

# **ORAL HEALTHCARE:**

**IT'S IMPACT ON SYSTEMIC  
OUTCOMES IN THE ELDERLY**

**&**

**CURRENT TRENDS IN PREVENTIVE  
DENTISTRY FOR GERIATRIC  
PATIENTS**

Presented by:

**W. Michael Mansfield, DMD  
U of L School of Dentistry**

**Michael J. Metz, DMD, MSD, MS, MBA  
U of L School of Dentistry**

# OBJECTIVES

- 1) Understand provisions of CMS LTC regulation #483.55 for dental services.
- 2) Describe current protocols for dental care from a survey of local LTC facilities.
- 3) Explain the link between poor oral health, pneumonia and other systemic conditions.
- 4) Review cost-effective and innovative protocols which can be efficiently implemented to positively affect patient oral Health in LTC facilities.

**REMARKS AT THE RELEASE OF  
ORAL HEALTH IN AMERICA:  
REPORT OF THE SURGEON GENERAL**

**DAVID SATCHER, M.D., PH.D.,**

**ASST. SEC. FOR HEALTH & SURGEON GENERAL  
MAY, 2000**

- **....we still see a “silent epidemic” of dental and oral diseases around the country.”**
- **Nearly one in four Americans between the ages of 65 and 74 have severe periodontal disease;**

Remarks at the Release of Oral Health in America:David Satcher, M.D., Ph.D.,Asst. Secretary for Health & Surgeon General May, 2000

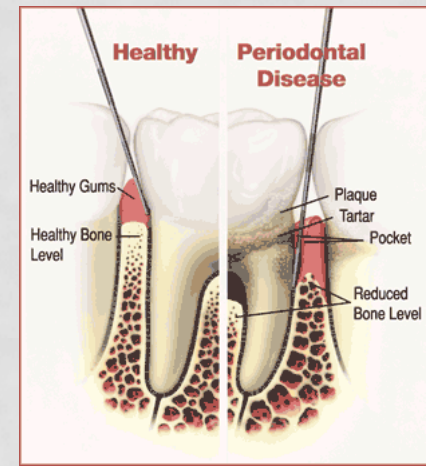
# PERIODONTAL DISEASE





# PERIODONTAL DISEASE: A QUICK OVERVIEW

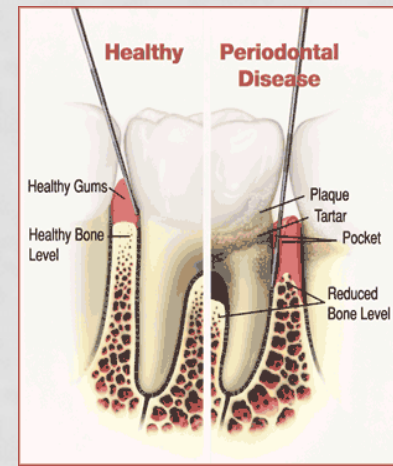
- The AAP estimates that 3 out of 4 Americans are affected by periodontal disease, ranging from mild gingivitis to more severe periodontitis.
- Gingivitis is the mildest form of periodontal disease.
  - It causes gums to turn red, become swollen, and bleed easily.
- Fortunately, it is easily reversible with good oral home care.
- If left untreated, gingivitis may advance to periodontitis.





# PERIODONTAL DISEASE, CONT.

- Periodontitis is the more advanced form of gum disease.
  - The tissues and bone that support the teeth are broken down and destroyed, resulting in loosened teeth that may need to be removed.
  - Periodontal disease is a significant contributor to the total inflammatory burden on your body and can adversely affect your systemic health.
  - There is an increased risk for other body problems.
  - There are many treatment options available, including non-surgical and surgical therapies.



# THE KEY POINTS OF THIS REPORT ARE:

- Oral health means much more than healthy teeth
- Oral health is integral to general health
- Safe and effective disease prevention measures exist that everyone can adopt to improve oral health and prevent disease
  - there are profound disparities in the oral health of Americans
- General health risk factors such as
  - tobacco use and poor dietary practices effect oral and craniofacial health.



