Session 31PD, NADP’s Work on Dental Diagnosis Terminology and Why Health Actuaries Should Care

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2018 SOA Health Meeting

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SESSION 31PD: NADP’S WORK ON DENTAL DIAGNOSIS TERMINOLOGY AND WHY HEALTH ACTUARIES SHOULD CARE

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AGENDA

Dental Diagnosis Terminology

• What is it?
• Who “owns” it?
• How should it work?
• Why is it not working?
BENEFITS PATIENTS, DENTISTS AND OTHER HEALTHCARE PROVIDERS

ORAL HEALTH ASSESSMENT AND TREATMENT

EVIDENCE-BASED ORAL HEALTHCARE

RESEARCH (ORAL HEALTH KNOWLEDGE)

BENEFITS PUBLIC ORAL HEALTH

ORAL HEALTH MONITORING
What is Dental Diagnostic Terminology?

ICD-10
SNOMED CT
SNODENT
SNO-DDS
ICD, SNODENT & SNODDS

**ICD** — The International Classification of Diseases is a system used by physicians and other healthcare providers to classify and code all diagnoses, symptoms and procedures recorded in the US.

**SNODENT** — is the Systemized Nomenclature of Dentistry, a subset of SNOMED CT, owned by the American Dental Association (ADA) but managed under license by SNOMED International.

**SNODDS** — is the Systemized Nomenclature of Dentistry Dental Diagnostic System

**SNODDS\textsubscript{GD}** — further subset for use by General Dentists
NOW, it gets confusing

- ADA Claim Form – **ICD** terminology
- 837D Electronic Claim – **ICD** (until SNODENT approved)
- Practice Management Software (PMS) – **depends**
- Electronic Health Records – **SNOMED**
- Electronic Dental Records - **SNODENT**
Are they DIFFERENT?

ICD-10-CM term for dental caries
K02

SNODENT term for dental caries
1108065D
NONE of this really matters?

• “Maps” provide crosswalks between terminology sets
• Data collected for one purpose can be used for another; i.e. claims, EHR, research
• SNODENT is cross walked to ICD-10-CM
• SNODENT is cross walked to dental procedure codes (CDT)
How does this work?

REQUIRES INTEGRATED EHR AND PRACTICE MANAGEMENT SYSTEMS

1. Patient visits Dentist
2. Dentist performs procedures (CDT)
3. Dentist enters diagnosis into EHR based on CDT
4. EHR capture diagnosis
5. EHR may suggest “pick list”
6. Claim adjudication “crosswalks” to EHR
7. EHR “crosswalks” to file claim
8. REQUIRES INTEGRATED EHR AND PRACTICE MANAGEMENT SYSTEMS
Receiving Diagnostic Codes on Claims

2013 2014 2015 2016 2017

28% 33% 35% 44% 50%

PAPER ELECTRONIC

NADP/LIMRA U.S. Group Dental Claims Processing Metrics 2012-2017
Distribution of Diagnostic Codes

- **2012**
  - Oral & Maxillofacial Surgery (OMS)
  - Periodontics
  - Diagnostics

- **2013**
  - Diagnostic
  - Orthodontics
  - OMS
  - Periodontics

- **2014**
  - Diagnostics
  - OMS
  - Prosthodontics
  - Restorative / Preventive

- **2015**
  - Prosthodontics
  - OMS
  - Periodontics
  - Diagnostics

- **2016**
  - OMS
  - Periodontics
  - Diagnostics

NADP/LIMRA U.S. Group Dental Claims Processing Metrics 2012-2017
Why isn’t this working?

• No pressing need for diagnosis today
  ▪ Not needed for claims
  ▪ No database to begin research

• Lack of integration of EHR and PMS systems

• Substantial education for providers & payers

• Begin teaching use of diagnostic terminology early

• One tipping point needed
What can we do with diagnosis codes?
Session Goals

To understand:

• Current state of dental diagnosis coding

• How diagnosis codes can help actuaries do their jobs

• Future potential uses of dental diagnosis codes
“The single, largest current limitation in dental clinical data is the lack of consistent, standardized, and widespread reporting of dental diagnoses.”

