalence or count oral/NTDC ED visit resulting in admission, overall and by condition (e.g. caries)
Prevalence or count oral NTDC ED visit before/after comparisons, e.g. diversion program
Rates oral/NTDC visits compared to rates total or other condition ED visits
Proportion oral/NTDC visits of total ED visits
Rates palliative vs. other treatment
Proportion of ED oral/NTDC visits with follow-up dental care (possible for Medicaid, may be possible for other medical/dental insurers)
Trends or changes in general for above outcomes and in comparisons to other conditions (e.g. back pain)
Return visits by same patient (where trackable using SEDD variables VisitLink and DaysToEvent) Frequencies and associated costs
Return visits for same condition (where trackable) Frequencies and associated costs
High users (as determined by number of ED visits) Frequencies and associated costs
High users by oral condition or by medications vs. Rx Frequencies and associated costs

Predictive Factors

Many investigators in past studies and reports have explored the associations of various predictive factors with ED dental utilization outcomes. The following sections roughly categorize potential predictive factors to use in ED oral care surveillance.

Demographics and Other Patient Factors

Basic demographic and patient factors are commonly evaluated with ED oral care as they are with almost all health-related outcomes. Common demographic factors to consider are: age; sex; race/ethnicity; family or household income; education (or maternal educational level); marital status; employment; urban/rural status;

insurance type and insurance instability; physical, economic, and psychological factors; being foreign born; and health literacy level. Personal access related variables, which could include having insurance, might also include: insurance type; having reported a dental problem as the reason for the ED visit; use of EDs for other reasons; patient-reported severity of pain; participating in WIC vs. those who are not; not having a routine dental checkup/cleaning in the last three years; and special health care needs. Some of these factors are related to access to care, which is discussed further below.

A variation on assessing predictive factors involves assessing factors specifically associated with hospital admission for NTDCs. Hospital admission has been assessed in association with age, gender, the number of complex chronic conditions, being non-white, being publicly insured, having lower income, having intellectual and developmental disabilities (IDDs), and having a dental infection or other specific health conditions.

In addition to evaluating demographics, area or community factors have also been investigated. Examples include differences by urban/rural residence status, residence zip code level measures of poverty, effects of metropolitan residence status, census level variables, local dentist supply, and community level variables of income, education level, and primary language spoken in homes.

Access Issues/Policy Changes
One primary access factor investigated is dental insurance. Having insurance is often included with other subject level demographic factors as mentioned previously and can include designation of private or public insurance or the actual primary payer. Other factors may include the duration of NTDC symptoms, the specific diagnosis, and barriers to dental care with private practice dentists. Having a dental home has been a specific predictor of interest.

Other studies investigate access in terms of population level, community level, or area level predictors. Some of these factors have been mentioned previously: urban/rural residence, hospital population insurance mix, DHPSA designation for county of residence, the Urban Influence Code (a measure for rurality), low-income population to dentist ratio, and state Medicaid policies. A more basic access barrier is lack of available dental care, including lack of community dental facilities and dental facilities' business hours related to time of day and day of week.
Many publications address magnitude and changes in ED dental care related to changes in policy, particularly those for dental insurance coverage. Examples include expansion of Children's Health Insurance Program (CHIP) coverage, state health care reform, and changes or elimination of adult dental benefits from Medicaid or other insurance plans. Changes in coverage status or new enrollment in programs could be assessed for effects. Other potential policy changes related to patient care include new drug policies or providing medications to patients vs. only providing prescriptions. Intervention programs specifically designed to curb ED use for NTDCs have been assessed. Similarly, changes after new neighborhood health centers open might be of interest.

A previously mentioned confounding factor of ED utilization is patients reporting dental pain to obtain prescriptions for opioids, i.e., drug seeking behavior (DSB). DSB impacts on reported ED dental care utilization must be considered.

Recommended/Optional State ED Oral/Dental Care Surveillance Stratification Factors

While many of these factors may be of interest, data to assess them may not be readily available. Some variables may be available from census data if linkage is possible to ED data. For the purposes of ED oral care surveillance that states are readily able to accomplish, recommendations focus on variables typically available in SEDD data. Table 5 summarizes recommended explanatory variables to include in surveillance of ED oral/NTDC care.

Recommended reporting stratification variables (refer to Table 5 for additional detail):

    States, at a minimum, should report overall estimates plus estimates stratified by:

- Age (< 20, 20-44, 45-64, 65+)
  - State population estimates by age group are available from the U.S. Census
- Primary payer (Medicare, Medicaid, private insurance, uninsured, other)
  - NOTE: Information on the number of individuals with each payer type is not readily available. Because of this, it may not be possible to generate rate per 100,000 population.
- Race/ethnicity if available (white, black, Hispanic, Asian/Pacific Islander, Native American, other)
  - NOTE: The SEDD coding for race does not align with the U.S. Census coding for race. Because of this, it is not possible to generate rate per 100,000 population.

Table 5: Recommended stratification factors with SEDD data element names

Description	SEDD Data Element	Comments/Notes
Age	AGE or AGEGROUP	Most states report age while some may only report by age group.
Primary payer	PAY1	To ensure uniformity across states, PAY1 combines detailed categories into more general groups. Refer to SEDD's state specific notes for additional detail.
Race/ethnicity (if available)	RACE	HCUP coding includes race/ethnicity in one data element (RACE). If the state supplied race and ethnicity in separate data elements, ethnicity takes precedence over race in setting the HCUP value for race. Race is not available for all states. Refer to SEDD's state specific notes .

States may want to assess additional factors that may be associated with ED oral care. There are additional potential stratification variables in SEDD that states can use in stratified analysis. Table 6 summarizes optional explanatory variables that can be included in surveillance of ED oral/NTDC care.

Table 6: Optional stratification factors with SEDD data element names

Factors/Analyses	SEDD Data Element Name	Notes/Comments
Sex	FEMALE	
Marital status	MARITALSTATUSUB04	
Geographic location	ZIP or ZIP3	Patient zip code can be used to define geographic locations
Homelessness	Homeless	Not available for all states.
Weekend admission	AWEEKEND	Indicates whether ED visit occurred on a weekend, when dental offices/clinics might not be expected to be open.
Income	ZIPINC_QRTL	ZIPINC_QRTL provides a quartile classification of the estimated median household income of residents in the patient's ZIP Code. The quartiles are identified by values of 1 to 4, indicating the poorest to wealthiest populations. These values are derived from ZIP Code-demographic data obtained from Claritas. Because these estimates are updated annually, the value ranges for the ZIPINC_QRTL categories vary by year.
Revisit by same patient	VisitLink & DaysToEvent	The VisitLink data element is one of two data elements that are supplemental information created for HCUP States for which there are encrypted person identifiers. The visit linkage variable (VisitLink) can

		be used in tandem with the timing variable (DaysToEvent) to study multiple hospital visits for the same patient across hospitals and time while adhering to strict privacy regulations. Not available for all states.
Trends over time		Generate indicators for multiple years to determine if ED visits due to NTDC have increased, decreased or remained the same.

Data Sources/Available Data Elements/Diagnosis-Procedure Codes Studied

Data Sets/Sources and Available Data Elements

Data sources for investigating dental care provided in EDs are numerous. A full summary of many data sources at different population levels was presented in the Phase 1 report. State oral health programs will usually obtain and use state level data to elucidate a problem, implement interventions, or have others influence policymakers to address a problem. Because the focus of this report is state level surveillance of ED dental/NTDC care, information on state level data, and in particular, the State Emergency Department Datasets (SEDD) is a focus of this report. States may also be interested in comparing data from their state to national data, with the logical data source for national data being the Nationwide Emergency Department Sample (NEDS).

The Nationwide Emergency Department Sample (NEDS) includes data sampled from a family of state inpatient (SID) and state emergency department (SEDD) databases including software developed by the Healthcare Cost and Utilization Project (HCUP). NEDS is a stratified sample of about 20% of U.S. hospital EDs and contains data from 950 hospitals in 30 states. NEDS data can be used to generate national and regional estimates of ED use. Further information on NEDS can be found at https://www.hcup-us.ahrq.gov/nedsoverview.jsp.

State ED data may vary in availability and content of datasets. SEDD provides data that are generally available and consistent across states, allowing for comparisons among states. The State Emergency Department Databases (SEDD) are part of the family of databases including software developed by the Healthcare Cost and Utilization Project (HCUP). SEDD files include data on emergency visits at hospital emergency departments that do not result in hospitalization. Data on patients admitted to a hospital after an ED visit are included in the State Inpatient Databases (SID). SEDD files include all ED patients regardless of payer, and include clinical and non-clinical data. Forty-two states currently (as of September, 2021) participate in SEDD. Table 7 provides a complete listing of SEDD variables that may be in the state SEDD file. The two example state columns for Iowa and Kentucky show for each state the SEDD variables that the state dataset contains. In the electronic version of this document, variable names are linked to the complete definition and description of each variable. Further information on SEDD can be found at https://www.hcup-us.ahrq.gov/seddoverview.jsp.

Table 7: SEDD Variables and Availability by State - Sample

Data Element	IA	KY
AGE	y	y
AGEDAY	y	y
AGEGROUP	-	-
AGEMONTH	y	y
AHAID	y	y
AHOUR	-	-
AMONTH	y	y

Data Element	IA	KY
APC	-	-
ATYPE	y	y
AWEEKEND	y	y
AYEAR	y	y
BILLTYPE	-	y
BMONTH	y	y
BODYSYSTEMn	y	y
BYEAR	y	y
CHARGE	y	y
CHGn	-	-
CHRONn	y	y
COMMUNITY_NONREHAB_NONLTAC	y	y
CPTCCSn	y	y
CPTDAYn	y	y
CPTHCPCS	y	y
CPTM1_n	y	y
CPTM2_n	y	y
CPTMod1	y	y
CPTMod2	y	y
CPTn	y	y
DHOUR	-	-
DIED	y	y
DISPUB04	y	y
DISPUNIFORM	y	y
DISP_X	y	y
DMONTH	y	y
DNR	-	-
DQTR	y	y
DSHOSPID	y	y
DURATION	-	-
DXCCSn	y	y
DXMCCSn	y	y
DXPOAn	-	-
DXVER	y	y
DX_Visit_Reasonn	y	y
DXn	y	y
DaysToEvent	y	-
ECODEn	y	y
E_CCSn	y	y
E_MCCSn	y	y
E_POAn	-	-
FEMALE	y	y
HCUP_ED	y	y
HCUP_OS	y	y
HFIPSSTCO	y	y
HISPANIC_X	y	y
HOSPBRTH	y	y
HOSPID	y	y
HOSPST	y	y
HOSP_NPI	-	y

Data Element	IA	KY
Homeless	-	-
INJURY	y	y
INJURY_CUT	y	y
INJURY_DROWN	y	y
INJURY_FALL	y	y
INJURY_FIRE	y	y
INJURY_FIREARM	y	y
INJURY_MACHINERY	y	y
INJURY_MVT	y	y
INJURY_NATURE	y	y
INJURY_POISON	y	y
INJURY_STRUCK	y	y
INJURY_SUFFOCATION	y	y
INTENT_ASSAULT	y	y
INTENT_SELF_HARM	y	y
INTENT_UNINTENTIONAL	y	y
KEY	y	y
LOS	y	y
LOS_X	y	y
MARITALSTATUSUB04	-	-
MARITALSTATUS_X	-	-
MDBOARD1	-	-
MDBOARD2	-	-
MDNUM1_R	y	-
MDNUM2_R	y	-
MDNUM3_R	y	-
MDNUM4_R	-	-
MDNUMTYPE1	-	-
MDNUMTYPE2	-	-
MDSPEC1	-	-
MDSPEC2	-	-
MEDINCSTQ	y	y
MOMNUM_R	-	-
MRN_R	y	-
MULTINJURY	y	y
NCHRONIC	y	y
NCPT	y	y
NDX	y	y
NECODE	y	y
NEOMAT	y	y
NPR	-	-
NREVCD	-	-
OBSERVATION	-	-
OFFSITE_ED_X	-	-
OPservice	y	y
ORPROC	-	-
OS_TIME	y	y
PAY1	y	y
PAY1_X	y	y
PAY2	y	y

Data Element	IA	KY
PAY2_X	y	y
PAY3	y	y
PAY3_X	y	y
PAYER1_X	-	-
PAYER2_X	-	-
PCLASSn	-	-
PL_CBSA	y	y
PL_NCHS	y	y
PL_RUCC	y	y
PL_UIC	y	y
PL_UR_CAT4	y	y
POA_Disch_Edit1	-	-
POA_Disch_Edit2	-	-
POA_Hosp_Edit1	-	-
POA_Hosp_Edit2	-	-
POA_Hosp_Edit3	-	-
POA_Hosp_Edit3_Value	-	-
PRCCSn	-	-
PRDAYn	-	-
PRMCCSn	-	-
PRMONTHn	-	-
PROCTYPE	y	y
PRVER	-	-
PRYEARn	-	-
PRn	-	-
PSTATE	y	y
PSTCO	y	y
PSTCO2	y	y
PointOfOriginUB04	y	y
PointOfOrigin_X	y	y
PrimLang	-	-
RACE	y	y
RACE_X	y	y
READMIT	-	-
REVCDn	-	-
REVCHGn	-	-
REVCODE	y	y
SERVDAY	y	y
SPLIT_IPED	-	-
STATE_AS	y	y
STATE_ED	y	y
STATE_OS	y	y
TOTCHG	y	y
TOTCHG_X	y	y
TOWN	-	-
UNITS	y	y
UNITn	-	-
U_BLOOD	y	y
U_CATH	y	y
U_CCU	y	y

Data Element	IA	KY
U_CHESTXRAY	y	y
U_CTSCAN	y	y
U_DIALYSIS	y	y
U_ECHO	y	y
U_ED	y	y
U_EEG	y	y
U_EKG	y	y
U_EPO	y	y
U_ICU	y	y
U_LITHOTRIPSY	y	y
U_MHSA	y	y
U_MRT	y	y
U_NEWBN2L	y	y
U_NEWBN3L	y	y
U_NEWBN4L	y	y
U_NUCMED	y	y
U_OBSERVATION	y	y
U_OCCTHERAPY	y	y
U_ORGANACQ	y	y
U_OTHIMPLANTS	y	y
U_PACEMAKER	y	y
U_PHYTHERAPY	y	y
U_RADTHERAPY	y	y
U_RESPTHERAPY	y	y
U_SPEECHTHERAPY	y	y
U_STRESS	y	y
U_ULTRASOUND	y	y
VisitLink	y	-
YEAR	y	y
ZIP	y	y
ZIP3	y	-
ZIPINC_QRTL	y	y

As stated earlier, states that do not participate in SEDD may still maintain and make available their own ED databases, and ED dental care data for states not participating in SEDD may be available through these state hospital discharge datasets. Guidelines and methods provided in this report can be used with non-SEDD data to the extent that these state databases have similar structure and content to SEDD.

A side note on ED oral care surveillance data sources is that Medicaid data availability presents an opportunity for investigating ED access and dental care in the primary care sector as medical and dental data for Medicaid subjects can be linked. For example, follow-up dental care subsequent to ED visits for dental problems can be explored. When using state Medicaid data, issues related to Medicaid data analysis must be addressed, including changes in eligibility affecting numerator and denominator determination in calculation of rates, and the use of procedure codes instead of diagnostic codes in dental insurance data. The obvious primary drawback to use of Medicaid data for state level surveillance is that the data are only for the Medicaid sub-population of the state.

Diagnosis-Procedure Codes Investigated

ICD diagnosis codes used in analysis provide for direct comparisons between research studies to the extent that the same set of codes is used to define the same outcome. Unfortunately, this has not typically been the case in past published research, as highlighted in the Phase 1 report. There have been definite variations in the codes used by researchers. One major difference is whether there is interest in all dentally related conditions or procedures, or if there is interest in a subset of dental conditions/procedures, with different study definitions employing different sets of codes (more or less restricted). Some past studies seeking to investigate any oral/dental related care used the entire range of ICD-9 codes 520-529.9. Others used a broader range of dental/oral related codes to capture ED visits related to oral problems such as oral injuries/trauma or TMJ problems, and any conditions related to the teeth, jaws, head, face, and neck.

Researchers who are interested in access to EDs for specific dental conditions that are readily prevented or definitively treated through regular traditional dental care, have used a subset of dental codes. This category includes more specific definitions of NTDCs presenting in EDs, which is the primary focus of recommendations in this report. Investigators interested in NTDCs have limited their research to specific ICD codes determined to identify NTDCs. Though often similar, the exact sets of codes employed in analyses often have not been the same. Investigators interested in more specific types of diagnoses make use of a subset of NTDC related ICD codes. Examples may be codes limited to dental infections or dental caries. The wide array of ICD-9 code set definitions that have been used is covered thoroughly in the Stage 1 report. An exhaustive listing of dental/oral related ICD 9 and ICD-10 codes and their descriptions are presented in Appendix 1.