# KY ORAL HEALTH SURVEY

Ky Statewide Elders 40.3% Edentulous

Kentucky Elder Oral Health Survey 2005-Executive Summary  
Final Report. Robert Henry, D.M.Ed., MPH , Project Director,  
Office of Oral Health, Commonwealth of Kentucky & Dept. of  
Veterans Affairs.

# COMPLETE DENTURE PATIENTS

In US, 20.5% of Adults aged 65 and older  
Have lost all of their natural teeth!

Centers for Disease Control and Prevention. Oral Health Resources;  
complete tooth loss.

<http://apps.nccd.cdc.gov/nohss/ListV.asp?qkey=8&DataSet=2>

# MAXILLARY COMPLETE DENTURE FROM A NURSING HOME PATIENT



# MANDIBULAR COMPLETE DENTURE FROM A NURSING HOME PATIENT



**WHAT IS THE  
ASSOCIATION  
BETWEEN ORAL  
HEALTH AND SYSTEMIC  
DISEASE?**

# Without Good Periodontal Health, You Can't Have Good General Health.

Periodontal disease (gum disease) can affect your general health and it can be affected by your general health. Here are a few examples:

## RESPIRATORY INFECTIONS<sup>2,5</sup>

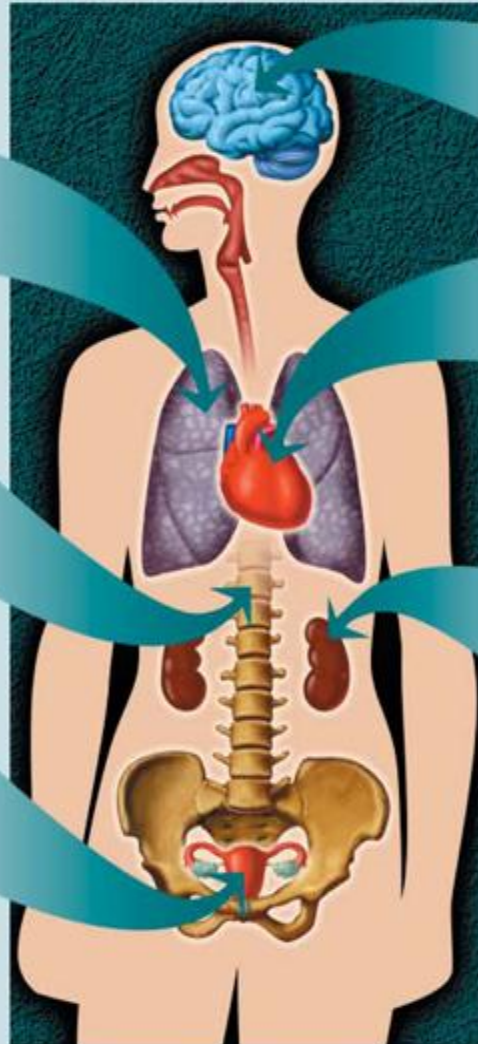
- Inhaling bacteria from the mouth and throat can lead to pneumonia
- Dental plaque buildup creates a dangerous source of bacteria that can be inhaled into the lungs

## SEVERE OSTEOPENIA<sup>11</sup>

- Reduction in bone mass (osteopenia) is associated with gum disease and related tooth loss
- Severity has been connected to tooth loss in postmenopausal women

## PRETERM OR LOW BIRTHWEIGHT BABIES<sup>17,18</sup>

- Women with advanced gum disease may be more likely to give birth to an underweight or preterm baby<sup>17</sup>
- Oral microbes can cross the placental barrier, exposing the fetus to infection.<sup>17</sup>