Dr. Jill Boylston Herndon, PhD
Department of Health Outcomes and Policy,
University of Florida
What can we do with dental diagnosis codes?

Procedure codes + diagnosis codes provide comprehensive picture of claim

• **Services** performed on patient
• **Why** were the services performed
• **Symptoms/conditions** associated with the services
• Can support **medical necessity**
• Endless potential for new actuarial analyses
What can we do with dental diagnosis codes?

Let’s pretend we have a dataset of dental claims with both procedure and diagnosis codes – look at dental caries prevalence

• Four categories of caries risk: Low, Moderate, High, Extreme
• What’s the distribution of patients by risk level? How does the distribution vary by geography? By patient age? By industry? By dentist?
• How do dentist practice patterns vary for these patients?
  • More fluoride/sealants for higher risk patients? How does extraction utilization compare among risk categories?
• Risk based benefits – having this data will help us assess the cost of those plan designs
• Risk adjustment for providers serving populations of different risk levels
What can we do with dental diagnosis codes?

**Made-up Caries Risk by State**

- State A
- State B
- State C

**Made-up Caries Risk by Dentist**

- Dr. Brown
- Dr. Fontana
- Dr. Smith

Legend:
- Low
- Moderate
- High
- Extreme
What can we do with dental diagnosis codes?

Let’s pretend we have a dataset of dental claims with both procedure and diagnosis codes – look at claimants with a particular dental diagnosis (e.g., periodontitis, abscess)

• Look at what procedures were performed on them over a period of time
• Do practice patterns differ? By what variables? (geography, patient age, comorbidities)
• Do outcomes differ? (e.g. movement to less severe or more severe diagnosis over time)
• Can we draw conclusions about best practices?
• Does proportion of population with this diagnosis differ across geography, age, etc.? What are the implications on benefit design, plan pricing, etc.?
What can we do with dental diagnosis codes?

Made-up Abscess Treatment by State

<table>
<thead>
<tr>
<th>State</th>
<th>Drain</th>
<th>Root Canal</th>
<th>Pull Tooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>B</td>
<td>80%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>C</td>
<td>40%</td>
<td>30%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Made-up Abscess Treatment by Dentist

<table>
<thead>
<tr>
<th>Dentist</th>
<th>Drain</th>
<th>Root Canal</th>
<th>Pull Tooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td>50%</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Fontana</td>
<td>20%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Smith</td>
<td>60%</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>
What can we do with dental diagnosis codes?

Let’s pretend we have a dataset of dental claims with both procedure and diagnosis codes – look at claimants with a particular **medical diagnosis** (e.g., diabetes)

- Look at what **procedures** were performed on them over a period of time
- Do **practice patterns** differ? By what variables? (geography, patient age, comorbidities)
- Do **outcomes** differ? (e.g. movement to less severe or more severe diagnosis over time)
- Can we draw conclusions about **best practices**?
- Does **proportion of population with this diagnosis** differ across geography, age, etc.? What are the implications on benefit design, plan pricing, etc.?
- Can we **connect dental data to medical data** to assess effect of dental treatments on disease progression/management?
What can we do with dental diagnosis codes?

**Totally Made-Up** Proportion of Diabetes Patients with Unresolved Diabetes, by Number/Type of Dental Cleanings

<table>
<thead>
<tr>
<th>Year</th>
<th>1 Cleaning</th>
<th>2 Cleanings</th>
<th>2 Deep Cleanings</th>
<th>4 Deep Cleanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Year 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Diagnosis coding in Medicaid