The development and implementation of the ICD-10 coding system in 2015 has resulted in the use of ICD-10 codes in current research. Comparing studies and study definitions between studies using ICD-9 and ICD-10, or assessing trends across the ICD transition period requires translation between ICD-9 and ICD-10 codes. To develop recommended sets of codes for different ED oral/NTDC care definitions, we had to address this transition to the newer ICD-10 coding system. A crosswalk table was developed for translation of all oral/dental related ICD-9 codes to corresponding ICD-10 codes. Once this crosswalk table was completed, codes to define specific indicator definitions described in the Outcomes of Interest section of this report were considered, with input from the project workgroup. Specific sets of codes to define NTDC and CPP indicators (described previously) were determined. These sets have been updated as ICD-10 codes have been modified and new codes added since 2015.

An Excel version of the crosswalk table mentioned above is available and can be accessed via the ASTDD link, click here. Comparisons of ICD-9 and ICD-10 codes and ED oral indicator definitions for NTDC and CPP definitions are displayed in the table. ICD-10 descriptions are provided wherever they differ at all from the wording of the ICD-9 description (first column). In some cases, ICD-10 codes were either collapsed or expanded from ICD-9 codes. ICD-10 codes added after 2015 do not have ICD-9 translations, so as more ICD-10 codes are added over time, the translation between ICD-10 and ICD-9 becomes less valid. This Excel file includes all oral/dental related ICD-9 and ICD-10 codes, with columns to indicate the subsets of codes defining NTDC and CPP. This Excel file is made available to states or other interested parties for easier implementation in ED oral/NTDC care surveillance and data analysis activities. Note: The ASTDD recommended ICD-10 NTDC code set aligns closely with the Dental Quality Alliance (DQA) NTDC code set for their Ambulatory Care Sensitive Emergency Department Visits for Non-Traumatic Dental Conditions in Adults measure but contains some additional codes that the DQA definition does not.

Dataset Development and Analyses

Data and analysis codes are required to conduct ED oral care surveillance and generate the recommended ED oral surveillance indicators. For states that do not participate in SEDD, the existence and availability of ED data will need to be determined. As mentioned before, similarities of non-SEDD state data with SEDD data will allow for general use of recommendations and methods presented in this report. For SEDD states, data and resources for analysis are available online. A detailed overview webpage of SEDD with links to other SEDD webpages, including the links to data purchasing and data documentation and resources is available at https://www.hcup-us.ahrq.gov/seddoverview.jsp. Among the SEDD data resources are downloadable files for loading SEDD datasets into SAS, SPSS, and Stata.

Once the data are loaded, generating the indicators recommended in the report requires specific code. SAS sample code for generating recommended indicators is provided in Appendix 2. Instructions for setting up and using the code are included in the appendix. The code itself can be cut and pasted from Appendix 2 into SAS and modified as needed to meet the specific needs and desires of each state.

To guide analysis, an analysis grid was developed laying out the recommended and optional indicators and stratified analysis and includes the SEDD variable names to use in generating the indicator output. The analysis grid is in Appendix 3. Further support can be sought from ASTDD. All of the information on recommended ED oral care indicators, their definitions, and conducting the data analysis to generate the indicators is summarized and available in the document, *Guidance on Assessing Emergency Department Data for Non-Traumatic Dental Conditions*.

Note: the ICD-9 and ICD-10 recommended code blocks are included in Appendix 2. The Oral/Dental ICD-9/ICD-10 Conversion Crosswalk Table Excel file is available to see corresponding ICD-9 and ICD-10 codes and their definitions, click here. This Excel file can also be used for creating different sets of codes for analysis if states choose to do analyses beyond the recommended and optional analyses presented.

Ongoing Challenges to ED Oral/NTDC Care Surveillance

The problematic aspects of research methods addressing ED use for oral problems in past research has primarily related to the inconsistencies of methods across studies. Research by nature is intended to address new research questions in different target populations with different outcomes and predictors of interest. Likewise, in investigations of ED oral/NTDC care, methodology will vary depending on the factors of interest to the researchers, including: definitions of ED treatments, predictors of ED use, and factors related to potentially effective intervention strategies. Surveillance on the other hand, is effective when conducted in a uniform standardized way across different populations and over time.

Another problematic aspect of research addressed in the Phase 1 report has been coding at the EDs. The lack of oral/dental training and knowledge among medical professionals providing care in EDs has been problematic in both accurate diagnosis of oral conditions and accurate use of the diagnosis codes. Likewise, physicians are not properly trained to provide the appropriate treatment for the oral problems underlying the presenting symptoms. The resulting care usually involves providing prescriptions for pain medications and/or antibiotics, along with advice to see a dentist. Coding for oral/dental conditions by physicians often relies on heavy use of codes such as

"dental disorder unspecified" (ICD-9 code 5259, ICD-10 code K089)). Such codes are not very informative, but more specific dental codes may often be inaccurately used. The problem of inaccurate and imprecise ICD dental code use by physicians is not easily addressed.

Furthermore, many available datasets employ the use of unique identifiers associated with an ED visit, not a specific person. So repeat visits by a person cannot be identified or linked, and the extent of repeat visits to EDs for the same oral problem cannot be quantified. This is a major shortcoming, as repeat visits may represent a substantial portion of unnecessary treatment and costs that would potentially not occur if there was a source of regular definitive dental care.

Related to this lack of patient identity is the inability to link medical and ED data for a given patient to dental claims data. This precludes the ability to assess whether oral problems presenting in EDs have been addressed in the primary care dental setting. Furthermore, the utility of linked medical and dental data is limited by the long-standing use of treatment codes rather than diagnostic codes in dentistry. Initiatives for developing and implementing dental diagnostic codes are in process, but likely will not be widely implemented for some time. The advancement of electronic health and dental records, with increased potential for linking is also progressing.

Summary/Conclusions

The variation in past ED oral/NTDC investigative methods has limited the consistency and comparability of data. The use of standardized methods and protocols developed from this project will provide for more uniform and comparable ED oral/NTDC surveillance data for basic surveillance activities conducted by states.

Communications Plan

To promote the use of standardized state level ED oral care surveillance, the methods and recommendations from this project need to be disseminated with accompanying communication to encourage usage. A communication plan has been developed to guide these efforts. This communication plan is included in Appendix 4.

Appendix 1: Oral/Dental Related ICD-9 and ICD-10 Codes

Codes in table do not include decimal after 3ʳᵈ digit

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
101	any	NTDC		Vincent's angina
5200	any	NTDC		Anodontia
5201	any	NTDC		Supernumerary teeth
5202	any	NTDC		Abnormalities of size and form of teeth
5203	any	NTDC		Mottled teeth
5204	any	NTDC		Disturbances of tooth formation
5205	any	NTDC		Hereditary disturbances in tooth structure, not elsewhere classified
5206	any	NTDC		Disturbances in tooth eruption
5207	any	NTDC		Teething syndrome
5208	any	NTDC		Other specified disorders of tooth development and eruption
5209	any	NTDC		Unspecified disorder of tooth development and eruption
52100	any	NTDC	CPP	Dental caries, unspecified
52101	any	NTDC	CPP	Dental caries limited to enamel
52102	any	NTDC	CPP	Dental caries extending into dentine
52103	any	NTDC	CPP	Dental caries extending into pulp
52104	any	NTDC	CPP	Arrested dental caries
52105	any	NTDC	CPP	Odontoclasia
52106	any	NTDC	CPP	Dental caries pit and fissure
52107	any	NTDC	CPP	Dental caries of smooth surface
52108	any	NTDC	CPP	Dental caries of root surface
52109	any	NTDC	CPP	Other dental caries
52110	any	NTDC		Excessive attrition, unspecified
52111	any	NTDC		Excessive attrition, limited to enamel
52112	any	NTDC		Excessive attrition, extending into dentine
52113	any	NTDC		Excessive attrition, extending into pulp
52114	any	NTDC		Excessive attrition, localized
52115	any	NTDC		Excessive attrition, generalized
52120	any	NTDC		Abrasion, unspecified
52121	any	NTDC		Abrasion, limited to enamel
52122	any	NTDC		Abrasion, extending into dentine
52123	any	NTDC		Abrasion, extending into pulp
52124	any	NTDC		Abrasion, localized
52125	any	NTDC		Abrasion, generalized
52130	any	NTDC		Erosion, unspecified
52131	any	NTDC		Erosion, limited to enamel
52132	any	NTDC		Erosion, extending into dentine
52133	any	NTDC		Erosion, extending into pulp

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
52134	any	NTDC		Erosion, localized
52135	any	NTDC		Erosion, generalized
52140	any	NTDC		Pathological resorption, unspecified
52141	any	NTDC		Pathological resorption, internal
52142	any	NTDC		Pathological resorption, external
52149	any	NTDC		Other pathological resorption
5215	any	NTDC		Hypercementosis
5216	any	NTDC		Ankylosis of teeth
5217	any	NTDC	CPP	Intrinsic posteruptive color changes
52181	any	NTDC	CPP	Cracked tooth
52189	any	NTDC	CPP	Other specific diseases of hard tissues of teeth
5219	any	NTDC	CPP	Unspecified disease of hard tissues of teeth
5220	any	NTDC	CPP	Pulpitis
5221	any	NTDC	CPP	Necrosis of the pulp
5222	any	NTDC	CPP	Pulp degeneration
5223	any	NTDC		Abnormal hard tissue formation in pulp
5224	any	NTDC	CPP	Acute apical periodontitis of pulpal origin
5225	any	NTDC	CPP	Periapical abscess without sinus
5226	any	NTDC	CPP	Chronic apical periodontitis
5227	any	NTDC	CPP	Periapical abscess with sinus
5228	any	NTDC		Radicular cyst
5229	any	NTDC	CPP	Other and unspecified diseases of pulp and periapical tissues
52300	any	NTDC	CPP	Acute gingivitis, plaque induced
52301	any	NTDC	CPP	Acute gingivitis, non-plaque induced
52310	any	NTDC	CPP	Chronic gingivitis, plaque induced
52311	any	NTDC	CPP	Chronic gingivitis, non-plaque induced
52320	any	NTDC	CPP	Gingival recession, unspecified
52321	any	NTDC	CPP	Gingival recession, minimal
52322	any	NTDC	CPP	Gingival recession, moderate
52323	any	NTDC	CPP	Gingival recession, severe
52324	any	NTDC	CPP	Gingival recession, localized
52325	any	NTDC	CPP	Gingival recession, generalized
52330	any	NTDC	CPP	Aggressive periodontitis, unspecified
52331	any	NTDC	CPP	Aggressive periodontitis, localized
52332	any	NTDC	CPP	Aggressive periodontitis, generalized
52333	any	NTDC	CPP	Acute periodontitis
52340	any	NTDC	CPP	Chronic periodontitis, unspecified
52341	any	NTDC	CPP	Chronic periodontitis, localized
52342	any	NTDC	CPP	Chronic periodontitis, generalized
5235	any	NTDC	CPP	Periodontosis
5236	any	NTDC	CPP	Accretions on teeth
5238	any	NTDC	CPP	Other specified periodontal diseases
5239	any	NTDC	CPP	Unspecified gingival and periodontal disease
52400	any	NTDC		Major anomalies of jaw size, unspecified anomaly
52401	any	NTDC		Major anomalies of jaw size, maxillary hyperplasia
52402	any	NTDC		Major anomalies of jaw size, mandibular hyperplasia

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
52403	any	NTDC		Major anomalies of jaw size, maxillary hypoplasia
52404	any	NTDC		Major anomalies of jaw size, mandibular hypoplasia
52405	any	NTDC		Major anomalies of jaw size, macrogenia
52406	any	NTDC		Major anomalies of jaw size, microgenia
52407	any	NTDC		Excessive tuberosity of jaw
52409	any	NTDC		Major anomalies of jaw size, other specified anomaly
52410	any	NTDC		Anomalies of relationship of jaw to cranial base, unspecified anomaly
52411	any	NTDC		Anomalies of relationship of jaw to cranial base, maxillary asymmetry
52412	any	NTDC		Anomalies of relationship of jaw to cranial base, other jaw asymmetry
52419	any	NTDC		Anomalies of relationship of jaw to cranial base, other specified anomaly
52420	any	NTDC		Unspecified anomaly of dental arch relationship
52421	any	NTDC		Malocclusion, Angle's class I
52422	any	NTDC		Malocclusion, Angle's class II
52423	any	NTDC		Malocclusion, Angle's class III
52424	any	NTDC		Open anterior occlusal relationship
52425	any	NTDC		Open posterior occlusal relationship
52426	any	NTDC		Excessive horizontal overlap
52427	any	NTDC		Reverse articulation
52428	any	NTDC		Anomalies of interarch distance
52429	any	NTDC		Other anomalies of dental arch relationship
52430	any	NTDC		Unspecified anomaly of tooth position
52431	any	NTDC		Crowding of teeth
52432	any	NTDC		Excessive spacing of teeth
52433	any	NTDC		Horizontal displacement of teeth
52434	any	NTDC		Vertical displacement of teeth
52435	any	NTDC		Rotation of tooth/teeth
52436	any	NTDC		Insufficient interocclusal distance of teeth (ridge)
52437	any	NTDC		Excessive interocclusal distance of teeth
52439	any	NTDC		Other anomalies of tooth position
5244	any	NTDC		Malocclusion, unspecified
52450	any	NTDC		Dentofacial functional abnormality, unspecified
52451	any	NTDC		Abnormal jaw closure
52452	any	NTDC		Limited mandibular range of motion
52453	any	NTDC		Deviation in opening and closing of the mandible
52454	any	NTDC		Insufficient anterior guidance
52455	any	NTDC		Centric occlusion maximum intercuspation discrepancy
52456	any	NTDC		Non-working side interference
52457	any	NTDC		Lack of posterior occlusal support
52459	any	NTDC		Other dentofacial functional abnormalities
52460	any	NTDC		Temporomandibular joint disorders, unspecified
52461	any	NTDC		Temporomandibular joint disorders, adhesions and ankylosis (bony or fibrous)
52462	any	NTDC		Temporomandibular joint disorders, arthralgia of temporomandibular joint
52463	any	NTDC		Temporomandibular joint disorders, articular disc disorder (reducing or non-reducing)
52464	any	NTDC		Temporomandibular joint sounds on opening and/or closing the jaw
52469	any	NTDC		Other specified temporomandibular joint disorders

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
52470	any	NTDC		Dental alveolar anomalies, unspecified alveolar anomaly
52471	any	NTDC		Alveolar maxillary hyperplasia
52472	any	NTDC		Alveolar mandibular hyperplasia
52473	any	NTDC		Alveolar maxillary hypoplasia
52474	any	NTDC		Alveolar mandibular hypoplasia
52475	any	NTDC		Vertical displacement of alveolus and teeth
52476	any	NTDC		Occlusal plane deviation
52479	any	NTDC		Other specified alveolar anomaly
52481	any	NTDC		Anterior soft tissue impingement
52482	any	NTDC		Posterior soft tissue impingement
52489	any	NTDC		Other specified dentofacial anomalies
5249	any	NTDC		Unspecified dentofacial anomalies
5250	any	NTDC		Exfoliation of teeth due to systemic causes
52510	any	NTDC		Acquired absence of teeth, unspecified
52511	any			Loss of teeth due to trauma
52512	any	NTDC	CPP	Loss of teeth due to periodontal disease
52513	any	NTDC	CPP	Loss of teeth due to caries
52519	any	NTDC	CPP	Other loss of teeth
52520	any	NTDC		Unspecified atrophy of edentulous alveolar ridge
52521	any	NTDC		Minimal atrophy of the mandible
52522	any	NTDC		Moderate atrophy of the mandible
52523	any	NTDC		Severe atrophy of the mandible
52524	any	NTDC		Minimal atrophy of the maxilla
52525	any	NTDC		Moderate atrophy of the maxilla
52526	any	NTDC		Severe atrophy of the maxilla
5253	any	NTDC		Retained dental root
52540	any	NTDC		Complete edentulism, unspecified
52541	any	NTDC		Complete edentulism, class I
52542	any	NTDC		Complete edentulism, class II
52543	any	NTDC		Complete edentulism, class III
52544	any	NTDC		Complete edentulism, class IV
52550	any	NTDC	CPP	Partial edentulism, unspecified
52551	any	NTDC	CPP	Partial edentulism, class I
52552	any	NTDC	CPP	Partial edentulism, class II
52553	any	NTDC	CPP	Partial edentulism, class III
52554	any	NTDC	CPP	Partial edentulism, class IV
52560	any	NTDC	CPP	Unspecified unsatisfactory restoration of tooth
52561	any	NTDC	CPP	Open restoration margins
52562	any	NTDC	CPP	Unrepairable overhanging of dental restorative materials
52563	any	NTDC	CPP	Fractured dental restorative material without loss of material
52564	any	NTDC	CPP	Fractured dental restorative material with loss of material
52565	any	NTDC	CPP	Contour of existing restoration of tooth biologically incompatible with oral health
52566	any	NTDC	CPP	Allergy to existing dental restorative material
52567	any	NTDC	CPP	Poor aesthetics of existing restoration
52569	any	NTDC	CPP	Other unsatisfactory restoration of existing tooth