## STROKE<sup>7</sup>

- Those with adult periodontitis may have increased risk of stroke

## HEART DISEASE<sup>6-10</sup>

- Those with adult periodontitis may have increased risk of fatal heart attack ...<sup>10,7</sup>
- And are more likely to be diagnosed with cardiovascular disease<sup>7</sup>
- Bacteria from the mouth may cause clotting problems in the cardiovascular system<sup>6</sup>

## UNCONTROLLED DIABETES<sup>12,16</sup>

- Chronic periodontal disease can disrupt diabetic control<sup>12,15</sup>
- Diabetes can alter the pocket environment, contributing to bacterial overgrowth<sup>14</sup>
- Smokers with diabetes increase their risk of tooth loss by 20 times<sup>13</sup>
- People with type II diabetes are 3 times as likely to develop periodontal disease than are nondiabetics<sup>13</sup>

Do You Have Adult Periodontitis? What Are You Doing About It?

# DIABETES AND PERIODONTAL DISEASE: A BIDIRECTIONAL RELATIONSHIP

## Box 2: Diabetes Effects on Periodontitis

- Diabetes is a risk factor for periodontitis
- Diabetic patients are prone to more frequent and more aggressive periodontitis outbreaks
- Diabetic patients present impaired neutrophil function, which reduces their ability to control the oral bacterial load
- During diabetes, adipose tissue produces pro-inflammatory factors which may increase tissue destruction and bone loss during periodontitis

Lakeschevitz F, Aboodi G, Tenenbaum H, et al. Diabetes and Periodontal Diseases: Interplay and Links. Current Diabetes Reviews, 2011, 7, 433-439.

# DIABETES AND PERIODONTAL DISEASE: A BIDIRECTIONAL RELATIONSHIP

## Box 3: Periodontitis Effects on Diabetes

- Periodontal disease may negatively affect the glucose control in diabetic patients
- Periodontal bacteria may cause over production of pro-inflammatory factors from adipose tissue which results in increased insulin resistance
- Further increase in systemic levels of pro-inflammatory factors is attributed to the periodontal inflammatory response
- Conventional periodontal treatment (SRP) leads to significant reduction in glycated hemoglobin levels (HbA1c) in type 2 diabetic patients



# SYSTEMIC REVIEW OF THE ASSOCIATION BETWEEN RESPIRATORY DISEASE AND ORAL HEALTH

- 1-There is fair evidence of an association of pneumonia with oral health.
- 2-There is poor evidence supporting a weak association between COPD and oral health.
- 3-There is good evidence the oropharyngeal decontamination with different antimicrobial interventions **reduces the progression or occurrence of respiratory diseases.**

**A.Azarpazhooh & J. Leake:** Systematic Review of the Association Between Respiratory Diseases and Oral Health. J Periodontal, 2006 Sep; 1465-1482

**Scannapieco FA, Bush RB, Paju S.** Associations between periodontal disease and risk for nosocomial bacterial pneumonia and chronic obstructive pulmonary disease. A systematic review. Ann Periodontol 2003;8:54-69.

# PNEUMONIA IN THE **FRAIL** ELDER (LONG TERM CARE)

- Annual incidence of pneumonia in long-term-care residents ranges from 99 to 912 per 1,000 persons (median = 365 per 1,000).
- In comparison, the annual incidence of pneumonia in the community is approximately 12 per 1,000 persons per year, rising to 34 per 1,000 in those 75 years of age and older

