2017 National Medicaid & CHIP Oral Health Symposium

Non-Ventilator Pneumonia and Oral Health

Natalia I. Chalmers, DDS, PhD
Oral Health and Overall Health

Atherogenesis
Acute phase response proteins may promote oxidized LDL accumulation and arterial plaque formation.

- MI and stroke
  Increased atheroma may decrease plaque stability, increasing risk for myocardial infarction and stroke.

- Pregnancy complications
  Increased systemic inflammation may increase risk of pregnancy complications.

Acute Phase Proteins
Liver releases acute phase response proteins in response to bacteria and toxins.

Hepatic response
Microbial and inflammatory challenges trigger hepatic response.

Bacteria and toxins disseminate into bloodstream.

Biofilm

(Source: Philips™)
Non-Ventilator Pneumonia and Oral Health

Dian Baker, PhD, RN
Barbara Quinn, MS,CNS,RN
Krishna Aravamudhan, BDS, MS
Diptee Ojha, BDS, PhD
Natalia I. Chalmers DDS, PhD
May Grossman, age 57, is admitted for elective surgery to reverse a colostomy from a previous surgical procedure. Her health has been good except for occasional diverticulitis bouts. She takes care of her three grandchildren several times a week.

Mrs. Grossman tolerates the surgery well until postop day 2, when she complains of shortness of breath. You measure her temperature at 101.4°F (38.5°C). A workup reveals an elevated white blood cell (WBC) count; a chest X-ray shows a left lower lobe infiltrate.

The physician initiates antibiotics and respiratory treatments, but Mrs. Grossman continues to deteriorate. She is transferred to the intensive care unit with a diagnosis of hospital-acquired pneumonia (HAP).

Incidence of NV-HAP

- Sutter Medical Center:
  - 24,482 patients; 94,247 patient days
  - 1.25/1000 pts days and 0.49/100 pts
  - 115 NV-HAP

- Total estimated annual impact:
  - $4.6 million
  - 23 deaths
  - 1,035 days

Quinn et al., J. Nurs Scholarsh, 2014
Oral Health Care and NV-HAP

Control chart for non-ventilator HAP
January 2010 to December 2014

Number of non-ventilator HAP cases

- Oral care for all adult pts
- Documentation
- NGT standards revised
- Pharmacy starts PPI protocol
- Started oral care prior to surgery
- Mandatory Education for Nurse Assistants

Quinn et al., J. Nurs Scholarsh, 2014
Return on Investment

- Between May 2012 and December 2014, 164 cases of NV-HAP were avoided
  - $5.9 million saved
  - 31 lives saved
  - 656 - 1,476 extra days in the hospital avoided

Quinn et al., J Nurs Scholarsh, 2014
Incidence of NV-HAP and Medicaid

- Non-Ventilator Hospital Acquired Pneumonia: 355.6 cases per 100,000 Medicaid enrollees, 3.67% incidence
- Primary Pneumonia: 244.1 cases per 100,000 Medicaid enrollees, 2.52% incidence
- Ventilator Acquired Pneumonia: 3.1 cases per 100,000 Medicaid enrollees, 0.03% incidence
Mortality of NV-HAP and Medicaid

Rate Per 100,000 of Medicaid Enrollees

- Non-Ventilator Hospital Acquired Pneumonia: 23.7
- Primary Pneumonia: 2.44%
- Ventilator Acquired Pneumonia: 12.83%

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Total Cost

- NV-HAP: $1,530,000,000
- Primary Pneumonia: $381,000,000
- Ventilator Acquired Pneumonia: $49,300,000
Financial Impact

- NV-HAP: $38,610 (10.93% of Total Cost)
- Primary Pneumonia: $14,029 (2.72% of Total Cost)
- Ventilator Acquired Pneumonia: $143,845 (0.35% of Total Cost)

Average Cost vs. % of Total Cost Graph
Incidence Rate and Proportion of Deaths and Costs Due to NV-HAP

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence</th>
<th>% of Hospital Deaths</th>
<th>% of Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3.7%</td>
<td>16.5%</td>
<td>10.9%</td>
</tr>
<tr>
<td>2014</td>
<td>3.5%</td>
<td>16.9%</td>
<td>10.1%</td>
</tr>
<tr>
<td>2015</td>
<td>3.3%</td>
<td>16.1%</td>
<td>10.0%</td>
</tr>
</tbody>
</table>
Gender and Age Distribution of Medicaid Inpatient Stays in 2015