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
52571	any	NTDC	CPP	Osseointegration failure of dental implant
52572	any	NTDC	CPP	Post-osseointegration biological failure of dental implant
52573	any	NTDC	CPP	Post-osseointegration mechanical failure of dental implant
52579	any	NTDC	CPP	Other endosseous dental implant failure
5258	any	NTDC	CPP	Other specified disorders of the teeth and supporting structures
5259	any	NTDC	CPP	Unspecified disorder of the teeth and supporting structures
5260	any	NTDC		Developmental odontogenic cysts
5261	any	NTDC		Fissural cysts of jaw
5262	any	NTDC		Other cysts of jaws
5263	any	NTDC		Central giant cell (reparative) granuloma
5264	any	NTDC		Inflammatory conditions of jaw
5265	any	NTDC		Alveolitis of jaw
52661	any	NTDC	CPP	Perforation of root canal space
52662	any	NTDC	CPP	Endodontic overfill
52663	any	NTDC	CPP	Endodontic underfill
52669	any	NTDC	CPP	Other periradicular pathology associated with previous endodontic treatment
52681	any	NTDC		Exostosis of jaw
52689	any	NTDC		Other specified diseases of the jaws
5269	any	NTDC		Unspecified disease of the jaws
5270	any	NTDC		Atrophy of salivary gland
5271	any	NTDC		Hypertrophy of salivary gland
5272	any	NTDC		Sialoadenitis
5273	any	NTDC		Abscess of salivary gland
5274	any	NTDC		Fistula of salivary gland
5275	any	NTDC		Sialolithiasis
5276	any	NTDC		Mucocele of salivary gland
5277	any	NTDC		Disturbance of salivary secretion
5278	any	NTDC		Other specified diseases of the salivary glands
5279	any	NTDC		Unspecified disease of the salivary glands
52800	any	NTDC		Stomatitis and mucositis, unspecified
52801	any	NTDC		Mucositis (ulcerative) due to antineoplastic therapy
52802	any	NTDC		Mucositis (ulcerative) due to other drugs
52809	any	NTDC		Other stomatitis and mucositis (ulcerative)
5281	any	NTDC		Cancrum oris
5282	any	NTDC		Oral aphthae
5283	any	NTDC		Cellulitis and abscess of oral soft tissues
5284	any	NTDC		Cysts of oral soft tissues
5285	any	NTDC		Diseases of lips
5286	any	NTDC		Leukoplakia of oral mucosa, including tongue
52871	any	NTDC		Minimal keratinized residual ridge mucosa
52872	any	NTDC		Excessive keratinized residual ridge mucosa
52879	any	NTDC		Other disturbances of oral epithelium, including tongue
5288	any	NTDC		Oral submucosal fibrosis, including of tongue
5289	any	NTDC		Other and unspecified diseases of the oral soft tissues
5290	any	NTDC		Glossitis
5291	any	NTDC		Geographic tongue

ICD 9 Code	Any Oral Code	NTDC	CPP	ICD 9 Code Description
5292	any	NTDC		Median rhomboid glossitis
5293	any	NTDC		Hypertrophy of tongue papillae
5294	any	NTDC		Atrophy of tongue papillae
5295	any	NTDC		Plicated tongue
5296	any	NTDC		Glossodynia
5298	any	NTDC		Other specified conditions of the tongue
5299	any	NTDC		Unspecified condition of the tongue
78492	any	NTDC	CPP	Jaw pain
8300	any			Dislocation of jaw
8301	any			Open dislocation of jaw
8481	any			Jaw sprain
87343	any			Open wound of lip, without mention of complication
87344	any			Open wound of jaw, without mention of complication
87349	any			Open wound of other and multiple sites of face, without mention of complication
87350	any			Open wound of face, unspecified site, complicated
87351	any			Open wound of cheek, complicated
87353	any			Open wound of lip, complicated
87354	any			Open wound of jaw, complicated
87359	any			Open wound of other and multiple sites of face, complicated
87360	any			Open wound of mouth, unspecified site, without mention of complication
87361	any			Open wound of buccal mucosa, without mention of complication
87362	any			Open wound of gum (alveolar process), without mention of complication
87363	any			Open wound of tooth (broken) (fractured) (due to trauma), without mention of complication
87364	any			Open wound of tongue and floor of mouth, without mention of complication
87365	any			Open wound of palate, without mention of complication
87369	any			Open wound of other and multiple sites of mouth, without mention of complication
87370	any			Open wound of mouth, unspecified site, complicated
87371	any			Open wound of buccal mucosa, complicated
87372	any			Open wound of gum (alveolar process), complicated
87373	any			Open wound of tooth (broken) (fractured) (due to trauma), complicated
87374	any			Open wound of tongue and floor of mouth, complicated
87375	any			Open wound of palate, complicated
87379	any			Open wound of other and multiple sites of mouth, complicated
V523	any	NTDC	CPP	Fitting and adjustment of dental prosthetic device
V534	any	NTDC	CPP	Fitting and adjustment of orthodontic devices
V585	any	NTDC	CPP	Orthodontics aftercare
V722	any	NTDC	CPP	Dental examination

ICD-10 ORAL RELATED CODES AND THE RECOMMENDED CODES FOR DEFINING NTDC AND CPP

(INCLUDING UPDATES THROUGH 2021)

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
A690	any	NTDC		Necrotizing ulcerative stomatitis	
A691	any	NTDC		Other Vincent's infections	
B002	any	NTDC	CPP	Herpesviral gingivostomatitis and pharyngotonsillitis	2016
B084	any	NTDC	CPP	Enteroviral vesicular stomatitis with exanthem	2016
B0861	any	NTDC	CPP	Bovine stomatitis	2016
B370	any	NTDC	CPP	Candidal stomatitis	2016
B3783	any	NTDC	CPP	Candidal cheilitis	2016
K00	any	NTDC		Disorders of tooth development and eruption	
K000	any	NTDC		Anodontia	
K001	any	NTDC		Supernumerary teeth	
K002	any	NTDC		Abnormalities of size and form of teeth	
K003	any	NTDC	CPP	Mottled teeth	
K004	any	NTDC		Disturbances in tooth formation	
K005	any	NTDC		Hereditary disturbances in tooth structure	
K006	any	NTDC		Disturbances in tooth eruption	
K007	any	NTDC	CPP	Teething syndrome	
K008	any	NTDC		Other disorders of tooth development	
K009	any	NTDC		Disorder of tooth development, unspecified	
K01	any	NTDC		Embedded and impacted teeth	
K010	any	NTDC		Embedded teeth	
K011	any	NTDC		Impacted teeth	
K02	any	NTDC	CPP	Dental caries	
K023	any	NTDC	CPP	Arrested dental caries	
K025	any	NTDC	CPP	Dental caries on pit and fissure surface	
K0251	any	NTDC	CPP	Dental caries on pit and fissure surface limited to enamel	
K0252	any	NTDC	CPP	Dental caries on pit and fissure surface penetrat into dentin	
K0253	any	NTDC	CPP	Dental caries on pit and fissure surface penetrat into pulp	
K026	any	NTDC	CPP	Dental caries on smooth surface	
K0261	any	NTDC	CPP	Dental caries on smooth surface limited to enamel	
K0262	any	NTDC	CPP	Dental caries on smooth surface penetrating into dentin	
K0263	any	NTDC	CPP	Dental caries on smooth surface penetrating into pulp	
K027	any	NTDC	CPP	Dental root caries	
K029	any	NTDC	CPP	Dental caries, unspecified	
K03	any	NTDC	CPP	Other diseases of hard tissues of teeth	
K030	any	NTDC	CPP	Excessive attrition of teeth	
K031	any	NTDC	CPP	Abrasion of teeth	
K032	any	NTDC	CPP	Erosion of teeth	
K033	any	NTDC		Pathological resorption of teeth	
K034	any	NTDC		Hypercementosis	
K035	any	NTDC		Ankylosis of teeth	
K036	any	NTDC	CPP	Deposits [accretions] on teeth	
K037	any	NTDC	CPP	Posteruptive color changes of dental hard tissues	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
K038	any	NTDC	CPP	Other specified diseases of hard tissues of teeth	
K0381	any	NTDC	CPP	Cracked tooth	
K0389	any	NTDC	CPP	Other specified diseases of hard tissues of teeth	
K039	any	NTDC	CPP	Disease of hard tissues of teeth, unspecified	
K04	any	NTDC	CPP	Diseases of pulp and periapical tissues	
K040	any	NTDC	CPP	Pulpitis	
K0401	any	NTDC	CPP	Reversible pulpitis	
K0402	any	NTDC		Irreversible pulpitis	
K041	any	NTDC		Necrosis of pulp	
K042	any	NTDC	CPP	Pulp degeneration	
K043	any	NTDC		Abnormal hard tissue formation in pulp	
K044	any	NTDC	CPP	Acute apical periodontitis of pulpal origin	
K045	any	NTDC	CPP	Chronic apical periodontitis	
K046	any	NTDC		Periapical abscess with sinus	
K047	any	NTDC		Periapical abscess without sinus	
K048	any	NTDC		Radicular cyst	
K049	any	NTDC		Other and unspecified diseases of pulp and periapical tissues	
K0490	any	NTDC		Unspecified diseases of pulp and periapical tissues	
K0499	any	NTDC		Other diseases of pulp and periapical tissues	
K05	any	NTDC	CPP	Gingivitis and periodontal diseases	
K050	any	NTDC	CPP	Acute gingivitis	
K0500	any	NTDC	CPP	Acute gingivitis, plaque induced	
K0501	any	NTDC	CPP	Acute gingivitis, non-plaque induced	
K051	any	NTDC	CPP	Chronic gingivitis	
K0510	any	NTDC	CPP	Chronic gingivitis, plaque induced	
K0511	any	NTDC	CPP	Chronic gingivitis, non-plaque induced	
K052	any	NTDC	CPP	Aggressive periodontitis	
K0520	any	NTDC	CPP	Aggressive periodontitis, unspecified	
K0521	any	NTDC	CPP	Aggressive periodontitis, localized	
K05211	any	NTDC	CPP	Aggressive periodontitis, localized, slight	
K05212	any	NTDC	CPP	Aggressive periodontitis, localized, moderate	
K05213	any	NTDC	CPP	Aggressive periodontitis, localized, severe	
K05219	any	NTDC	CPP	Aggressive periodontitis, localized, unspecified severity	
K0522	any	NTDC	CPP	Aggressive periodontitis, generalized	
K05221	any	NTDC	CPP	Aggressive periodontitis, generalized, slight	
K05222	any	NTDC	CPP	Aggressive periodontitis, generalized, moderate	
K05223	any	NTDC	CPP	Aggressive periodontitis, generalized, severe	
K05229	any	NTDC	CPP	Aggressive periodontitis, generalized, unspecified severity	
K053	any	NTDC	CPP	Chronic periodontitis	
K0530	any	NTDC	CPP	Chronic periodontitis, unspecified	
K0531	any	NTDC	CPP	Chronic periodontitis, localized	
K05311	any	NTDC	CPP	Chronic periodontitis, localized, slight	
K05312	any	NTDC	CPP	Chronic periodontitis, localized, moderate	
K05313	any	NTDC	CPP	Chronic periodontitis, localized, severe	
K05319	any	NTDC	CPP	Chronic periodontitis, localized, unspecified severity	
K0532	any	NTDC	CPP	Chronic periodontitis, generalized	
K05321	any	NTDC	CPP	Chronic periodontitis, generalized, slight	
K05322	any	NTDC	CPP	Chronic periodontitis, generalized, moderate	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
K05323	any	NTDC	CPP	Chronic periodontitis, generalized, severe	
K05329	any	NTDC	CPP	Chronic periodontitis, generalized, unspecified severity	
K054	any	NTDC	CPP	Periodontitis	
K0540	any	NTDC	CPP		
K055	any	NTDC	CPP	Other periodontal diseases	
K056	any	NTDC	CPP	Periodontal disease, unspecified	
K06	any	NTDC	CPP	Other disorders of gingiva and edentulous alveolar ridge	
K060	any	NTDC	CPP	Gingival recession	2018
K0601	any	NTDC	CPP	Gingival recession, localized	2018
K06010	any	NTDC	CPP	Localized gingival recession, unspecified	2018
K06011	any	NTDC	CPP	Localized gingival recession, minimal	2018
K06012	any	NTDC	CPP	Localized gingival recession, moderate	2018
K06013	any	NTDC	CPP	Localized gingival recession, severe	2018
K0602	any	NTDC	CPP	Gingival recession, generalized	2018
K06020	any	NTDC	CPP	Generalized gingival recession, unspecified	2018
K06021	any	NTDC	CPP	Generalized gingival recession, minimal	2018
K06022	any	NTDC	CPP	Generalized gingival recession, moderate	2018
K06023	any	NTDC	CPP	Generalized gingival recession, severe	2018
K061	any	NTDC	CPP	Gingival enlargement	
K062	any			Gingival & edentulous alveolar ridge lesions associated with trauma	
K063	any	NTDC		Horizontal alveolar bone loss	
K068	any	NTDC		Other specified disorders of gingiva and edentulous alveolar ridge	
K069	any	NTDC		Disorder of gingiva and edentulous alveolar ridge, unspecified	
K08	any	NTDC		Other disorders of teeth and supporting structures	
K080	any	NTDC		Exfoliation of teeth due to systemic causes	
K081	any	NTDC	CPP	Complete loss of teeth	
K0810	any	NTDC	CPP	Complete loss of teeth, unspecified cause	
K08101	any	NTDC	CPP	Complete loss of teeth, unspecified cause, class I	
K08102	any	NTDC	CPP	Complete loss of teeth, unspecified cause, class II	
K08103	any	NTDC	CPP	Complete loss of teeth, unspecified cause, class III	
K08104	any	NTDC	CPP	Complete loss of teeth, unspecified cause, class IV	
K08109	any	NTDC	CPP	Complete loss of teeth, unspecified cause, unspecified class	
K08111	any			Complete loss of teeth due to trauma, class I	
K08112	any			Complete loss of teeth due to trauma, class II	
K08113	any			Complete loss of teeth due to trauma, class III	
K08114	any			Complete loss of teeth due to trauma, class IV	
K08119	any			Complete loss of teeth due to trauma, unspecified class	
K0812	any	NTDC	CPP	Complete loss of teeth due to periodontal diseases	
K08121	any	NTDC	CPP	Complete loss of teeth due to periodontal disease, class I	
K08122	any	NTDC	CPP	Complete loss of teeth due to periodontal disease, class II	
K08123	any	NTDC	CPP	Complete loss of teeth due to periodontal disease, class III	
K08124	any	NTDC	CPP	Complete loss of teeth due to periodontal disease, class IV	
K08129	any	NTDC	CPP	Complete loss of teeth due to periodontal disease, unspecified class	
K0813	any	NTDC	CPP	Complete loss of teeth due to caries	
K08131	any	NTDC	CPP	Complete loss of teeth due to caries, class I	
K08132	any	NTDC	CPP	Complete loss of teeth due to caries, class II	
K08133	any	NTDC	CPP	Complete loss of teeth due to caries, class III	
K08134	any	NTDC	CPP	Complete loss of teeth due to caries, class IV	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
K08139	any	NTDC	CPP	Complete loss of teeth due to caries, unspecified class	
K0819	any	NTDC	CPP	Complete loss of teeth due to other specified cause	
K08191	any	NTDC	CPP	Complete loss of teeth due to other specified cause, class I	
K08192	any	NTDC	CPP	Complete loss of teeth due to other specified cause, class II	
K08193	any	NTDC	CPP	Complete loss of teeth due to other specified cause, class III	
K08194	any	NTDC	CPP	Complete loss of teeth due to other specified cause, class IV	
K08199	any	NTDC	CPP	Complete loss of teeth due to other specified cause, unspecified class	
K082	any	NTDC		Atrophy of edentulous alveolar ridge	
K0820	any	NTDC		Unspecified atrophy of edentulous alveolar ridge	
K0821	any	NTDC		Minimal atrophy of the mandible	
K0822	any	NTDC		Moderate atrophy of the mandible	
K0823	any	NTDC		Severe atrophy of the mandible	
K0824	any	NTDC		Minimal atrophy of maxilla	
K0825	any	NTDC		Moderate atrophy of the maxilla	
K0826	any	NTDC		Severe atrophy of the maxilla	
K083	any	NTDC		Retained dental root	
K084	any	NTDC	CPP	Partial loss of teeth	
K0840	any	NTDC	CPP	Partial loss of teeth, unspecified cause	
K08401	any	NTDC	CPP	Partial loss of teeth, unspecified, class I	
K08402	any	NTDC	CPP	Partial loss of teeth, unspecified, class II	
K08403	any	NTDC	CPP	Partial loss of teeth, unspecified, class II	
K08404	any	NTDC	CPP	Partial loss of teeth, unspecified, class IV	
K08409	any	NTDC	CPP	Partial loss of teeth, unspecified cause, unspecified class	
K08411	any			Partial loss of teeth due to trauma, class I	
K08412	any			Partial loss of teeth due to trauma, class II	
K08413	any			Partial loss of teeth due to trauma, class III	
K08414	any			Partial loss of teeth due to trauma, class IV	
K08419	any			Partial loss of teeth due to trauma, unspecified class	
K0842	any	NTDC	CPP	Partial loss of teeth due to periodontal diseases	
K08421	any	NTDC	CPP	Partial loss of teeth due to periodontal diseases, class I	
K08422	any	NTDC	CPP	Partial loss of teeth due to periodontal diseases, class II	
K08423	any	NTDC	CPP	Partial loss of teeth due to periodontal diseases, class III	
K08424	any	NTDC	CPP	Partial loss of teeth due to periodontal diseases, class IV	
K08429	any	NTDC	CPP	Partial loss of teeth due to periodontal disease, unspecified class	
K0843	any	NTDC	CPP	Partial loss of teeth due to caries	
K08431	any	NTDC	CPP	Partial loss of teeth due to caries, class I	
K08432	any	NTDC	CPP	Partial loss of teeth due to caries, class II	
K08433	any	NTDC	CPP	Partial loss of teeth due to caries, class II	
K08434	any	NTDC	CPP	Partial loss of teeth due to caries, class III	
K08439	any	NTDC	CPP	Partial loss of teeth due to caries, unspecified class	
K0849	any	NTDC	CPP	Partial loss of teeth due to other specified cause	
K08491	any	NTDC	CPP	Partial loss of teeth due to other specified cause, class I	
K08492	any	NTDC	CPP	Partial loss of teeth due to other specified cause, class II	
K08493	any	NTDC	CPP	Partial loss of teeth due to other specified cause, class III	
K08494	any	NTDC	CPP	Partial loss of teeth due to other specified cause, class IV	
K08499	any	NTDC	CPP	Partial loss of teeth due to other cause, unspecified class	
K0850	any	NTDC	CPP	Unsatisfactory restoration of tooth, unspecified	
K0851	any	NTDC	CPP	Open restoration margins of tooth	