<table>
<thead>
<tr>
<th>STATE MEDICAID</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>Diagnosis code(s) required when the patient’s underlying medical condition is the reason for the services provided on the claim.</td>
</tr>
<tr>
<td>Iowa</td>
<td>V22.2 (Pregnancy) and V49.89 (Disabled) must be reported whenever a patient has either of these conditions, regardless of services provided. Note that Iowa is still accepting the 2006 claim form and there is no cutoff date planned at this time.</td>
</tr>
<tr>
<td>Maine</td>
<td>Diagnosis code required on dental claims for procedure code D4341 for all patients whose diagnosis is ICD-9 code 101 (Acute Necrotizing Ulcerative Gingivitis) or ICD-10 code A69.0 (necrotizing ulcerative stomatitis) or A69.1 (other Vincent’s infections). For patients with no ICD-9 code 101 or ICD-10 codes A69.0 or A69.1 diagnosis, claims for this procedure code require Prior Authorization.</td>
</tr>
<tr>
<td>Michigan</td>
<td>Diagnosis codes are required for all oral and maxillofacial surgery and/or anesthesiology services</td>
</tr>
<tr>
<td>Nevada</td>
<td>New 2012 ADA form with valid diagnosis codes, diagnosis pointers and place of treatment.</td>
</tr>
</tbody>
</table>

Source: *ICD-9 Codes in State Medicaid Dental Claims Submission, American Dental Association, September 2015.*

States that will reject dental claims without ICD-10 diagnostic codes *(source eAssist Dental Billing.com)*:
Alaska, Arizona, California, Illinois, Louisiana, Michigan, Minnesota, Nevada, Oklahoma, Pennsylvania, South Carolina, Texas, Washington
What can we do with dental diagnosis codes?

• Some state Medicaid programs require ICD diagnosis codes on dental claim forms
• “capture clinical data to support public health activities, development of evidence-based benefit plans and to support efforts for increased funding”\(^1\)
• “facilitate payment for services related to the oral-systemic connection and coverage for additional dental services for certain medical conditions”\(^2\)
• 2015: Only Nevada required ICD codes on every Medicaid dental claim

\(^1\) 2: ICD Codes in State Medicaid Dental Claims Submission. Dental Informatics Center for Informatics and Standards Practice Institute. American Dental Association, September 2015.
What can we do with dental diagnosis codes?

• We analyzed internal Medicaid dental data with attached diagnosis codes

• Top 5 utilized diagnosis codes, by Medicaid aid class
  • Temporary Assistance for Needy Families (TANF)
  • CHIP
  • Aged/Blind/Disabled (ABD)
  • Expansion

• Diagnoses associated with particular procedures, by Medicaid aid class
  • Oral evaluations
  • Prophylaxis (cleanings)
  • Extractions
  • Fillings
  • Emergency
What can we do with dental diagnosis codes?

• Interesting findings:
  • the proportion of dental exams yielding abnormal findings was higher for the ABD and Expansion populations than for TANF or CHIP
  • The proportion of exams yielding caries diagnosis was highest for the Expansion population
  • Reasons for extractions: impacted teeth or tooth eruption disturbances were most common in the CHIP population, cavities were most common in the Expansion and ABD populations
  • The ABD population is more likely to have dental problems requiring emergency care

• New ways to slice dental claims data to better understand the underlying population

• Information could be used to:
  • tailor Medicaid dental benefits or treatment protocols by aid category
  • Optimize funding for dental coverage
  • Monitor practice patterns or even incorporate risk adjusted provider payments
Internal uses of diagnosis coding

- Risk adjustment mechanisms
- Proper clinical protocols
- Develop best practices
- Track health and disease conditions
- Designing payment systems and processing claims for reimbursement
- Insurers use information to determine medical necessity and whether service should be covered
- Measure quality and efficacy of care
- Preventing and detecting healthcare fraud
External uses of diagnosis coding

• Data used to assess and track health trends and epidemics

• Conducting research, studies, and clinical trials

• Setting health policy

• Monitoring resource utilization

• Disease management programs

• Directs outreach

• Standard documentation and nomenclature across medical community
Moving forward

• Diagnosis codes promote progress in oral health
• We should embrace more data as actuaries
• Takes time to become fully explored and implemented
  • Education
  • Enhanced information systems
  • Changes to claims payment systems
• Areas of improvement:
  • Dental benefits
  • Claims payment and provider reimbursement
  • Clinical practices and quality of care
  • Outcomes and performances measurement

Source: Fontana, J. Dental Diagnosis Coding: The State of the Art
Caveats and limitations

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