<table>
<thead>
<tr>
<th>Sex</th>
<th>All Other Inpatient Stays</th>
<th>NV-HAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>70%</td>
<td>54%</td>
</tr>
<tr>
<td>Male</td>
<td>30%</td>
<td>46%</td>
</tr>
<tr>
<td>18-44</td>
<td>22%</td>
<td>51%</td>
</tr>
<tr>
<td>45-64</td>
<td>32%</td>
<td>49%</td>
</tr>
<tr>
<td>65-84</td>
<td>12%</td>
<td>23%</td>
</tr>
<tr>
<td>85+</td>
<td>3%</td>
<td>6%</td>
</tr>
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Incidence Rate and Proportion of Sepsis Deaths and Costs Associated with NV-HAP

- Incidence of Sepsis
- Incidence of NV-HAP among Sepsis Patients
- % of Sepsis Deaths with NV-HAP
- % of Costs for Sepsis with NV-HAP

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence of Sepsis</th>
<th>Incidence of NV-HAP among Sepsis Patients</th>
<th>% of Sepsis Deaths with NV-HAP</th>
<th>% of Costs for Sepsis with NV-HAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3.0%</td>
<td>17.2%</td>
<td>28.8%</td>
<td>3.0%</td>
</tr>
<tr>
<td>2014</td>
<td>3.2%</td>
<td>14.9%</td>
<td>24.5%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2015</td>
<td>2.4%</td>
<td>13.6%</td>
<td>26.1%</td>
<td>23.5%</td>
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NV-HAP #1 hospital-acquired infection, costing patient lives and dollars

NV-HAP can be prevented, reducing harm to patients

Monitoring and prevention programs for NV-HAP must rise to the same level of attention as other hospital-acquired infections
Contact Information

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2017 National Medicaid & CHIP Oral Health Symposium

Adult Dental Care and ED visits in Missouri

John Dane, DDS, FAAHD, DABSCD
Dental Director
Missouri Department of Social Services, MO HealthNet Division
Missouri Department of Health and Senior Services

Washington, D.C.
June 5 - 6, 2017
Meet Your Presenter

Dr. John Dane, DDS, FAAHD, DABSCD.

- Graduated UMKC School of Dentistry, 1975
- General Dentistry Residency Eastman Dental Center, 1975-77
- Associate Professor, UMKC School of Dentistry, 25 years
- Dental Director, Truman Medical Center Lakewood, 38 years
- Director, GPR Program TMC Lakewood, 33 years
- Missouri State Dental Director, January 2016 to present
Learning Objective(s)

- Participants will gain knowledge in:
  - History of Adult Dental Services in Missouri
  - The process of Medicaid approval and program implementation
  - Efforts to reduce non-emergent dental visits to ER visits
  - Tracking effects of Adult Dental Services and other activities
Disclosure & Conflict of Interest Declaration

I declare that neither I nor any member of my family have a financial arrangement or affiliation with any corporate organization offering financial support or grant monies for this continuing dental education program, nor do I have a financial interest in any commercial product(s) or service(s) I will discuss in the presentation.
History of Adult Dental Services in Missouri

- **Loss of Adult Dental Services**
- **2005**: Missouri Coalition for Oral Health (MCOH) set Adult Dental services as one of its priorities.
- **2013**: DHSS developed a report of ER usage for non-traumatic dental conditions.
- **2014**: MCOH used ER report to gain support for reinstatement of Adult Dental benefits.
- **2015**:
Evidence-based Approach

- 56,034 Non-emergent dental complaints in Missouri in 2012*
  - National averages for ER visits $300
  - $16.6 million as estimated total cost in Missouri
- “Basic dental services” proposed to be about $17 million estimated on MHD utilization reports for this set of services.
- SFY 2014 Budget - included Adult Dental Services but were not implemented due to low state revenues
- SFY 2015 Budget - Adult dental after, funding allocated later when revenue was available

*2012 MICA Data
Medicaid Adult Dental Timeline

- January 2016 announced Adult Dental Services submitted for State Plan Amendment to CMS.
  - Some providers start limited services
- On May 4, 2016, CMS approved the Adult Dental SPA
- Services include diagnostic, preventive, restorative, scaling and root planning, routine oral surgery and sedation.
Services Provided since Jan 2016

- 364,916 claims
- $28,898,274
- 86% of claims paid to FQHC
Non-emergent Dental Visits

Dental ED Visits Per 100,000 Participants

MHD Claims Data 2016
Results

- Statewide ER visit claims for non-emergent Dental visits are declining
- Some efforts other than Medicaid Adult Dental Services may have impact.
  - Springfield – Kansas City ER Voucher program
  - Home State Health – ED user education program
Questions?

John.Dane@health.mo.gov

(573) 526-8584 DSS

(573) 526-3838 DHSS