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ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
K0852	any	NTDC	CPP	Unrepairable overhanging of dental restorative materials	
K0853	any	NTDC	CPP	Fractured dental restorative material	
K08530	any	NTDC	CPP	Fractured dental restorative material without loss of material	
K08531	any	NTDC	CPP	Fractured dental restorative material with loss of material	
K08539	any	NTDC	CPP	Fracture dental restorative material, unspecified	
K0854	any	NTDC	CPP	Contour of existing restoration of tooth biologically incompatible with oral health	
K0855	any	NTDC	CPP	Allergy to existing dental restorative material	
K0856	any	NTDC	CPP	Poor aesthetic of existing restoration of tooth	
K0859	any	NTDC	CPP	Other unsatisfactory restoration of tooth	
K088	any	NTDC	CPP	Other specified disorders of teeth and supporting structures	
K0881	any			Primary occlusal trauma	
K0882	any			Secondary occlusal trauma	
K0889	any	NTDC	CPP	Other specified disorders of teeth and supporting structures	
K089	any	NTDC	CPP	Disorder of teeth and supporting structures, unspecified	
K09	any	NTDC		Cysts of oral region, not elsewhere classified	
K090	any	NTDC		Developmental odontogenic cysts	
K091	any	NTDC		Developmental (nonodontogenic) cysts of oral region	
K098	any	NTDC		Other cyst of oral region, not elsewhere classified	
K099	any	NTDC		Cyst of oral region, unspecified	
K11	any	NTDC		Diseases of salivary glands	
K110	any	NTDC		Atrophy of salivary gland	
K111	any	NTDC		Hypertrophy of salivary gland	
K112	any	NTDC		Sialoadenitis	
K1120	any	NTDC		Sialodenitis, unspecified	
K1121	any	NTDC		Acute sialoadenitis	
K1122	any	NTDC		Acute recurrent sialoadenitis	
K1123	any	NTDC		Chronic sialoadenitis	
K113	any	NTDC		Abscess of salivary gland	
K114	any	NTDC		Fistula of salivary gland	
K115	any	NTDC		Sialolithiasis	
K116	any	NTDC		Mucocele of salivary gland	
K117	any	NTDC		Disturbances of salivary secretion	
K118	any	NTDC		Other diseases of salivary glands	
K119	any	NTDC		Disease of salivary gland, unspecified	
K12	any	NTDC		Stomatitis and related lesions	
K120	any	NTDC		Recurrent oral aphthae	
K121	any	NTDC		Other forms of stomatitis	
K122	any	NTDC		Cellulitis and abscess of mouth	
K123	any	NTDC		Oral mucositis (ulcerative)	
K1230	any	NTDC		Oral mucositis (ulcerative), unspecified	
K1231	any	NTDC		Oral mucositis (ulcerative), due to antineoplastic therapy	
K1232	any	NTDC		Oral mucositis (ulcerative), due to other drugs	
K1233	any	NTDC		Oral mucositis (ulcerative), due to radiation	
K1239	any	NTDC		Other oral mucositis (ulcerative)	
K13	any	NTDC		Other diseases of lip and oral mucosa	
K130	any	NTDC		Disease of lips	
K131	any	NTDC		Cheek and lip biting	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
K132	any	NTDC		Leukoplakia and other disturbances of oral epithelium, including tongue	
K1321	any	NTDC		Leukoplakia and other disturbances of oral epithelium, including tongue	
K1322	any	NTDC		Minimal keratinized residual ridge mucosa	
K1323	any	NTDC		Excessive keratinized residual ridge mucosa	
K1324	any	NTDC		Leukokeratosis nicotina palati	
K1329	any	NTDC		Other disturbances of oral epithelium, including tongue	
K133	any	NTDC		Hairy leukoplakia	
K134	any	NTDC		Granuloma and granuloma-like lesions of oral mucosa	
K135	any	NTDC		Oral submucous fibrosis	
K136	any	NTDC		Irritative hyperplasia of oral mucosa	
K137	any	NTDC		Other and unspecified lesions of oral mucosa	
K1370	any	NTDC		Unspecified lesions of oral mucosa	
K1379	any	NTDC		Other lesions of oral mucosa	
K14	any	NTDC		Glossitis	
K140	any	NTDC		Glossitis	
K141	any	NTDC		Geographic tongue	
K142	any	NTDC		Median rhomboid glossitis	
K143	any	NTDC		Hypertrophy of tongue papillae	
K144	any	NTDC		Atrophy of tongue papillae	
K145	any	NTDC		Plicated tongue	
K146	any	NTDC		Glossodynia	
K148	any	NTDC		Other diseases of tongue	
K149	any	NTDC		Disease of tongue, unspecified	
M26	any	NTDC		Dentofacial anomalies [including malocclusion]	
M260	any	NTDC		Major anomalies of jaw size	
M2600	any	NTDC		Unspecified anomaly of jaw size	
M2601	any	NTDC		Maxillary hyperplasia	
M2602	any	NTDC		Maxillary hypoplasia	
M2603	any	NTDC		Mandibular hyperplasia	
M2604	any	NTDC		Mandibular hypoplasia	
M2605	any	NTDC		Macrogenia	
M2606	any	NTDC		Microgenia	
M2607	any	NTDC		Excessive tuberosity of jaw	
M2609	any	NTDC		Other specified anomalies of jaw size	
M261	any	NTDC		Anomalies of jaw-cranial base relationship	
M2610	any	NTDC		Unspecified anomaly of jaw-cranial base relationship	
M2611	any	NTDC		Maxillary asymmetry	
M2612	any	NTDC		Other jaw asymmetry	
M2619	any	NTDC		Other specified anomalies of jaw-cranial base relationship	
M262	any	NTDC		Anomalies of dental arch relationship	
M2620	any	NTDC		Unspecified anomaly of dental arch relationship	
M2621	any	NTDC		Malocclusion, Angle's class	
M26211	any	NTDC		Malocclusion, Angle's class I	
M26212	any	NTDC		Malocclusion, Angle's class II	
M26213	any	NTDC		Malocclusion, Angle's class III	
M26219	any	NTDC		Malocclusion, Angle's class unspecified	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
M2622	any	NTDC		Open occlusal relationship	
M26220	any	NTDC		Open anterior occlusal relationship	
M26221	any	NTDC		Open posterior occlusal relationship	
M2623	any	NTDC		Excessive horizontal overlap	
M2624	any	NTDC		Reverse articulation	
M2625	any	NTDC		Anomalies of interarch distance	
M2629	any	NTDC		Other anomalies of dental arch relationship	
M263	any	NTDC		Anomalies of tooth position of fully erupted tooth or teeth	
M2630	any	NTDC		Unspecified anomaly of tooth position of fully erupted tooth/teeth	
M2631	any	NTDC		Crowding of fully erupted teeth	
M2632	any	NTDC		Excessive spacing of fully erupted teeth	
M2633	any	NTDC		Horizontal displacement of fully erupted tooth or teeth	
M2634	any	NTDC		Vertical displacement of fully erupted tooth or teeth	
M2635	any	NTDC		Rotation of fully erupted tooth or teeth	
M2636	any	NTDC		Insufficient interocclusal distance of fully erupted teeth	
M2637	any	NTDC		Excessive interocclusal distance of fully erupted teeth	
M2639	any	NTDC		Other anomalies of tooth position of fully erupted tooth/teeth	
M264	any	NTDC		Malocclusion, unspecified	
M265	any	NTDC		Dentofacial functional abnormalities	
M2650	any	NTDC		Dentofacial function abnormalities, unspecified	
M2651	any	NTDC		Abnormal jaw closure	
M2652	any	NTDC		Limited mandibular range of motion	
M2653	any	NTDC		Deviation in opening and closing of the mandible	
M2654	any	NTDC		Insufficient anterior guidance	
M2655	any	NTDC		Centric occlusion maximum intercuspation discrepancy	
M2656	any	NTDC		Non-working side interference	
M2657	any	NTDC		Lack of posterior occlusal support	
M2659	any	NTDC		Other dentofacial functional abnormalities	
M266	any	NTDC		Temporomandibular joint disorders	
M2660	any	NTDC		Temporomandibular joint disorder, unspecified	
M26601	any	NTDC		Right temporomandibular joint disorder, unspecified	
M26602	any	NTDC		Left temporomandibular joint disorder, unspecified	
M26603	any	NTDC		Bilateral temporomandibular joint disorder, unspecified	
M26609	any	NTDC		Unspecified TMJ joint disorder, unspecified side	
M2661	any	NTDC		Adhesions and ankylosis of temporomandibular joint	
M26611	any	NTDC		Adhesions and ankylosis of right temporomandibular joint	
M26612	any	NTDC		Adhesions and ankylosis of left temporomandibular joint	
M26613	any	NTDC		Adhesions and ankylosis of bilateral temporomandibular joint	
M26619	any	NTDC		Adhesions and ankylosis of TMJ joint, unspecified side	
M2662	any	NTDC		Arthralgia of temporomandibular joint	
M26621	any	NTDC		Arthralgia of right temporomandibular joint	
M26622	any	NTDC		Arthralgia of left temporomandibular joint	
M26623	any	NTDC		Arthralgia of bilateral temporomandibular joint	
M26629	any	NTDC		Arthralgia of temporomandibular joint, unspecified side	
M2663	any	NTDC		Articular disc disorder of temporomandibular joint	
M26631	any	NTDC		Articular disc disorder of right temporomandibular joint	
M26632	any	NTDC		Articular disc disorder of left temporomandibular joint	
M26633	any	NTDC		Articular disc disorder of bilateral temporomandibular joint	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
M26639	any	NTDC		Articular disc disorder of TMJ joint, unspecified side	
M2664	any	NTDC		Arthritis of temporomandibular joint	2021
M26641	any	NTDC		Arthritis of right temporomandibular joint	2021
M26642	any	NTDC		Arthritis of left temporomandibular joint	2021
M26643	any	NTDC		Arthritis of bilateral temporomandibular joint	2021
M26649	any	NTDC		Arthritis of unspecified temporomandibular joint	2021
M2665	any	NTDC		Arthropathy of temporomandibular joint	2021
M26651	any	NTDC		Arthropathy of right temporomandibular joint	2021
M26652	any	NTDC		Arthropathy of left temporomandibular joint	2021
M26653	any	NTDC		Arthropathy of bilateral temporomandibular joint	2021
M26659	any	NTDC		Arthropathy of unspecified temporomandibular joint	2021
M2669	any	NTDC		Other specified disorders of temporomandibular joint	
M267	any	NTDC		Dental alveolar anomalies	
M2670	any	NTDC		Unspecified alveolar anomaly	
M2671	any	NTDC		Alveolar maxillary hyperplasia	
M2672	any	NTDC		Alveolar mandibular hyperplasia	
M2673	any	NTDC		Alveolar maxillary hypoplasia	
M2674	any	NTDC		Alveolar mandibular hypoplasia	
M2679	any	NTDC		Other specified alveolar anomalies	
M268	any	NTDC		Other dentofacial anomalies	
M2681	any	NTDC		Anterior soft tissue impingement	
M2682	any	NTDC		Posterior soft tissue impingement	
M2689	any	NTDC		Other dentofacial anomalies	
M269	any	NTDC		Dentofacial anomaly, unspecified	
M27	any	NTDC		Other diseases of jaws	
M270	any	NTDC		Developmental disorders of jaws	
M271	any	NTDC		Giant cell granuloma, central	
M272	any	NTDC		Inflammatory conditions of jaws	
M273	any	NTDC		Alveolitis of jaws	
M274	any	NTDC		Other and unspecified cysts of jaw	
M2740	any	NTDC		Unspecified cyst of jaw	
M2749	any	NTDC		Other cyst s of jaw	
M275	any	NTDC		Periradicular pathology associated with previous endodontic treatment	
M2751	any	NTDC	CPP	Perforation of root canal space due to endodontic treatment	
M2752	any	NTDC	CPP	Endodontic overfill	
M2753	any	NTDC	CPP	Endodontic underfill	
M2759	any	NTDC	CPP	Other periradicular pathology associated with preventive endodontic treatment	
M276	any	NTDC		Endosseous dental implant failure	
M2761	any	NTDC	CPP	Osseointegration failure of dental implant	
M2762	any	NTDC	CPP	Post-osseointegration of biological failure of dental implant	
M2763	any	NTDC	CPP	Post-osseointegration mechanical failure of dental implant	
M2769	any	NTDC	CPP	Other endosseous dental implant failure	
M278	any	NTDC		Other specified diseases of jaws	
M279	any	NTDC		Disease of jaws, unspecified	
M350C	any	NTDC	CPP	Sjogren syndrome with dental involvement	
M7911	any	NTDC		Myalgia of mastication muscle	2019