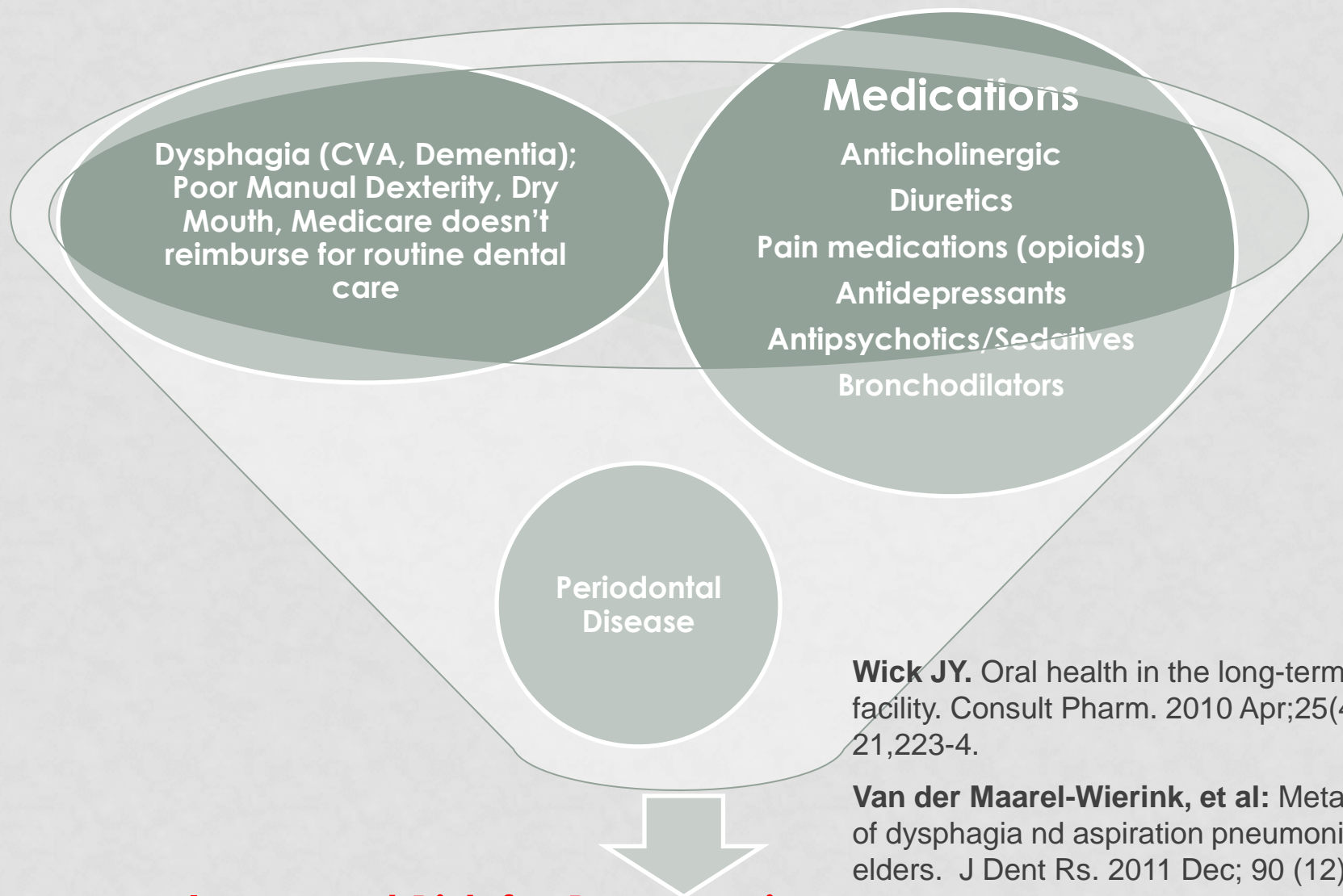
**Ei-Solh A.** Association between pneumonia and oral care in nursing home residents. *Lung* (2011) 189: 173-180.

