Analysis of Non-Traumatic Dental Condition Encounters in Texas

NAMRATA SINGHAL
A.T. STILL UNIVERSITY
FACULTY ADVISOR: DR. JAANA GOLD

PRACTICUM SITE: TEXAS ORAL HEALTH COALITION
PRACTICUM PRECEPTOR: BETH STEWART
Presentation Structure

- Problem Statement
- Literature Review
- Project Goals and Objectives
- Data Collection
- Results
- Summary
Problem Statement

- Emergency departments (EDs) are an important resource for accessing health care when faced with an acute situation requiring urgent attention.

- Non-traumatic dental conditions (NTDCs) can be considered inappropriate usage of EDs (ASTDD, 2015).

- The burden of NTDCs on EDs can be quite expensive and may also cause abuse of pain medication (ASTDD, 2015).

- It is important that this problem is addressed by first understanding the charge associated with a typical ED visit for NTDCs, such that appropriate interventions be designed to divert NTDC visits from EDs to dental clinics.
Literature Review

- In the entire United States, more than 4 million ED visits included a dental diagnosis (Allareddy, Rampa, Lee, Allareddy, & Nalliah, 2014).

- The majority of NTDC ED visits were classified as non-urgent, signifying that they could be diverted to a dental office. If they were diverted, they could potentially lead to a savings of $1.8 billion (Wall, Nasseh, & Vujicic, 2014).

- It has also been found that the share of NTDCs among all ED visits has increased from 2% in 2006 to 2.5% in 2012. The proportion of NTDC ED visits paid using Medicaid has also increased in this time frame (Wall & Vujicic, 2015).

- By the year 2007, nearly 60% of the discharge prescriptions for NTDCs had at least one opioid prescription drug (Okunseri, Okunseri, Xiang, Thorpe, & Szabo, 2014).
### Goals and Objectives

**Goal**: To reduce the burden of NTDC visits in Texas.

- The objectives are stated in the table below.

<table>
<thead>
<tr>
<th>Objective 1</th>
<th>Objective 2</th>
<th>Objective 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform a charge analysis for visits for NTDCs as identified by specific ICD codes in ED’s and UCC’s in Texas.</td>
<td>Perform an analysis for prevalence of opioid medication prescription for NTDC visits in ED’s and UCC’s in Texas.</td>
<td>Understand any demographic factors that increase the risk of NTDC visits in in ED’s and UCC’s in Texas.</td>
</tr>
</tbody>
</table>
## Summary of Data Collected

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Location of Facility</th>
<th>Number of Elements</th>
<th>Years</th>
<th>Diagnoses</th>
<th>Type</th>
<th>Charge Amount</th>
<th>Prescription Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICC - Hospital A</td>
<td>Central Texas</td>
<td>16747</td>
<td>2011-2016</td>
<td>DX 1 NTDC</td>
<td>Individual</td>
<td>Not given</td>
<td>Not given</td>
</tr>
<tr>
<td>ICC – Hospital B</td>
<td>Central Texas</td>
<td>15545</td>
<td>2011-2016</td>
<td>DX 1 NTDC</td>
<td>Individual</td>
<td>Not given</td>
<td>Not given</td>
</tr>
<tr>
<td>ICC – Hospital C</td>
<td>Central Texas</td>
<td>665</td>
<td>2011-2016</td>
<td>DX 1 NTDC</td>
<td>Individual</td>
<td>Not given</td>
<td>Not given</td>
</tr>
<tr>
<td>JPS ED</td>
<td>North Texas</td>
<td>8210</td>
<td>2013-2015</td>
<td>Any NTDC</td>
<td>Individual</td>
<td>Given</td>
<td>Not given</td>
</tr>
<tr>
<td>JPS UCC</td>
<td>North Texas</td>
<td>8297</td>
<td>2013-2015</td>
<td>Any NTDC</td>
<td>Individual</td>
<td>Given</td>
<td>Not given</td>
</tr>
<tr>
<td>MH ED</td>
<td>East Texas</td>
<td>18992</td>
<td>2011-2015</td>
<td>Any NTDC</td>
<td>Individual</td>
<td>Given</td>
<td>Not given</td>
</tr>
<tr>
<td>CC ED</td>
<td>North Texas</td>
<td>989</td>
<td>2011-2015</td>
<td>Any NTDC</td>
<td>Summary</td>
<td>Given</td>
<td>Not given</td>
</tr>
<tr>
<td>CC UCC</td>
<td>North Texas</td>
<td>407</td>
<td>2014-2015</td>
<td>Any NTDC</td>
<td>Summary</td>
<td>Given</td>
<td>Not given</td>
</tr>
</tbody>
</table>