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
R682	any	NTDC		Dry mouth, unspecified	
R6884	any	NTDC	CPP	Jaw pain	
S014	any			Open wound of cheek and temporomandibular area	
S0140	any			Unspecified open wound of cheek and temporomandibular area	
S01401	any			Unspecified open wound of right cheek and temporomandibular area	
S01401A	any			Unspecified open wound of right cheek and temporomandibular area, initial encounter	
S01401D	any			Unspecified open wound of right cheek and temporomandibular area, subsequent encounter	
S01401S	any			Unspecified open wound of right cheek and temporomandibular area, sequela	
S01402	any			Unspecified open wound of left cheek and temporomandibular area	
S01402A	any			Unspecified open wound of left cheek and temporomandibular area, initial encounter	
S01402D	any			Unspecified open wound of left cheek and temporomandibular area, subsequent encounter	
S01402S	any			Unspecified open wound of left cheek and temporomandibular area, sequela	
S01409	any			Unspecified open wound of unspecified cheek and temporomandibular area	
S01409A	any			Unspecified open wound of unspecified cheek and temporomandibular area, initial encounter	
S01409D	any			Unspecified open wound of unspecified cheek and temporomandibular area, subsequent encounter	
S01409S	any			Unspecified open wound of unspecified cheek and temporomandibular area, sequela	
S0141	any			Laceration without foreign body of cheek and temporomandibular area	
S01411	any			Laceration without foreign body of right cheek and temporomandibular area	
S01411A	any			Laceration without foreign body of right cheek and temporomandibular area, initial encounter	
S01411D	any			Laceration without foreign body of right cheek and temporomandibular area, subsequent encounter	
S01411S	any			Laceration without foreign body of right cheek and temporomandibular area, sequela	
S01412	any			Laceration without foreign body of left cheek and temporomandibular area	
S01412A	any			Laceration without foreign body of left cheek and temporomandibular area, initial encounter	
S01412D	any			Laceration without foreign body of left cheek and temporomandibular area, subsequent encounter	
S01412S	any			Laceration without foreign body of left cheek and temporomandibular area, sequela	
S01419	any			Laceration without foreign body of unspecified cheek and temporomandibular area	
S01419A	any			Laceration without foreign body of unspecified cheek and temporomandibular area, initial encounter	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S01419D	any			Laceration without foreign body of unspecified cheek and temporomandibular area, subsequent encounter	
S01419S	any			Laceration without foreign body of unspecified cheek and temporomandibular area, sequela	
S0142	any			Laceration with foreign body of cheek and temporomandibular area	
S01421	any			Laceration with foreign body of right cheek and temporomandibular area	
S01421A	any			Laceration with foreign body of right cheek and temporomandibular area, initial encounter	
S01421D	any			Laceration with foreign body of right cheek and temporomandibular area, subsequent encounter	
S01421S	any			Laceration with foreign body of right cheek and temporomandibular area, sequela	
S01422	any			Laceration with foreign body of left cheek and temporomandibular area	
S01422A	any			Laceration with foreign body of left cheek and temporomandibular area, initial encounter	
S01422D	any			Laceration with foreign body of left cheek and temporomandibular area, subsequent encounter	
S01422S	any			Laceration with foreign body of left cheek and temporomandibular area, sequela	
S01429	any			Laceration with foreign body of unspecified cheek and temporomandibular area	
S01429A	any			Laceration with foreign body of unspecified cheek and temporomandibular area, initial encounter	
S01429D	any			Laceration with foreign body of unspecified cheek and temporomandibular area, subsequent encounter	
S01429S	any			Laceration with foreign body of unspecified cheek and temporomandibular area, sequela	
S0143	any			Puncture wound without foreign body of cheek and temporomandibular area	
S01431	any			Puncture wound without foreign body of right cheek and temporomandibular area	
S01431A	any			Puncture wound without foreign body of right cheek and temporomandibular area, initial encounter	
S01431D	any			Puncture wound without foreign body of right cheek and temporomandibular area, subsequent encounter	
S01431S	any			Puncture wound without foreign body of right cheek and temporomandibular area, sequela	
S01432	any			Puncture wound without foreign body of left cheek and temporomandibular area	
S01432A	any			Puncture wound without foreign body of left cheek and temporomandibular area, initial encounter	
S01432D	any			Puncture wound without foreign body of left cheek and temporomandibular area, subsequent encounter	
S01432S	any			Puncture wound without foreign body of left cheek and temporomandibular area, sequela	
S01439	any			Puncture wound without foreign body of unspecified cheek and temporomandibular area	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S01439A	any			Puncture wound without foreign body of unspecified cheek and temporomandibular area, initial encounter	
S01439D	any			Puncture wound without foreign body of unspecified cheek and temporomandibular area, subsequent encounter	
S01439S	any			Puncture wound without foreign body of unspecified cheek and temporomandibular area, sequela	
S0144	any			Puncture wound with foreign body of cheek and temporomandibular area	
S01441	any			Puncture wound with foreign body of right cheek and temporomandibular area	
S01441A	any			Puncture wound with foreign body of right cheek and temporomandibular area, initial encounter	
S01441D	any			Puncture wound with foreign body of right cheek and temporomandibular area, subsequent encounter	
S01441S	any			Puncture wound with foreign body of right cheek and temporomandibular area, sequela	
S01442	any			Puncture wound with foreign body of left cheek and temporomandibular area	
S01442A	any			Puncture wound with foreign body of left cheek and temporomandibular area, initial encounter	
S01442D	any			Puncture wound with foreign body of left cheek and temporomandibular area, subsequent encounter	
S01442S	any			Puncture wound with foreign body of left cheek and temporomandibular area, sequela	
S01449	any			Puncture wound with foreign body of unspecified cheek and temporomandibular area	
S01449A	any			Puncture wound with foreign body of unspecified cheek and temporomandibular area, initial encounter	
S01449D	any			Puncture wound with foreign body of unspecified cheek and temporomandibular area, subsequent encounter	
S01449S	any			Puncture wound with foreign body of unspecified cheek and temporomandibular area, sequela	
S0145	any			Open bite of cheek and temporomandibular area	
S01451	any			Open bite of right cheek and temporomandibular area	
S01451A	any			Open bite of right cheek and temporomandibular area, initial encounter	
S01451D	any			Open bite of right cheek and temporomandibular area, subsequent encounter	
S01451S	any			Open bite of right cheek and temporomandibular area, sequela	
S01452	any			Open bite of left cheek and temporomandibular area	
S01452A	any			Open bite of left cheek and temporomandibular area, initial encounter	
S01452D	any			Open bite of left cheek and temporomandibular area, subsequent encounter	
S01452S	any			Open bite of left cheek and temporomandibular area, sequela	
S01459	any			Open bite of unspecified cheek and temporomandibular area	
S01459A	any			Open bite of unspecified cheek and temporomandibular area, initial encounter	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S01459D	any			Open bite of unspecified cheek and temporomandibular area, subsequent encounter	
S01459S	any			Open bite of unspecified cheek and temporomandibular area, sequela	
S015	any			Open wound of lip and oral cavity	
S0150	any			Unspecified open wound of lip and oral cavity	
S01501	any			Unspecified open wound of lip	
S01501A	any			Unspecified open wound of lip, initial encounter	
S01501D	any			Unspecified open wound of lip, subsequent encounter	
S01501S	any			Unspecified open wound of lip, sequela	
S01502	any			Unspecified open wound of oral cavity	
S01502A	any			Unspecified open wound of oral cavity, initial encounter	
S01502D	any			Unspecified open wound of oral cavity, subsequent encounter	
S01502S	any			Unspecified open wound of oral cavity, sequela	
S0151	any			Laceration of lip and oral cavity without foreign body	
S01511	any			Laceration without foreign body of lip	
S01511A	any			Laceration without foreign body of lip, initial encounter	
S01511D	any			Laceration without foreign body of lip, subsequent encounter	
S01511S	any			Laceration without foreign body of lip, sequela	
S01512	any			Laceration without foreign body of oral cavity	
S01512A	any			Laceration without foreign body of oral cavity, initial encounter	
S01512D	any			Laceration without foreign body of oral cavity, subsequent encounter	
S01512S	any			Laceration without foreign body of oral cavity, sequela	
S0152	any			Laceration of lip and oral cavity with foreign body	
S01521	any			Laceration with foreign body of lip	
S01521A	any			Laceration with foreign body of lip, initial encounter	
S01521D	any			Laceration with foreign body of lip, subsequent encounter	
S01521S	any			Laceration with foreign body of lip, sequela	
S01522	any			Laceration with foreign body of oral cavity	
S01522A	any			Laceration with foreign body of oral cavity, initial encounter	
S01522D	any			Laceration with foreign body of oral cavity, subsequent encounter	
S01522S	any			Laceration with foreign body of oral cavity, sequela	
S0153	any			Puncture wound of lip and oral cavity without foreign body	
S01531	any			Puncture wound without foreign body of lip	
S01531A	any			Puncture wound without foreign body of lip, initial encounter	
S01531D	any			Puncture wound without foreign body of lip, subsequent encounter	
S01531S	any			Puncture wound without foreign body of lip, sequela	
S01532	any			Puncture wound without foreign body of oral cavity	
S01532A	any			Puncture wound without foreign body of oral cavity, initial encounter	
S01532D	any			Puncture wound without foreign body of oral cavity, subsequent encounter	
S01532S	any			Puncture wound without foreign body of oral cavity, sequela	
S0154	any			Puncture wound of lip and oral cavity with foreign body	
S01541	any			Puncture wound with foreign body of lip	
S01541A	any			Puncture wound with foreign body of lip, initial encounter	
S01541D	any			Puncture wound with foreign body of lip, subsequent encounter	
S01541S	any			Puncture wound with foreign body of lip, sequela	
S01542	any			Puncture wound with foreign body of oral cavity	
S01542A	any			Puncture wound with foreign body of oral cavity, initial encounter	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S01542D	any			Puncture wound with foreign body of oral cavity, subsequent encounter	
S01542S	any			Puncture wound with foreign body of oral cavity, sequela	
S0155	any			Open bite of lip and oral cavity	
S01551	any			Open bite of lip	
S01551A	any			Open bite of lip, initial encounter	
S01551D	any			Open bite of lip, subsequent encounter	
S01551S	any			Open bite of lip, sequela	
S01552	any			Open bite of oral cavity	
S01552A	any			Open bite of oral cavity, initial encounter	
S01552D	any			Open bite of oral cavity, subsequent encounter	
S01552S	any			Open bite of oral cavity, sequela	
S018	any			Open wound of other parts of head	
S0180	any			Unspecified open wound of other part of head	
S0180XA	any			Unspecified open wound of other part of head, initial encounter	
S0180XD	any			Unspecified open wound of other part of head, subsequent encounter	
S0180XS	any			Unspecified open wound of other part of head, sequela	
S0181	any			Laceration without foreign body of other part of head	
S0181XA	any			Laceration without foreign body of other part of head, initial encounter	
S0181XD	any			Laceration without foreign body of other part of head, subsequent encounter	
S0181XS	any			Laceration without foreign body of other part of head, sequela	
S0182	any			Laceration with foreign body of other part of head	
S0182XA	any			Laceration with foreign body of other part of head, initial encounter	
S0182XD	any			Laceration with foreign body of other part of head, subsequent encounter	
S0182XS	any			Laceration with foreign body of other part of head, sequela	
S019	any			Open wound of unspecified part of head	
S0190	any			Unspecified open wound of unspecified part of head	
S0190XA	any			Unspecified open wound of unspecified part of head, initial encounter	
S0190XD	any			Unspecified open wound of unspecified part of head, subsequent encounter	
S0190XS	any			Unspecified open wound of unspecified part of head, sequela	
S0191	any			Laceration without foreign body of unspecified part of head	
S0191XA	any			Laceration without foreign body of unspecified part of head, initial encounter	
S0191XD	any			Laceration without foreign body of unspecified part of head, subsequent encounter	
S0191XS	any			Laceration without foreign body of unspecified part of head, sequela	
S0192	any			Laceration with foreign body of unspecified part of head	
S0192XA	any			Laceration with foreign body of unspecified part of head, initial encounter	
S0192XD	any			Laceration with foreign body of unspecified part of head, subsequent encounter	
S0192XS	any			Laceration with foreign body of unspecified part of head, sequela	
S0240C	any			Maxillary fracture, right side	2017
S0240CA	any			Maxillary fracture, right side, initial encounter for closed fracture	2017