**Muder RR** (1998) Pneumonia in residents of long-term care facilities: epidemiology, etiology, management, and prevention. *Am J Med* 105:319–330

**Jokinen C, Heiskanen L, Juvonen H, Kallinen S, Karkola K et al.** (1993)

Incidence of community-acquired pneumonia in the population of four municipalities in eastern Finland. *Am J Epidemiol* 137:977–988

# LTC AND FRAIL ELDERERS



**Wick JY.** Oral health in the long-term care facility. *Consult Pharm.* 2010 Apr;25(4):214-21,223-4.

**Van der Maarel-Wierink, et al:** Meta-analysis of dysphagia and aspiration pneumonia in frail elders. *J Dent Rs.* 2011 Dec; 90 (12): 1398-404

**Increased Risk for Pneumonia,  
and other systemic complications**

**Table 1. Evidence from examination of links between oral health and general health.**

General health	Oral health
Mental diseases, including dementia and Parkinson disease	<ul style="list-style-type: none"> <li>• High levels of caries experience</li> <li>• Tooth loss</li> <li>• Periodontal disease/impaired or neglected oral hygiene</li> <li>• Experience of pain</li> <li>• Chewing difficulties</li> <li>• Poor function of dentures</li> </ul>
Visual Impairment	<ul style="list-style-type: none"> <li>• Dental caries</li> <li>• Gingival bleeding</li> <li>• Reduced ability to maintain oral health</li> </ul>
Xerostomia related to systemic disease, head and neck radiations, or multiple/regular use of medications	<ul style="list-style-type: none"> <li>• Dental caries/root caries</li> <li>• Candidosis</li> <li>• Impaired mastication, swallowing, and speech</li> </ul>
Inadequate nutrition (Impaired Immune response)	<ul style="list-style-type: none"> <li>• Periodontal disease</li> <li>• Tooth loss</li> <li>• Poor oral hygiene</li> <li>• Masticating function and swallowing</li> <li>• Taste perception</li> <li>• Oral dryness</li> <li>• Oral pain</li> <li>• Oral cancer</li> </ul>
Weight loss	<ul style="list-style-type: none"> <li>• Edentulousness</li> </ul>
Respiratory diseases <ul style="list-style-type: none"> <li>• chronic obstructive pulmonary disease</li> <li>• aspiration pneumonia</li> </ul>	<ul style="list-style-type: none"> <li>• Poor oral hygiene</li> <li>• Periodontal disease</li> <li>• Difficulty swallowing</li> </ul>
Cardiovascular disease <ul style="list-style-type: none"> <li>• coronary heart disease</li> <li>• stroke</li> </ul>	<ul style="list-style-type: none"> <li>• Tooth loss</li> <li>• Severe periodontal disease (bone loss, deep pockets)</li> </ul>
Diabetes mellitus (type 1, type 2)	<ul style="list-style-type: none"> <li>• Severe periodontal disease</li> </ul>
Oral cancer	<ul style="list-style-type: none"> <li>• Poor oral hygiene and health conditions</li> </ul>
Quality of life	

**More associations  
between  
oral health  
and systemic health**

**Kandelman, et al.** Oral health, general health, and quality of life in older people. Special care in dentistry. 2008, 28:6; 224 -236 .

	Diseases and conditions that may be related to poor oral hygiene, oral infection	Supporting Documentation (Basis/reason for checking the item, including the location, date, and source (if applicable) of that information)
✓		<p>CMS is collecting data on diseases and conditions that may be related to poor oral hygiene/oral infection.</p> <p>New with MDS 3.0. (Medicare mandated NH reporting)</p> <p>If they are collecting this data, they will possibly adapt as a quality measure.</p>
☐	<ul style="list-style-type: none"> <li>Recurrent pneumonia related to aspiration of saliva contaminated due to poor oral hygiene (I2000)</li> </ul>	
☐	<ul style="list-style-type: none"> <li>Unstable diabetes related to oral infection (I2900)</li> </ul>	
☐	<ul style="list-style-type: none"> <li>Endocarditis related to oral infection (I8000)</li> </ul>	
☐	<ul style="list-style-type: none"> <li>Sores in mouth related to poor-fitting dentures (L0200C)</li> </ul>	
☐	<ul style="list-style-type: none"> <li>Poor nutrition (I5600) (See Nutrition CAA)</li> </ul>	

# EXCESS COST OF PNEUMONIA IN ELDERS

Total medical costs for beneficiaries during, and 1 year, following a pneumonia hospitalization:

- Mean excess cost of hospitalization with pneumonia was \$41,467, with higher mortality.
- \$15,682 higher (*at 1 year follow up*) than matched control (similar patients without pneumonia) patients.
- The total annual excess cost of hospital-treated pneumonia as a primary diagnosis in the elderly in 2010 is conservatively estimated at > \$7 billion.