### Note:
- ED and UCC stand for Emergency Department and Urgent Care Center, respectively. DX 1 NTDC implies that the primary diagnosis is NTDC. Any NTDC implies that any of the top four diagnoses could be NTDC. In Type, individual implies that data for each individual encounter has been provided in a non-identifiable format. Summary implies that a summary of the data has been provided rather than individual elements.
Diagnosis Codes for Identifying NTDCs

A list of ICD-9 codes were identified on the basis of literature and internal discussions:

- Unspecified disorder of the teeth and supporting structures: 525.9
- Periapical abscess without sinus: 522.5
- Periapical abscess with sinus: 522.7
- Dental caries, unspecified: 521.00
- Other dental caries: 521.09
- Acute apical periodontitis of pupal origin: 522.4
- Pulpitis: 522.0
- Cellulitis, unspecified: 682.9
Annual Frequency of NTDC Visits

MH did not provide an annual count, so an equal distribution was assumed.
Mean Charge Analysis for NTDCs

The figures plot the mean charge of an NTDC encounter for the facilities that provided charge amounts. In general, the mean charge in UCCs can be less than 33% of the mean charge in EDs.
Median Charge Analysis for NTDCs

The median charges are significantly lower than the mean charges, implying that there are some high charge data elements.
The age distribution reveals that adults between the ages of 25-40 have the highest probability of an NTDC encounter.
In this distribution, government insurance is assumed to be Medicaid, Medicare and CHIP. Government and self-pay patients form the largest proportions. For CC, government insurance was the major payor type.
The analysis reveals that most people utilizing government benefits are either children or seniors. This could be due to lack of government insurance for dental conditions for adults between 18 and 65 years of age.
The time of day analysis, shown on the left, shows that the probability of a NTDC encounter between 8AM-8PM is twice that of an encounter between 8PM-8AM. This indicates that there is some merit in diverting NTDC encounters to dental offices.
Caries and disorder of teeth are the most common diagnoses.

Cellulitis, abscess, pulpitis and periodontitis are the common reasons for NTDCs in children.
Opioid Use

- Data obtained from 2013 National Hospital Ambulatory Care Statistics (NHACS) survey on CDC website.

- The survey captures geographical region rather than individual state.

- Texas falls in the “South”, so the entire data set is analyzed for ”South”.

- The sample survey captured 195 data points for NTDCs in the South.

- Of these, 127 or 65\% were either discharged with at least one opioid/narcotic prescription, or were given the drug in the ED.
**Summary of Analysis of NTDC visits in Texas**

- **Number of NTDC Encounters in EDs and UCCs** is steadily decreasing over time.

- **But, the average charge of a NTDC visit** has increased by more than 60% between 2013 and 2015!

- **Young people between the ages of 25-40** make up nearly 50% of all ED encounters.

- **The average charge in a UCC** is less than 50% of the same in a ED.

- **More than 60% of NTDC ED encounters** start between 8AM – 8PM, suggesting that dentist offices can help!

- **Opioids are prescribed in nearly 65% of all ED discharge prescriptions** for NTDCs!
References


Acknowledgements

- Beth Stewart, Texas Oral Health Coalition, Midland, TX
- Stephanie Dozier, Integrated Care Collaboration, Austin, TX
- Lily Beekman and Terri Ford, Cook Children’s Health Care System, Fort Worth, TX
- Diana Prachyl, JPS Network, Fort Worth, TX
- Deborah Ganelin, Memorial Hermann Hospitals, Houston, TX
- Dr. Jaana Gold and Dr. Gregory Loeben, A. T. Still University, Kirksville, MO
Thank You!

Questions?