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0240CB	any			Maxillary fracture, right side, initial encounter for open fracture	2017
S0240CD	any			Maxillary fracture, right side, subsequent encounter for fracture with routine healing	2017
S0240CG	any			Maxillary fracture, right side, subsequent encounter for fracture with delayed healing	2017
S0240CK	any			Maxillary fracture, right side, subsequent encounter for fracture with nonunion	2017
S0240CS	any			Maxillary fracture, right side, sequela	2017
S0240D	any			Maxillary fracture, left side	2017
S0240DA	any			Maxillary fracture, left side, initial encounter for closed fracture	2017
S0240DB	any			Maxillary fracture, left side, initial encounter for open fracture	2017
S0240DD	any			Maxillary fracture, left side, subsequent encounter for fracture with routine healing	2017
S0240DG	any			Maxillary fracture, left side, subsequent encounter for fracture with delayed healing	2017
S0240DK	any			Maxillary fracture, left side, subsequent encounter for fracture with nonunion	2017
S0240DS	any			Maxillary fracture, left side, sequela	2017
S02401	any			Maxillary fracture, unspecified	
S02401A	any			Maxillary fracture, unspecified, initial encounter for closed fracture	
S02401B	any			Maxillary fracture, unspecified, initial encounter for open fracture	
S02401D	any			Maxillary fracture, unspecified, subsequent encounter for fracture with routine healing	
S02401G	any			Maxillary fracture, unspecified, subsequent encounter for fracture with delayed healing	
S02401K	any			Maxillary fracture, unspecified, subsequent encounter for fracture with nonunion	
S02401S	any			Maxillary fracture, unspecified, sequela	
S0242	any			Fracture of alveolus of maxilla	
S0242XA	any			Fracture of alveolus of maxilla, initial encounter for closed fracture	
S0242XB	any			Fracture of alveolus of maxilla, initial encounter for open fracture	
S0242XD	any			Fracture of alveolus of maxilla, subsequent encounter for fracture with routine healing	
S0242XG	any			Fracture of alveolus of maxilla, subsequent encounter for fracture with delayed healing	
S0242XK	any			Fracture of alveolus of maxilla, subsequent encounter for fracture with nonunion	
S0242XS	any			Fracture of alveolus of maxilla, sequela	
S025	any			Fracture of tooth (traumatic)	
S025XXA	any			Fracture of tooth (traumatic), initial encounter for closed fracture	
S025XXB	any			Fracture of tooth (traumatic), initial encounter for open fracture	
S025XXD	any			Fracture of tooth (traumatic), subsequent encounter for fracture with routine healing	
S025XXG	any			Fracture of tooth (traumatic), subsequent encounter for fracture with delayed healing	
S025XXK	any			Fracture of tooth (traumatic), subsequent encounter for fracture with nonunion	
S025XXS	any			Fracture of tooth (traumatic), sequela	
S026	any			Fracture of mandible	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0260	any			Fracture of mandible, unspecified	
S02600	any			Fracture of unspecified part of body of mandible	
S02600A	any			Fracture of unspecified part of body of mandible, initial encounter for closed fracture	
S02600B	any			Fracture of unspecified part of body of mandible, initial encounter for open fracture	
S02600D	any			Fracture of unspecified part of body of mandible, subsequent encounter for fracture with routine healing	
S02600G	any			Fracture of unspecified part of body of mandible, subsequent encounter for fracture with delayed healing	
S02600K	any			Fracture of unspecified part of body of mandible, subsequent encounter for fracture with nonunion	
S02600S	any			Fracture of unspecified part of body of mandible, sequela	
S02601	any			Fracture of unspecified part of body of right mandible	2017
S02601A	any			Fracture of unspecified part of body of right mandible, initial encounter for closed fracture	2017
S02601B	any			Fracture of unspecified part of body of right mandible, initial encounter for open fracture	2017
S02601D	any			Fracture of unspecified part of body of right mandible, subsequent encounter for fracture with routine healing	2017
S02601G	any			Fracture of unspecified part of body of right mandible, subsequent encounter for fracture with delayed healing	2017
S02601K	any			Fracture of unspecified part of body of right mandible, subsequent encounter for fracture with nonunion	2017
S02601S	any			Fracture of unspecified part of body of right mandible, sequela	2017
S02602	any			Fracture of unspecified part of body of left mandible	2017
S02602A	any			Fracture of unspecified part of body of left mandible, initial encounter for closed fracture	2017
S02602B	any			Fracture of unspecified part of body of left mandible, initial encounter for open fracture	2017
S02602D	any			Fracture of unspecified part of body of left mandible, subsequent encounter for fracture with routine healing	2017
S02602G	any			Fracture of unspecified part of body of left mandible, subsequent encounter for fracture with delayed healing	2017
S02602K	any			Fracture of unspecified part of body of left mandible, subsequent encounter for fracture with nonunion	2017
S02602S	any			Fracture of unspecified part of body of left mandible, sequela	2017
S02609	any			Fracture of mandible, unspecified	
S02609A	any			Fracture of mandible, unspecified, initial encounter for closed fracture	
S02609B	any			Fracture of mandible, unspecified, initial encounter for open fracture	
S02609D	any			Fracture of mandible, unspecified, subsequent encounter for fracture with routine healing	
S02609G	any			Fracture of mandible, unspecified, subsequent encounter for fracture with delayed healing	
S02609K	any			Fracture of mandible, unspecified, subsequent encounter for fracture with nonunion	
S02609S	any			Fracture of mandible, unspecified, sequela	
S0261	any			Fracture of condylar process of mandible	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0261XA	any			Fracture of condylar process of mandible, initial encounter for closed fracture	
S0261XB	any			Fracture of condylar process of mandible, initial encounter for open fracture	
S0261XD	any			Fracture of condylar process of mandible, subsequent encounter for fracture with routine healing	
S0261XG	any			Fracture of condylar process of mandible, subsequent encounter for fracture with delayed healing	
S0261XK	any			Fracture of condylar process of mandible, subsequent encounter for fracture with nonunion	
S0261XS	any			Fracture of condylar process of mandible, sequela	
S02610	any			Fracture of condylar process of mandible, unspecified side	2017
S02610A	any			Fracture of condylar process of mandible, unspecified side, initial encounter for closed fracture	2017
S02610B	any			Fracture of condylar process of mandible, unspecified side, initial encounter for open fracture	2017
S02610D	any			Fracture of condylar process of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02610G	any			Fracture of condylar process of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02610K	any			Fracture of condylar process of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02610S	any			Fracture of condylar process of mandible, unspecified side, sequela	2017
S02611	any			Fracture of condylar process of right mandible	2017
S02611A	any			Fracture of condylar process of right mandible, initial encounter for closed fracture	2017
S02611B	any			Fracture of condylar process of right mandible, initial encounter for open fracture	2017
S02611D	any			Fracture of condylar process of right mandible, subsequent encounter for fracture with routine healing	2017
S02611G	any			Fracture of condylar process of right mandible, subsequent encounter for fracture with delayed healing	2017
S02611K	any			Fracture of condylar process of right mandible, subsequent encounter for fracture with nonunion	2017
S02611S	any			Fracture of condylar process of right mandible, sequela	2017
S02612	any			Fracture of condylar process of left mandible	2017
S02612A	any			Fracture of condylar process of left mandible, initial encounter for closed fracture	2017
S02612B	any			Fracture of condylar process of left mandible, initial encounter for open fracture	2017
S02612D	any			Fracture of condylar process of left mandible, subsequent encounter for fracture with routine healing	2017
S02612G	any			Fracture of condylar process of left mandible, subsequent encounter for fracture with delayed healing	2017
S02612K	any			Fracture of condylar process of left mandible, subsequent encounter for fracture with nonunion	2017
S02612S	any			Fracture of condylar process of left mandible, sequela	2017
S0262	any			Fracture of subcondylar process of mandible	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0262XA	any			Fracture of subcondylar process of mandible, initial encounter for closed fracture	
S0262XB	any			Fracture of subcondylar process of mandible, initial encounter for open fracture	
S0262XD	any			Fracture of subcondylar process of mandible, subsequent encounter for fracture with routine healing	
S0262XG	any			Fracture of subcondylar process of mandible, subsequent encounter for fracture with delayed healing	
S0262XK	any			Fracture of subcondylar process of mandible, subsequent encounter for fracture with nonunion	
S0262XS	any			Fracture of subcondylar process of mandible, sequela	
S02620	any			Fracture of subcondylar process of mandible, unspecified side	2017
S02620A	any			Fracture of subcondylar process of mandible, unspecified side, initial encounter for closed fracture	2017
S02620B	any			Fracture of subcondylar process of mandible, unspecified side, initial encounter for open fracture	2017
S02620D	any			Fracture of subcondylar process of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02620G	any			Fracture of subcondylar process of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02620K	any			Fracture of subcondylar process of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02620S	any			Fracture of subcondylar process of mandible, unspecified side, sequela	2017
S02621	any			Fracture of subcondylar process of right mandible	2017
S02621A	any			Fracture of subcondylar process of right mandible, initial encounter for closed fracture	2017
S02621B	any			Fracture of subcondylar process of right mandible, initial encounter for open fracture	2017
S02621D	any			Fracture of subcondylar process of right mandible, subsequent encounter for fracture with routine healing	2017
S02621G	any			Fracture of subcondylar process of right mandible, subsequent encounter for fracture with delayed healing	2017
S02621K	any			Fracture of subcondylar process of right mandible, subsequent encounter for fracture with nonunion	2017
S02621S	any			Fracture of subcondylar process of right mandible, sequela	2017
S02622	any			Fracture of subcondylar process of left mandible	2017
S02622A	any			Fracture of subcondylar process of left mandible, initial encounter for closed fracture	2017
S02622B	any			Fracture of subcondylar process of left mandible, initial encounter for open fracture	2017
S02622D	any			Fracture of subcondylar process of left mandible, subsequent encounter for fracture with routine healing	2017
S02622G	any			Fracture of subcondylar process of left mandible, subsequent encounter for fracture with delayed healing	2017
S02622K	any			Fracture of subcondylar process of left mandible, subsequent encounter for fracture with nonunion	2017
S02622S	any			Fracture of subcondylar process of left mandible, sequela	2017
S0263	any			Fracture of coronoid process of mandible	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0263XA	any			Fracture of coronoid process of mandible, initial encounter for closed fracture	
S0263XB	any			Fracture of coronoid process of mandible, initial encounter for open fracture	
S0263XD	any			Fracture of coronoid process of mandible, subsequent encounter for fracture with routine healing	
S0263XG	any			Fracture of coronoid process of mandible, subsequent encounter for fracture with delayed healing	
S0263XK	any			Fracture of coronoid process of mandible, subsequent encounter for fracture with nonunion	
S0263XS	any			Fracture of coronoid process of mandible, sequela	
S02630	any			Fracture of coronoid process of mandible, unspecified side	2017
S02630A	any			Fracture of coronoid process of mandible, unspecified side, initial encounter for closed fracture	2017
S02630B	any			Fracture of coronoid process of mandible, unspecified side, initial encounter for open fracture	2017
S02630D	any			Fracture of coronoid process of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02630G	any			Fracture of coronoid process of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02630K	any			Fracture of coronoid process of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02630S	any			Fracture of coronoid process of mandible, unspecified side, sequela	2017
S02631	any			Fracture of coronoid process of right mandible	2017
S02631A	any			Fracture of coronoid process of right mandible, initial encounter for closed fracture	2017
S02631B	any			Fracture of coronoid process of right mandible, initial encounter for open fracture	2017
S02631D	any			Fracture of coronoid process of right mandible, subsequent encounter for fracture with routine healing	2017
S02631G	any			Fracture of coronoid process of right mandible, subsequent encounter for fracture with delayed healing	2017
S02631K	any			Fracture of coronoid process of right mandible, subsequent encounter for fracture with nonunion	2017
S02631S	any			Fracture of coronoid process of right mandible, sequela	2017
S02632	any			Fracture of coronoid process of left mandible	2017
S02632A	any			Fracture of coronoid process of left mandible, initial encounter for closed fracture	2017
S02632B	any			Fracture of coronoid process of left mandible, initial encounter for open fracture	2017
S02632D	any			Fracture of coronoid process of left mandible, subsequent encounter for fracture with routine healing	2017
S02632G	any			Fracture of coronoid process of left mandible, subsequent encounter for fracture with delayed healing	2017
S02632K	any			Fracture of coronoid process of left mandible, subsequent encounter for fracture with nonunion	2017
S02632S	any			Fracture of coronoid process of left mandible, sequela	2017
S0264	any			Fracture of ramus of mandible	
S0264XA	any			Fracture of ramus of mandible, initial encounter for closed fracture	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0264XB	any			Fracture of ramus of mandible, initial encounter for open fracture	
S0264XD	any			Fracture of ramus of mandible, subsequent encounter for fracture with routine healing	
S0264XG	any			Fracture of ramus of mandible, subsequent encounter for fracture with delayed healing	
S0264XK	any			Fracture of ramus of mandible, subsequent encounter for fracture with nonunion	
S0264XS	any			Fracture of ramus of mandible, sequela	
S02640	any			Fracture of ramus of mandible, unspecified side	2017
S02640A	any			Fracture of ramus of mandible, unspecified side, initial encounter for closed fracture	2017
S02640B	any			Fracture of ramus of mandible, unspecified side, initial encounter for open fracture	2017
S02640D	any			Fracture of ramus of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02640G	any			Fracture of ramus of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02640K	any			Fracture of ramus of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02640S	any			Fracture of ramus of mandible, unspecified side, sequela	2017
S02641	any			Fracture of ramus of right mandible	2017
S02641A	any			Fracture of ramus of right mandible, initial encounter for closed fracture	2017
S02641B	any			Fracture of ramus of right mandible, initial encounter for open fracture	2017
S02641D	any			Fracture of ramus of right mandible, subsequent encounter for fracture with routine healing	2017
S02641G	any			Fracture of ramus of right mandible, subsequent encounter for fracture with delayed healing	2017
S02641K	any			Fracture of ramus of right mandible, subsequent encounter for fracture with nonunion	2017
S02641S	any			Fracture of ramus of right mandible, sequela	2017
S02642	any			Fracture of ramus of left mandible	2017
S02642A	any			Fracture of ramus of left mandible, initial encounter for closed fracture	2017
S02642B	any			Fracture of ramus of left mandible, initial encounter for open fracture	2017
S02642D	any			Fracture of ramus of left mandible, subsequent encounter for fracture with routine healing	2017
S02642G	any			Fracture of ramus of left mandible, subsequent encounter for fracture with delayed healing	2017
S02642K	any			Fracture of ramus of left mandible, subsequent encounter for fracture with nonunion	2017
S02642S	any			Fracture of ramus of left mandible, sequela	2017
S0265	any			Fracture of angle of mandible	
S0265XA	any			Fracture of angle of mandible, initial encounter for closed fracture	
S0265XB	any			Fracture of angle of mandible, initial encounter for open fracture	
S0265XD	any			Fracture of angle of mandible, subsequent encounter for fracture with routine healing	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0265XG	any			Fracture of angle of mandible, subsequent encounter for fracture with delayed healing	
S0265XK	any			Fracture of angle of mandible, subsequent encounter for fracture with nonunion	
S0265XS	any			Fracture of angle of mandible, sequela	
S02650	any			Fracture of angle of mandible, unspecified side	2017
S02650A	any			Fracture of angle of mandible, unspecified side, initial encounter for closed fracture	2017
S02650B	any			Fracture of angle of mandible, unspecified side, initial encounter for open fracture	2017
S02650D	any			Fracture of angle of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02650G	any			Fracture of angle of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02650K	any			Fracture of angle of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02650S	any			Fracture of angle of mandible, unspecified side, sequela	2017
S02651	any			Fracture of angle of right mandible	2017
S02651A	any			Fracture of angle of right mandible, initial encounter for closed fracture	2017
S02651B	any			Fracture of angle of right mandible, initial encounter for open fracture	2017
S02651D	any			Fracture of angle of right mandible, subsequent encounter for fracture with routine healing	2017
S02651G	any			Fracture of angle of right mandible, subsequent encounter for fracture with delayed healing	2017
S02651K	any			Fracture of angle of right mandible, subsequent encounter for fracture with nonunion	2017
S02651S	any			Fracture of angle of right mandible, sequela	2017
S02652	any			Fracture of angle of left mandible	2017
S02652A	any			Fracture of angle of left mandible, initial encounter for closed fracture	2017
S02652B	any			Fracture of angle of left mandible, initial encounter for open fracture	2017
S02652D	any			Fracture of angle of left mandible, subsequent encounter for fracture with routine healing	2017
S02652G	any			Fracture of angle of left mandible, subsequent encounter for fracture with delayed healing	2017
S02652K	any			Fracture of angle of left mandible, subsequent encounter for fracture with nonunion	2017
S02652S	any			Fracture of angle of left mandible, sequela	2017
S0266	any			Fracture of symphysis of mandible	
S0266XA	any			Fracture of symphysis of mandible, initial encounter for closed fracture	
S0266XB	any			Fracture of symphysis of mandible, initial encounter for open fracture	
S0266XD	any			Fracture of symphysis of mandible, subsequent encounter for fracture with routine healing	
S0266XG	any			Fracture of symphysis of mandible, subsequent encounter for fracture with delayed healing	
S0266XK	any			Fracture of symphysis of mandible, subsequent encounter for fracture with nonunion	
S0266XS	any			Fracture of symphysis of mandible, sequela	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0267	any			Fracture of alveolus of mandible	
S0267XA	any			Fracture of alveolus of mandible, initial encounter for closed fracture	
S0267XB	any			Fracture of alveolus of mandible, initial encounter for open fracture	
S0267XD	any			Fracture of alveolus of mandible, subsequent encounter for fracture with routine healing	
S0267XG	any			Fracture of alveolus of mandible, subsequent encounter for fracture with delayed healing	
S0267XK	any			Fracture of alveolus of mandible, subsequent encounter for fracture with nonunion	
S0267XS	any			Fracture of alveolus of mandible, sequela	
S02670	any			Fracture of alveolus of mandible, unspecified side	2017
S02670A	any			Fracture of alveolus of mandible, unspecified side, initial encounter for closed fracture	2017
S02670B	any			Fracture of alveolus of mandible, unspecified side, initial encounter for open fracture	2017
S02670D	any			Fracture of alveolus of mandible, unspecified side, subsequent encounter for fracture with routine healing	2017
S02670G	any			Fracture of alveolus of mandible, unspecified side, subsequent encounter for fracture with delayed healing	2017
S02670K	any			Fracture of alveolus of mandible, unspecified side, subsequent encounter for fracture with nonunion	2017
S02670S	any			Fracture of alveolus of mandible, unspecified side, sequela	2017
S02671	any			Fracture of alveolus of right mandible	2017
S02671A	any			Fracture of alveolus of right mandible, initial encounter for closed fracture	2017
S02671B	any			Fracture of alveolus of right mandible, initial encounter for open fracture	2017
S02671D	any			Fracture of alveolus of right mandible, subsequent encounter for fracture with routine healing	2017
S02671G	any			Fracture of alveolus of right mandible, subsequent encounter for fracture with delayed healing	2017
S02671K	any			Fracture of alveolus of right mandible, subsequent encounter for fracture with nonunion	2017
S02671S	any			Fracture of alveolus of right mandible, sequela	2017
S02672	any			Fracture of alveolus of left mandible	2017
S02672A	any			Fracture of alveolus of left mandible, initial encounter for closed fracture	2017
S02672B	any			Fracture of alveolus of left mandible, initial encounter for open fracture	2017
S02672D	any			Fracture of alveolus of left mandible, subsequent encounter for fracture with routine healing	2017
S02672G	any			Fracture of alveolus of left mandible, subsequent encounter for fracture with delayed healing	2017
S02672K	any			Fracture of alveolus of left mandible, subsequent encounter for fracture with nonunion	2017
S02672S	any			Fracture of alveolus of left mandible, sequela	2017
S0269	any			Fracture of mandible of other specified site	
S0269XA	any			Fracture of mandible of other specified site, initial encounter for closed fracture	

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0269XB	any			Fracture of mandible of other specified site, initial encounter for open fracture	
S0269XD	any			Fracture of mandible of other specified site, subsequent encounter for fracture with routine healing	
S0269XG	any			Fracture of mandible of other specified site, subsequent encounter for fracture with delayed healing	
S0269XK	any			Fracture of mandible of other specified site, subsequent encounter for fracture with nonunion	
S0269XS	any			Fracture of mandible of other specified site, sequela	
S030	any			Dislocation of jaw	
S030XXA	any			Dislocation of jaw, initial encounter	
S030XXD	any			Dislocation of jaw, subsequent encounter	
S030XXS	any			Dislocation of jaw, sequela	
S0300	any			Dislocation of jaw, unspecified side	2017
S0300XA	any			Dislocation of jaw, unspecified side, initial encounter	2017
S0300XD	any			Dislocation of jaw, unspecified side, subsequent encounter	2017
S0300XS	any			Dislocation of jaw, unspecified side, sequela	2017
S0301	any			Dislocation of jaw, right side	2017
S0301XA	any			Dislocation of jaw, right side, initial encounter	2017
S0301XD	any			Dislocation of jaw, right side, subsequent encounter	2017
S0301XS	any			Dislocation of jaw, right side, sequela	2017
S0302	any			Dislocation of jaw, left side	2017
S0302XA	any			Dislocation of jaw, left side, initial encounter	2017
S0302XD	any			Dislocation of jaw, left side, subsequent encounter	2017
S0302XS	any			Dislocation of jaw, left side, sequela	2017
S0303	any			Dislocation of jaw, bilateral	2017
S0303XA	any			Dislocation of jaw, bilateral, initial encounter	2017
S0303XD	any			Dislocation of jaw, bilateral, subsequent encounter	2017
S0303XS	any			Dislocation of jaw, bilateral, sequela	2017
S032	any			Dislocation of tooth	
S032XXA	any			Dislocation of tooth, initial encounter	
S032XXD	any			Dislocation of tooth, subsequent encounter	
S032XXS	any			Dislocation of tooth, sequela	
S034	any			Sprain of jaw	
S034XXA	any			Sprain of jaw, initial encounter	
S034XXD	any			Sprain of jaw, subsequent encounter	
S034XXS	any			Sprain of jaw, sequela	
S0340	any			Sprain of jaw, unspecified side	2017
S0340XA	any			Sprain of jaw, unspecified side, initial encounter	2017
S0340XD	any			Sprain of jaw, unspecified side, subsequent encounter	2017
S0340XS	any			Sprain of jaw, unspecified side, sequela	2017
S0341	any			Sprain of jaw, right side	2017
S0341XA	any			Sprain of jaw, right side, initial encounter	2017
S0341XD	any			Sprain of jaw, right side, subsequent encounter	2017
S0341XS	any			Sprain of jaw, right side, sequela	2017
S0342	any			Sprain of jaw, left side	2017
S0342XA	any			Sprain of jaw, left side, initial encounter	2017
S0342XD	any			Sprain of jaw, left side, subsequent encounter	2017

ICD- 10 Code	Any Oral Code	NTDC	CPP	ICD-10 Code Description	Post 2015 Update (Year)
S0342XS	any			Sprain of jaw, left side, sequela	2017
S0343	any			Sprain of jaw, bilateral	2017
S0343XA	any			Sprain of jaw, bilateral, initial encounter	2017
S0343XD	any			Sprain of jaw, bilateral, subsequent encounter	2017
S0343XS	any			Sprain of jaw, bilateral, sequela	2017
S0993	any			Unspecified injury of face	
S0993XA	any			Unspecified injury of face, initial encounter	
S0993XD	any			Unspecified injury of face, subsequent encounter	
S0993XS	any			Unspecified injury of face, sequela	
Z012	any	NTDC	CPP	Encounter for dental examination and cleaning	
Z0120	any	NTDC	CPP	Encounter for dental examination and cleaning without abnormal findings	
Z0121	any	NTDC	CPP	Encounter for dental examination and cleaning with abnormal findings	
Z463	any	NTDC	CPP	Encounter for fitting and adjustment of dental prosthetic device	
Z464	any	NTDC	CPP	Encounter for fitting and adjustment of orthodontic device	

Appendix 2: Sample SAS Code for SEDD Analysis

To assist states with the process of generating the ED-NTDC indicators, ASTDD is providing sample SAS code. If you are using SPSS or Stata you will need to modify the code accordingly. ***IMPORTANT: All states should review and revise the sample code to meet their individual needs.*** States may have multiple SEDD files for a given year, but the data needed for the recommended ED-NTDC indicators are in the core file. Following are instructions on how to load the core file into your statistical package.