**Thomas CP, et al.** Incidence and cost of pneumonia in Medicare beneficiaries. *Chest* 2012 Oct 142 (4): 973-81.

**CMS LTC REGULATION #483.55 FOR  
DENTAL SERVICES**

# CMS REGULATIONS REGARDING DENTAL CARE IN LTC FACILITIES

**F Tags:  
F411, F412**

## §483.55 Dental Services

The facility must assist residents in obtaining routine and 24-hour emergency dental care.

### §483.55(a) Skilled Nursing Facilities

A facility--

(1) Must provide or obtain from an outside resource, in accordance with §483.75(h) of this part, routine and emergency dental services to meet the needs of each resident;

(2) May charge a Medicare resident an additional amount for routine and emergency dental services;

(3) Must if necessary assist the resident--

(i) In making appointments; and

(ii) By arranging for transportation to and from the dentist's office; and

(4) Promptly refer residents with lost or damaged dentures to a dentist.

**Little mention  
of daily oral  
care or  
preventive  
measures**



# CMS REGULATIONS REGARDING DENTAL CARE IN LTC FACILITIES

## **Intent: §483.55**

The intent of this regulation is to ensure that the facility be responsible for assisting the resident in obtaining needed dental services, including routine dental services.

## **Interpretive Guidelines: §483.55**

This requirement makes the facility directly responsible for the dental care needs of its residents. The facility must ensure that a dentist is available for residents, i.e., employ a staff dentist or have a contract (arrangement) with a dentist to provide services.

For Medicare and private pay residents, facilities are responsible for having the services available, but they may impose an additional charge for the services.

For all residents of the facility, if they are unable to pay for needed dental services, the facility should attempt to find an alternative funding source or alternative service delivery systems so that the resident is able to maintain his/her highest practicable level of well-being. (See §483.15(g).)

# CMS REGULATIONS REGARDING DENTAL CARE IN LTC FACILITIES

The facility is responsible for selecting a dentist who provides dental services in accordance with professional standards of quality and timeliness under §483.75(h)(2).

**“Routine dental services”** means an annual inspection of the oral cavity for signs of disease, diagnosis of dental disease, dental radiographs as needed, dental cleaning, fillings (new and repairs), minor dental plate adjustments, smoothing of broken teeth, and limited prosthodontic procedures, e.g., taking impressions for dentures and fitting dentures.

**“Emergency dental services”** includes services needed to treat an episode of acute pain in teeth, gums, or palate; broken, or otherwise damaged teeth, or any other problem of the oral cavity by a dentist that required immediate attention.

**“Prompt referral”** means, within reason, as soon as the dentures are lost or damaged. Referral does not mean that the resident must see the dentist at that time, but does mean that an appointment (referral) is made, or that the facility is aggressively working at replacing the dentures.

## SECTION L: ORAL/DENTAL STATUS

**Intent:** This item is intended to record any dental **problems** present in the 7-day look-back period.

### L0200: Dental

L0200. Dental	
↓ Check all that apply	
<input type="checkbox"/>	A. Broken or loosely fitting full or partial denture (chipped, cracked, uncleanable, or loose)
<input type="checkbox"/>	B. No natural teeth or tooth fragment(s) (edentulous)
<input type="checkbox"/>	C. Abnormal mouth tissue (ulcers, masses, oral lesions, including under denture or partial if one is worn)
<input type="checkbox"/>	D. Obvious or likely cavity or broken natural teeth
<input type="checkbox"/>	E. Inflamed or bleeding gums or loose natural teeth
<input type="checkbox"/>	F. Mouth or facial pain, discomfort or difficulty with chewing
<input type="checkbox"/>	G. Unable to examine
<input type="checkbox"/>	Z. None of the above were present

### Item Rationale

#### Health-related Quality of Life

- Poor oral health has a negative impact on:
  - quality of life
  - overall health
  - nutritional status
- Assessment can identify periodontal disease that can contribute to or cause systemic diseases and conditions, such as aspiration, malnutrition, pneumonia, endocarditis, and poor control of diabetes.

#### Planning for Care

- Assessing dental status can help identify residents who may be at risk for aspiration, malnutrition, pneumonia, endocarditis, and poor control of diabetes.

### DEFINITIONS

#### CAVITY

A tooth with a discolored hole or area of decay that may have debris in it.

#### BROKEN NATURAL TEETH OR TOOTH FRAGMENT

Very large cavity, tooth broken off or decayed to gum line, or broken teeth (from a fall or trauma)

#### ORAL LESIONS

A discolored area of tissue (red, white, yellow, or darkened) on the lips, gum, tongue, palate, cheek lip,

## Coding Instructions

- **Check L0200 A, broken or loosely fitting full or partial denture:** if the denture or partial is chipped, cracked, uncleanable, or loose. A denture is coded as loose if the resident complains that it is loose, the denture visibly moves when the resident opens his or her mouth, or the denture moves when the resident tries to talk.
- **Check L0200 B, no natural teeth or tooth fragment(s) (edentulous):** if the resident is edentulous or lacks all natural teeth or parts of teeth.
- **Check L0200 C, abnormal mouth tissue (ulcers, masses, oral lesions):** Select if any ulcer, mass, or oral lesion is noted on any oral surface.
- **Check L0200 D, obvious or likely cavity or broken natural teeth:** if any cavity or broken tooth is seen.
- **Check L0200 E, inflamed or bleeding gums or loose natural teeth:** if gums appear irritated, red, swollen, or bleeding. Teeth are coded as loose if they readily move when light pressure is applied with a fingertip.
- **Check L0200 F, mouth or facial pain or discomfort with chewing:** if the resident reports any pain in the mouth or face, or discomfort with chewing.
- **Check L0200 G, unable to examine:** if the resident's mouth cannot be examined.
- **Check L0200 Z, none of the above:** if none of conditions A through F is present.

# **DESCRIBE CURRENT PROTOCOLS FOR DENTAL CARE FROM A SURVEY OF LOCAL LTC FACILITIES**

# ORAL HEALTH ASSESSMENT QUESTIONNAIRE

- **1-What is the written Oral Health Policy or Procedure for Your Facility?**
- **2-What is the current Oral Health Care protocol for:**
  - Dentures
  - Tooth Brushing & Frequency
  - Toothbrush Replacement & Type of Toothbrush
  - Fluoride Rinse
  - Mouthwash
- **3-What is the current Oral Health Care Training Program for:**
  - Nurses
  - CNA
  - Staff
- **4-What are Barriers to Good Training?**
  - Time?
  - Cost?
- **5-How difficult is it to implement changes for:**
  - Tooth Brushing
  - Flossing
  - Fluoride Rinses
  - Mouthwashes
  - Denture Cleaning & Maintenance?
- **6-Who does the initial Oral Assessment for the Facility?**
- **7-What are the criteria for calling a Dentist?**
- **8-Who determines when a Dentist should be called?**

# LTC FACILITY SCREENING SURVEY RESULTS



# 1-WHAT IS THE WRITTEN ORAL HEALTH POLICY OR PROCEDURE FOR YOUR FACILITY?

- Most of survey respondents indicate that the protocol is found within the Individual LTC facility's policy/procedure Manual !