- Go to the HCUP website: https://www.hcup-us.ahrq.gov/db/state/sedddbdocumentation.jsp
- Scroll down to "File Specifications and Load Programs". Click on the load program link for the statistical software package you will be using (SAS, SPSS, Stata). This example uses SAS.
    - o Select the state and year you want to download
    - o For the database option select SEDD
    - o Click "Find"
    - o A set of load programs for your state and year will appear at the bottom of the page
    - o Select "Core SAS load program" and save to your hard drive
- After saving the load program, insert the correct file address and name for your state "core.asc" file in the code line at the beginning of the Data Step
- Run the load program and the core.asc file will be loaded into SAS

Sample SAS Code
NOTE: Before using this code you should change the "set" file name to match the name and location of your data file. ***All states should review and revise the sample code to meet their individual needs.***

*Coding for recommended indicator #1, ED visit for NTDC based on **first listed diagnosis**. This coding is for **pre-2015** data sets with ICD-9 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included.*

```
data StateCore; set StateCore;
NTDC_dx1=0; *set variable to 0 and then change to 1 if first DX variable has an NTDC code;
If DX1 in ('101', '5200', '5201', '5202', '5203', '5204', '5205', '5206', '5207', '5208', '5209', '52100', '52101',
'52102', '52103', '52104', '52105', '52106', '52107', '52108', '52109', '52110', '52111', '52112',
'52113', '52114', '52115', '52120', '52121', '52122', '52123', '52124', '52125', '52130', '52131',
'52132', '52133', '52134', '52135', '52140', '52141', '52142', '52149', '5215', '5216', '5217',
'52181', '52189', '5219', '5220', '5221', '5222', '5223', '5224', '5225', '5226', '5227', '5228',
'5229', '52300', '52301', '52310', '52311', '52320', '52321', '52322', '52323', '52324', '52325',
'52330', '52331', '52332', '52333', '52340', '52341', '52342', '5235', '5236', '5238', '5239',
'52400', '52401', '52402', '52403', '52404', '52405', '52406', '52407', '52409', '52410', '52411',
'52412', '52419', '52420', '52421', '52422', '52423', '52424', '52425', '52426', '52427', '52428',
'52429', '52430', '52431', '52432', '52433', '52434', '52435', '52436', '52437', '52439', '5244',
'52450', '52451', '52452', '52453', '52454', '52455', '52456', '52457', '52459', '52460', '52461',
'52462', '52463', '52464', '52469', '52470', '52471', '52472', '52473', '52474', '52475', '52476',
'52479', '52481', '52482', '52489', '5249', '5250', '52510', '52512', '52513', '52519', '52520',
'52521', '52522', '52523', '52524', '52525', '52526', '5253', '52540', '52541', '52542', '52543',
'52544', '52550', '52551', '52552', '52553', '52554', '52560', '52561', '52562', '52563', '52564',
'52565', '52566', '52567', '52569', '52571', '52572', '52573', '52579', '5258', '5259', '5260',
'5261', '5262', '5263', '5264', '5265', '52661', '52662', '52663', '52669', '52681', '52689',
'5269', '5270', '5271', '5272', '5273', '5274', '5275', '5276', '5277', '5278', '5279', '52800',
'52801', '52802', '52809', '5281', '5282', '5283', '5284', '5285', '5286', '52871', '52872',
```

'52879', '5288', '5289', '5290', '5291', '5292', '5293', '5294', '5295', '5296', '5298', '5299',
'78492', 'V523', 'V534', 'V585', 'V722', 'V723')

then NTDC_dx1=1;
run;

Coding for recommended indicator #1, ED visit for NTDC based on __first listed diagnosis__. This coding is for __post-2015__ data sets with ICD-10 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included.

data StateCore; set StateCore;
NTDC_dx1=0; *set variable to 0 and then change to 1 if first I10_DX variable has an NTDC code;
If I10_DX1 in ('A690', 'A691', 'B002', 'B084', 'B0861', 'B370', 'B3783', 'K00', 'K000', 'K001', 'K002', 'K003', 'K004',
'K005', 'K006', 'K007', 'K008', 'K009', 'K01', 'K010', 'K011', 'K02', 'K023', 'K025', 'K0251', 'K0252', 'K0253', 'K026',
'K0261', 'K0262', 'K0263', 'K027', 'K029', 'K03', 'K030', 'K031', 'K032', 'K033', 'K034', 'K035', 'K036', 'K037',
'K038', 'K0381', 'K0389', 'K039', 'K04', 'K040', 'K0401', 'K0402', 'K041', 'K042', 'K043', 'K044', 'K045', 'K046',
'K047', 'K048', 'K049', 'K0490', 'K0499', 'K05', 'K050', 'K0500', 'K0501', 'K051', 'K0510', 'K0511', 'K052', 'K0520',
'K0521', 'K05211', 'K05212', 'K05213', 'K05219', 'K0522', 'K05221', 'K05222', 'K05223', 'K05229', 'K053', 'K0530',
'K0531', 'K05311', 'K05312', 'K05313', 'K05319', 'K0532', 'K05321', 'K05322', 'K05323', 'K05329', 'K054', 'K0540',
'K055', 'K056', 'K06', 'K060', 'K0601', 'K06010', 'K06011', 'K06012', 'K06013', 'K0602', 'K06020', 'K06021',
'K06022', 'K06023', 'K061', 'K063', 'K068', 'K069', 'K08', 'K080', 'K081', 'K0810', 'K08101', 'K08102', 'K08103',
'K08104', 'K08109', 'K0812', 'K08121', 'K08122', 'K08123', 'K08124', 'K08129', 'K0813', 'K08131', 'K08132',
'K08133', 'K08134', 'K08139', 'K0819', 'K08191', 'K08192', 'K08193', 'K08194', 'K08199', 'K082', 'K0820', 'K0821',
'K0822', 'K0823', 'K0824', 'K0825', 'K0826', 'K083', 'K084', 'K0840', 'K08401', 'K08402', 'K08403', 'K08404',
'K08409', 'K0842', 'K08421', 'K08422', 'K08423', 'K08424', 'K08429', 'K0843', 'K08431', 'K08432', 'K08433',
'K08434', 'K08439', 'K0849', 'K08491', 'K08492', 'K08493', 'K08494', 'K08499', 'K0850', 'K0851', 'K0852', 'K0853',
'K08530', 'K08531', 'K08539', 'K0854', 'K0855', 'K0856', 'K0859', 'K088', 'K0889', 'K089', 'K09', 'K090', 'K091',
'K098', 'K099', 'K11', 'K110', 'K111', 'K112', 'K1120', 'K1121', 'K1122', 'K1123', 'K113', 'K114', 'K115', 'K116',
'K117', 'K118', 'K119', 'K12', 'K120', 'K121', 'K122', 'K123', 'K1230', 'K1231', 'K1232', 'K1233', 'K1239', 'K13',
'K130', 'K131', 'K132', 'K1321', 'K1322', 'K1323', 'K1324', 'K1329', 'K133', 'K134', 'K135', 'K136', 'K137', 'K1370',
'K1379', 'K14', 'K140', 'K141', 'K142', 'K143', 'K144', 'K145', 'K146', 'K148', 'K149', 'M26', 'M260', 'M2600',
'M2601', 'M2602', 'M2603', 'M2604', 'M2605', 'M2606', 'M2607', 'M2609', 'M261', 'M2610', 'M2611', 'M2612',
'M2619', 'M262', 'M2620', 'M2621', 'M26211', 'M26212', 'M26213', 'M26219', 'M2622', 'M26220', 'M26221',
'M2623', 'M2624', 'M2625', 'M2629', 'M263', 'M2630', 'M2631', 'M2632', 'M2633', 'M2634', 'M2635', 'M2636',
'M2637', 'M2639', 'M264', 'M265', 'M2650', 'M2651', 'M2652', 'M2653', 'M2654', 'M2655', 'M2656', 'M2657',
'M2659', 'M266', 'M2660', 'M26601', 'M26602', 'M26603', 'M26609', 'M2661', 'M26611', 'M26612', 'M26613',
'M26619', 'M2662', 'M26621', 'M26622', 'M26623', 'M26629', 'M2663', 'M26631', 'M26632', 'M26633',
'M26639', 'M2664', 'M26641', 'M26642', 'M26643', 'M26649', 'M2665', 'M26651', 'M26652', 'M26653',
'M26659', 'M2669', 'M267', 'M2670', 'M2671', 'M2672', 'M2673', 'M2674', 'M2679', 'M268', 'M2681', 'M2682',
'M2689', 'M269', 'M27', 'M270', 'M271', 'M272', 'M273', 'M274', 'M2740', 'M2749', 'M275', 'M2751', 'M2752',
'M2753', 'M2759', 'M276', 'M2761', 'M2762', 'M2763', 'M2769', 'M278', 'M279', 'M350C', 'M7911', 'R682',
'R6884', 'Z012', 'Z0120', 'Z0121', 'Z463', 'Z464')
then NTDC_dx1=1;
run;

Coding for recommended indicator #2, ED visit for NTDC based on __any listed diagnosis__. This coding is for __pre-2015__ data sets with ICD-9 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included. NOTE: SEDD has variables for up to 25 diagnoses.

data StateCore; set StateCore;
array DX{25} DX1--DX25;

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NTDC_dx_any=0; *set variable to 0 and then change to 1 if any DX variables have an NTDC code;
Do i=1 to 25;
if DX{i} in (*insert ICD-9 codes listed for recommended indicator #1*)
then NTDC_dx_any=1;
end;
run;

*Coding for recommended indicator #2, ED visit for NTDC based on **any listed diagnosis.** This coding is for **post-2015** data sets with ICD-10 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included. NOTE: SEDD has variables for up to 25 diagnoses.*

data StateCore; set StateCore;
array DX{25} I10_DX1—I10_DX25;
NTDC_dx_any=0; *set variable to 0 and then change to 1 if any I10_DX variables have an NTDC code;
Do i=1 to 25;
if DX{i} in (*insert ICD-10 codes listed for recommended indicator #1*)
then NTDC_dx_any=1;
end;
run;

*Coding for recommended indicator #3, ED visit for NTDC based on **first listed reason for visit**. This coding is for **pre-2015** data sets with ICD-9 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included.*

data StateCore; set StateCore;
NTDC_RsnVis1=0;
If DX_Visit_Reason1 in (*insert ICD-9 codes listed for recommended indicator #1*)
then NTDC_RsnVis1=1;
run;

*Coding for recommended indicator #3, ED visit for NTDC based on **first listed reason for visit**. This coding is for **post-2015** data sets with ICD-10 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included.*

data StateCore; set StateCore;
NTDC_RsnVis1=0;
If I10_Visit_Reason1 in (*insert ICD-10 codes listed for recommended indicator #1*)
then NTDC_RsnVis1=1;
run;

*Coding for recommended indicator #4, ED visit for NTDC based on **any listed reason for visit.** This coding is for **pre-2015** data sets with ICD-9 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included. NOTE: SEDD has variables for up to 3 reasons for visit.*

data StateCore; set StateCore;
array rsn{3} DX_Visit_Reason1--DX_Visit_Reason3;
NTDC_RsnVis_any=0; *set variable to 0 and then change to 1 if any DX_Visit_ReasonN variables have an NTDC code;
Do i=1 to 3;
if rsn{i} in (*insert ICD-9 codes listed for recommended indicator #1*)
then NTDC_RsnVis_any=1;

end;
run;

*Coding for recommended indicator #4, ED visit for NTDC based on **_any listed reason for visit._** This coding is for **_post-2015_** data sets with ICD-10 diagnostic codes. For 2015 datasets, both ICD-9 and ICD-10 codes should be included. NOTE: SEDD has variables for up to 3 reasons for visit.*

```
data StateCore; set StateCore;
array  rsn{3} I10_Visit_Reason1—I10_Visit_Reason3;
NTDC_RsnVis_any=0; *set variable to 0 and then change to 1 if any I10_Visit_ReasonN variables have an NTDC
code;
Do i=1 to 3;
if rsn{i} in ( insert ICD-10 codes listed for recommended indicator #1)
then NTDC_RsnVis_any=1;
end;
run;
```

*Coding for recommended indicator #5, ED visit for NTDC based on **_any listed diagnosis and/or any listed reason for visit._***

```
data StateCore; set StateCore;
NTDC_DXorRsn=0;
if NTDC_dx_any=1 or NTDC_RsnVis_any=1 then NTDC_DXorRsn=1;
run;
```

To generate counts for the five indicators.

```
proc freq data = StateCore;
tables NTDC_dx1 NTDC_dx_any NTDC_RsnVis1 NTDC_RsnVis_any NTDC_DXorRsn;
run;
```

*To generate rate per 100,000 population. NOTE: This is **not** SAS code.*

(indicator count/population estimate) * 100,000
Example: First diagnosis NTDC count is 36,188, state population estimate is 4,400,477
Rate of ED NTDC visits per 100,000 population = (36,188 / 4,400,477) * 100,000 = 822.4 per 100,000 population

*To generate rate per 10,000 ED visits. NOTE: This is **not** SAS code.*

(indicator count / total ED visit count) * 10,000
Example: First diagnosis NTDC count is 36,188, total ED visit count is 2,036,780
rate of ED NTDC per 10,000 ED visits = (36,188 / 2,036,780) * 10,000 = 177.7 per 10,000 ED visits

To generate total charges, use the following SAS code. The first diagnosis indicator is used in this example.

```
proc means data=StateCore mean median min max stddev sum;
var totchg;
where NTDC_dx1=1;
run;
```

For recommended stratified analyses by age group, race/ethnicity, and primary payer, use variables AGE, PAY1, and RACE.

```
data StateCore; set StateCore;
if age lt 20 then agecat=1;
if age ge 20 and age lt 45 then agecat=2;
if age ge 45 and age lt 65 then agecat=3;
if age ge 65 then agecat=4;
run;

PROC FORMAT; *to format primary payer, race, and new age category variables;
value agec 1='<20 years' 2='20-44 years' 3='45-64 years' 4='65 or more years';
value pay 1='Medicare' 2='Medicaid' 3='Private' 4='Self Pay' 5='No charge' 6='Other';
value rac 1='white' 2='black' 3='Hispanic' 4='Asian/PacIsl' 5='NatAmer' 6='Other';
value yn 0='No' 1='Yes';
run;
```

Example - stratified analysis for NTDC first diagnosis indicator.

```
proc freq data=StateCore;
tables agecat pay1 race;
where NTDC_dx1=1;
format agecat agec. pay1 pay. race rac.;
run;
```

Example - to compare NTDC=yes vs. NTDC=no stratified analysis for NTDC first diagnosis.

```
proc freq data=StateCore;
tables NTDC_dx1*(agecat pay1 race);
format agecat agec. pay1 pay. race rac. NTDC_dx1 yn.;
run;
```

For the two optional indicators: 1) CPP (Caries, Periodontal, Preventive) and 2) any oral/dental conditions, do analyses as above with the following sets of codes :