## 2-WHAT IS THE CURRENT ORAL HEALTH CARE PROTOCOL FOR:

- **Dentures:** Every LTC Surveyed has a Protocol that calls for LTC Personnel(ie. CNA) to Remove, Clean & Place Patient's Denture in Denture Cleaner overnight! In the morning, Dentures are rinsed and returned to patient.
- **Tooth brushing:** Every LTC Surveyed has a Protocol that calls for LTC personnel(ie. CNA) to brush teeth in the morning and at night.
- **Toothbrush Replacement & Type of Brush:** Most LTC Facilities surveyed replaced Tooth brushes approximately every 3 months or as needed( usually determined by staff). Variety of Toothbrushes ordered ranged from soft to medium.
  - Should only order Soft or Extra soft Toothbrushes.

## 2-WHAT IS THE CURRENT ORAL HEALTH CARE PROTOCOL FOR CONTINUED:

- **Fluoride Rinse:** Typically administered as per Dentist or Physicians orders.
- **Mouthwash:** Provided by LTC Facilities as needed/requested.

# 3-WHAT IS THE CURRENT ORAL HEALTHCARE TRAINING PROGRAM FOR:

- **Nurses:**
- **CNAs:**
- **Staff:**
- For the personnel mentioned above, the amount of oral health training varied from none to an occasional (ie. **once/year**) topic at monthly meetings!
- All mentioned additional training would be helpful & Hands-on training was specifically mentioned by some.

# 4-WHAT ARE BARRIERS TO GOOD TRAINING?

- Time?:
- Cost?:
- Both Time & Cost were frequently cited as major barriers to Training.
- However, many mentioned that many of those providing care may not have been exposed to good Oral Healthcare Instruction in their Own Lives,
  - therefore, may not have good Oral Healthcare habits themselves.
  - This would make it unlikely that such persons would be able to administer good Oral Healthcare to their patients as effectively!

# 5-HOW DIFFICULT IS IT TO IMPLEMENT CHANGES FOR:

**Toothbrushing, Flossing Fluoride Rinses, Mouthwashes, Denture Cleaning & Maintenance.**

Consensus in the survey was that:

**Flossing and Fluoride** rinse protocol change(s) and/or implementation would be the most Difficult.

**Flossing** because of the many types of LTC patients who might not react well to Flossing.

**Fluoride** would necessitate a dentist or physicians orders.

**\*Toothbrushing, Mouthwashes and Denture Cleaning & Maintenance protocol changes would be easier to Implement!**

# 6-WHO DOES THE ORAL ASSESSMENT FOR THE FACILITY?

- RN/LPN/Admitting Nurse most frequently.
- Speech Pathologist may be involved In Assessment Process.

# 7-WHAT ARE CRITERIA FOR CALLING A DENTIST?

- **Indications Include:** Pain, Swelling, Bleeding, Loose Teeth, Inability to Wear Denture, Abnormality Requiring Attention,
  - Family Request, Patient Request,
  - Nursing Staff or Medical Director Request.

# 8-WHO DETERMINES WHEN A DENTIST SHOULD BE CALLED?

- Healthcare Professionals mentioned include; Nursing Staff, Unit Coordinator, Director of Nursing, Nurse Managers, Attending Physician, or Medical Director.
- Others may be Family Members, Patient Themselves





**<http://.uky.edu/NursingHomeOralHealth/>**

**Note:** This slide is part of an excellent slide series which may be found by clicking on the url in the previous slide!

# GERIATRIC ORAL HEALTH CARE PEARLS TO TAKE WITH YOU!

- Review oral hygiene protocols with nurses & staff!
- Optimize use of available educational resources
- Change toothbrushes frequently, especially in a LTC facility!
- Use soft or extra soft toothbrushes.
- To clean dentures, use a denture brush

DENTURE  
BRUSH



Helps remove food particles and stains easily

Reaches difficult surfaces

Features strong, resilient fibers

**THANK YOU**

**Part 2:**

**Current Trends in Preventive Dentistry for  
Geriatric Patients**

**Michael J. Metz, DMD, MSD, MS, MBA  
U of L School of Dentistry**