CPP ICD-9 codes
'52100', '52101', '52102', '52103', '52104', '52105', '52106', '52107', '52108', '52109', '5217', '52181', '52189', '5219', '5220', '5221', '5222', '5224', '5225', '5226', '5227', '5229', '52300', '52301', '52310', '52311', '52320', '52321', '52322', '52323', '52324', '52325', '52330', '52331', '52332', '52333', '52340', '52341', '52342', '5235', '5236', '5238', '5239', '52512', '52513', '52519', '52550', '52551', '52552', '52553', '52554', '52560', '52561', '52562', '52563', '52564', '52565', '52566', '52567', '52569', '52571', '52572', '52573', '52579', '5258', '5259', '52661', '52662', '52663', '52669', '5277', '78492', 'V523', 'V534', 'V585', 'V722'

CPP ICD-10 codes
'B002', 'B084', 'B0861', 'B370', 'B3783', 'K003', 'K007', 'K02', 'K023', 'K025', 'K0251', 'K0252', 'K0253', 'K026', 'K0261', 'K0262', 'K0263', 'K027', 'K029', 'K03', 'K030', 'K031', 'K032', 'K036', 'K037', 'K038', 'K0381', 'K0389', 'K039', 'K04', 'K040', 'K0401', 'K042', 'K044', 'K045', 'K05', 'K050', 'K0500', 'K0501', 'K051', 'K0510', 'K0511', 'K052', 'K0520', 'K0521', 'K05211', 'K05212', 'K05213', 'K05219', 'K0522', 'K05221', 'K05222', 'K05223', 'K05229', 'K053', 'K0530', 'K0531', 'K05311', 'K05312', 'K05313', 'K05319', 'K0532', 'K05321', 'K05322', 'K05323', 'K05329', 'K054', 'K0540', 'K055', 'K056', 'K06', 'K060', 'K0601', 'K06010', 'K06011', 'K06012', 'K06013', 'K0602', 'K06020',

'K06021', 'K06022', 'K06023', 'K061', 'K081', 'K0810', 'K08101', 'K08102', 'K08103', 'K08104', 'K08109', 'K0812',
'K08121', 'K08122', 'K08123', 'K08124', 'K08129', 'K0813', 'K08131', 'K08132', 'K08133', 'K08134', 'K08139',
'K0819', 'K08191', 'K08192', 'K08193', 'K08194', 'K08199', 'K084', 'K0840', 'K08401', 'K08402', 'K08403',
'K08404', 'K08409', 'K0842', 'K08421', 'K08422', 'K08423', 'K08424', 'K08429', 'K0843', 'K08431', 'K08432',
'K08433', 'K08434', 'K08439', 'K0849', 'K08491', 'K08492', 'K08493', 'K08494', 'K08499', 'K0850', 'K0851',
'K0852', 'K0853', 'K08530', 'K08531', 'K08539', 'K0854', 'K0855', 'K0856', 'K0859', 'K088', 'K0889', 'K089',
'M2751', 'M2752', 'M2753', 'M2759', 'M2761', 'M2762', 'M2763', 'M2769', 'M350C', 'R6884', 'Z012', 'Z0120',
'Z0121', 'Z463', 'Z464'

Any Oral Dental Condition ICD-9 codes
'101', '5200', '5201', '5202', '5203', '5204', '5205', '5206', '5207', '5208', '5209', '52100', '52101', '52102',
'52103', '52104', '52105', '52106', '52107', '52108', '52109', '52110', '52111', '52112', '52113', '52114',
'52115', '52120', '52121', '52122', '52123', '52124', '52125', '52130', '52131', '52132', '52133', '52134',
'52135', '52140', '52141', '52142', '52149', '5215', '5216', '5217', '52181', '52189', '5219', '5220', '5221',
'5222', '5223', '5224', '5225', '5226', '5227', '5228', '5229', '52300', '52301', '52310', '52311', '52320',
'52321', '52322', '52323', '52324', '52325', '52330', '52331', '52332', '52333', '52340', '52341', '52342',
'5235', '5236', '5238', '5239', '52400', '52401', '52402', '52403', '52404', '52405', '52406', '52407',
'52409', '52410', '52411', '52412', '52419', '52420', '52421', '52422', '52423', '52424', '52425', '52426',
'52427', '52428', '52429', '52430', '52431', '52432', '52433', '52434', '52435', '52436', '52437', '52439',
'5244', '52450', '52451', '52452', '52453', '52454', '52455', '52456', '52457', '52459', '52460', '52461',
'52462', '52463', '52464', '52469', '52470', '52471', '52472', '52473', '52474', '52475', '52476', '52479',
'52481', '52482', '52489', '5249', '5250', '52510', '52511', '52512', '52513', '52519', '52520', '52521', '52522',
'52523', '52524', '52525', '52526', '5253', '52540', '52541', '52542', '52543', '52544', '52550', '52551',
'52552', '52553', '52554', '52560', '52561', '52562', '52563', '52564', '52565', '52566', '52567', '52569',
'52571', '52572', '52573', '52579', '5258', '5259', '5260', '5261', '5262', '5263', '5264', '5265', '52661',
'52662', '52663', '52669', '52681', '52689', '5269', '5270', '5271', '5272', '5273', '5274', '5275', '5276',
'5277', '5278', '5279', '52800', '52801', '52802', '52809', '5281', '5282', '5283', '5284', '5285', '5286',
'52871', '52872', '52879', '5288', '5289', '5290', '5291', '5292', '5293', '5294', '5295', '5296', '5298', '5299',
'78492', '8300', '8301', '8481', '87343', '87344', '87349', '87350', '87351', '87353', '87354', '87359', '87360',
'87361', '87362', '87363', '87364', '87365', '87369', '87370', '87371', '87372',
'87373', '87374', '87375', '87379', 'V523', 'V534', 'V585', 'V722', 'V723'

Any Oral Dental Condition ICD-10 codes
'A690', 'A691', 'B002', 'B084', 'B0861', 'B370', 'B3783', 'K00', 'K000', 'K001', 'K002', 'K003', 'K004', 'K005', 'K006',
'K007', 'K008', 'K009', 'K01', 'K010', 'K011', 'K02', 'K023', 'K025', 'K0251', 'K0252', 'K0253', 'K026', 'K0261',
'K0262', 'K0263', 'K027', 'K029', 'K03', 'K030', 'K031', 'K032', 'K033', 'K034', 'K035', 'K036', 'K037', 'K038',
'K0381', 'K0389', 'K039', 'K04', 'K040', 'K0401', 'K0402', 'K041', 'K042', 'K043', 'K044', 'K045', 'K046', 'K047',
'K048', 'K049', 'K0490', 'K0499', 'K05', 'K050', 'K0500', 'K0501', 'K051', 'K0510', 'K0511', 'K052', 'K0520', 'K0521',
'K05211', 'K05212', 'K05213', 'K05219', 'K0522', 'K05221', 'K05222', 'K05223', 'K05229', 'K053', 'K0530', 'K0531',
'K05311', 'K05312', 'K05313', 'K05319', 'K0532', 'K05321', 'K05322', 'K05323', 'K05329', 'K054', 'K0540', 'K055',
'K056', 'K06', 'K060', 'K0601', 'K06010', 'K06011', 'K06012', 'K06013', 'K0602', 'K06020', 'K06021', 'K06022',
'K06023', 'K061', 'K062', 'K063', 'K068', 'K069', 'K08', 'K080', 'K081', 'K0810', 'K08101', 'K08102', 'K08103',
'K08104', 'K08109', 'K08111', 'K08112', 'K08113', 'K08114', 'K08119', 'K0812', 'K08121', 'K08122', 'K08123',
'K08124', 'K08129', 'K0813', 'K08131', 'K08132', 'K08133', 'K08134', 'K08139', 'K0819', 'K08191', 'K08192',
'K08193', 'K08194', 'K08199', 'K082', 'K0820', 'K0821', 'K0822', 'K0823', 'K0824', 'K0825', 'K0826', 'K083', 'K084',
'K0840', 'K08401', 'K08402', 'K08403', 'K08404', 'K08409', 'K08411', 'K08412', 'K08413', 'K08414', 'K08419',
'K0842', 'K08421', 'K08422', 'K08423', 'K08424', 'K08429', 'K0843', 'K08431', 'K08432', 'K08433', 'K08434',
'K08439', 'K0849', 'K08491', 'K08492', 'K08493', 'K08494', 'K08499', 'K0850', 'K0851', 'K0852', 'K0853', 'K08530',
'K08531', 'K08539', 'K0854', 'K0855', 'K0856', 'K0859', 'K088', 'K0881', 'K0882', 'K0889', 'K089', 'K09', 'K090',
'K091', 'K098 ', 'K099', 'K11', 'K110', 'K111', 'K112', 'K1120', 'K1121', 'K1122', 'K1123', 'K113', 'K114', 'K115',

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Appendix 3: Recommended and Optional ED Oral Care Surveillance Indicators Analysis Grid

Based on ICD-9 and ICD-10 diagnostic codes, ASTDD has created three broad categories for **ED visits due to oral conditions**: (1) non-traumatic dental conditions (NTDC); (2) caries, periodontal, and preventive conditions/procedures (CPP); and 3) any oral/dental related condition. NTDC includes caries, periodontal disease, erosion, occlusal anomalies, cysts, impacted teeth, teething, and all other non-traumatic conditions associated with the oral cavity. Any diagnoses that are deemed due to trauma are excluded from this definition. CPP includes only those conditions directly associated with dental caries, periodontal disease, or preventive procedures associated with these diseases that are routinely provided in the dental private practice or dental clinic setting. CPP would include diagnoses related to dental caries, gingival and periodontal conditions, loss of teeth (not due to trauma), endodontic conditions, and caries and periodontal related preventive procedures. The codes for NTDC are a subset of all oral/dental related codes, and the codes for CPP are a subset of the NTDC codes. Refer to the ICD-9 / ICD-10 Conversion Table listing of all oral/dental related condition diagnoses (including trauma related), and the specific subsets of ICD-9 and ICD-10 codes defining NTDC and CPP conditions.

Analyzing an ED database will enable evaluation of a multitude of oral health indicators. Because the total number of indicators can be overwhelming, ASTDD has developed a core or foundational set of recommended indicators to include in a state ED-NTDC surveillance system. We also include optional indicators that states may want to evaluate in addition to the core set. We encourage states to expand their ED-NTDC surveillance to include some of these suggested optional indicators or other indicators that a state may determine to be of interest based on the needs and resources of the individual state.

Recommended Indicator	Recommended Reporting *Count, Rate per 100,000 Population, Rate per 10,000 ED Visits, Charges (if available)*	SEDD Variables for Classifying NTDC ICD-9 (ICD-10)
1. ED visit for NTDC based on *first listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX1 (I10_DX1) Include only the 1st DX
2. ED visit for NTDC based on *any listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) Include all listed DXs
3. ED visit for NTDC based on *first listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reason1 (I10_Visit_Reason1) Include only the 1st reason
4. ED visit for NTDC based on *any listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed reasons
5. ED visit for NTDC based on *any listed diagnosis and/or any listed reason for visit (most inclusive)*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed DXs and all listed reasons

Optional Indicator	Recommended Reporting *Count, Rate per 100,000 Population, Rate per 10,000 ED Visits, Charges (if available)*	SEDD Variables for Classifying CPP and All Oral Conditions ICD-9 (ICD-10)
6. ED visit for CPP based on *first listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX1 (I10_DX1) Include only the 1st DX
7. ED visit for CPP based on *any listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) Include all listed DXs
8. ED visit for CPP based on *first listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reason1 (I10_Visit_Reason1) Include only the 1st reason
9. ED visit for CPP based on *any listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed reasons
10. ED visit for CPP based on *any listed diagnosis and/or any listed reason for visit (most inclusive)*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed DXs and all listed reasons
11. ED visit for any oral/dental condition based on *first listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX1 (I10_DX1) Include only the 1st DX
12. ED visit for any oral/dental condition based on *any listed diagnosis*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) Include all listed DXs
13. ED visit for any oral/dental condition based on *first listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reason1 (I10_Visit_Reason1) Include only the 1st reason
14. ED visit for any oral/dental condition based on *any listed reason for visit*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed reasons
15. ED visit for any oral/dental condition based on *any listed diagnosis and/or any listed reason for visit (most inclusive)*	Overall, where possible stratified by age (< 1, 1-17, 18-44, 45-64, 65-84, 85+), primary payer (Medicare, Medicaid, private insurance, uninsured, other) and if available race/ethnicity	DXn (I10_DXn) DX_Visit_Reasonn (I10_Visit_Reasonn) Include all listed DXs and all listed reasons

Stratification Variables	Recommended Reporting *Count, Rate per 100,000 Population, Rate per 10,000 ED Visits, Charges (if available)*	SEDD Variables
Recommended Stratification Variables (shown above)	Age, Primary Payer, Race/Ethnicity (if available)	AGE or AGEGROUP, PAY1, RACE
Optional Stratification Variables for Additional Analyses	Sex, Marital Status, Geographic Location (zip code), Homelessness, Weekend Admission, Income (community level),	FEMALE, MARITALSTATUSUB04, ZIP, Homeless, AWEEKEND, ZIPINC_QRTL

Other	Recommended Reporting *Count, Rate per 100,000 Population, Rate per 10,000 ED Visits, Charges (if available)*	SEDD Variables
Additional SEDD Analyses to Consider	Patient Revisits for Same Condition (if states have variables) Trend Analyses	VisitLink and DaysToEvent (outcomes over multiple years using year datasets for range of interest)

SEDD data element for charges (if available): TOTCHG

US Census Bureau State Population Estimates for Years for calculating prevalence per 100,000 population:
Census Bureau population estimates
Note: ZIP variable for subject zip code can be used to link to other data, e.g. urban/rural status (RUCA), DHPSA data, census data, etc.

APPENDIX 6: COMMUNICATION PLAN: GOAL-SPECIFIC
Emergency Department Oral Care Surveillance Project

Problem Statement	As part of building a comprehensive national oral health measurement system, data are needed to monitor dental care, and more specifically non-traumatic (preventable) dental care (NTDC), provided in emergency departments (EDs). Past methods of collecting data and conducting research have used different data sources to assess different target populations with varying research methods, outcomes of interest, predictive factors, and different definitions (different sets of codes) of dental care and NTDC.
Goal	To develop, disseminate, and promote use of standardized research, surveillance, and reporting protocols for ED dental care, with a focus on state level data and surveillance. Standardized methods will enable comparisons and trend tracking among states
Target Audience(s)	1) State oral health programs; 2) state Medicaid agencies; 3) federal agencies and organizations addressing dental, medical, hospital and health care access issues; 4) third party payers; and others interested in surveillance efforts to establish levels of non-traumatic dental care being provided in emergency departments.
Objectives	1) Develop an ICD-9/ICD-10 crosswalk file for dental code translation. 2) Develop uniform definitions for dental care and NTDC provided in EDs, including codes sets for both ICD-9 and ICD-10 coding systems. 3) Develop recommended primary surveillance outcome measures for ED dental care, and the methods for generating these outcome measures from common data sources. 4) Develop recommended protocol for predictive/control factors to use in assessment of ED dental care outcomes.
Key Messages	1) Consistency in research protocol is important for nation-wide surveillance of ED dental care. 2) Consistency in research protocol will enable between-state comparisons and over-time trend analysis of ED dental care 3) Use of recommended protocols will contribute to efforts for standardized surveillance data repositories of state level oral health data.
Planned Channels and Materials	Post report and summary guideline documents to website; announce to ASTDD members/SOHPs and national partners via weekly digest with website link; presentations at NOHC and other meetings.
Plan for Pre-testing Messages and Materials	Materials are reviewed by a project workgroup of subject experts, as well as ASTDD staff and consultants.
Planned Activities and Timelines	Workgroup conference calls and an in-person meeting. Planning conference calls to be held in June/July 2016. The in-person meeting to be held in Washington D.C. in November, 2016. Protocol materials to be circulated among workgroup members by May, 2017. Final protocol documents to be completed by June, 2017.

Evaluation Design, Methods and Measures	# of ASTDD website hits; annual member and partner surveys and any targeted queries regarding use and changes in procedures and outcomes. If resources are available, a formal assessment and evaluation of use of the guideline methods and the impact of their use might be conducted in the future.
Responsible Parties and Partnerships	Michael Manz is the lead on the project. The project workgroup provides input and feedback in materials development. ASTDD staff and consultants provide input and editing for final documents.
Budget/Resources Needed	Consultant time, support materials, travel for in-person workgroup meeting. Funded by grant from DQF.
Protocol for Review and Approval	ASTDD staff and consultants will review for final development. ASTDD BOD provides final approval. DentaQuest will review and provide feedback as appropriate.
Progress Notes: circulating materials to receive and incorporate feedback from expert workgroup.	