

# St. Elizabeth Youngstown Hospital

*Dental GPR Program*

# OHIO IS IN A DENTAL EMERGENCY

- Oral Health is the #1 unmet health care need of Ohioans.
- Dental visits are the #1 cause of Level I and Level II visits within hospital emergency departments.
- 57% of Ohio dentists are 50 years old or older.
- 11,000 dentists are needed nationally.
- 627 dentists are needed in Ohio alone by 2025 to meet the growing need.

## Dental Health Professional Shortage Areas

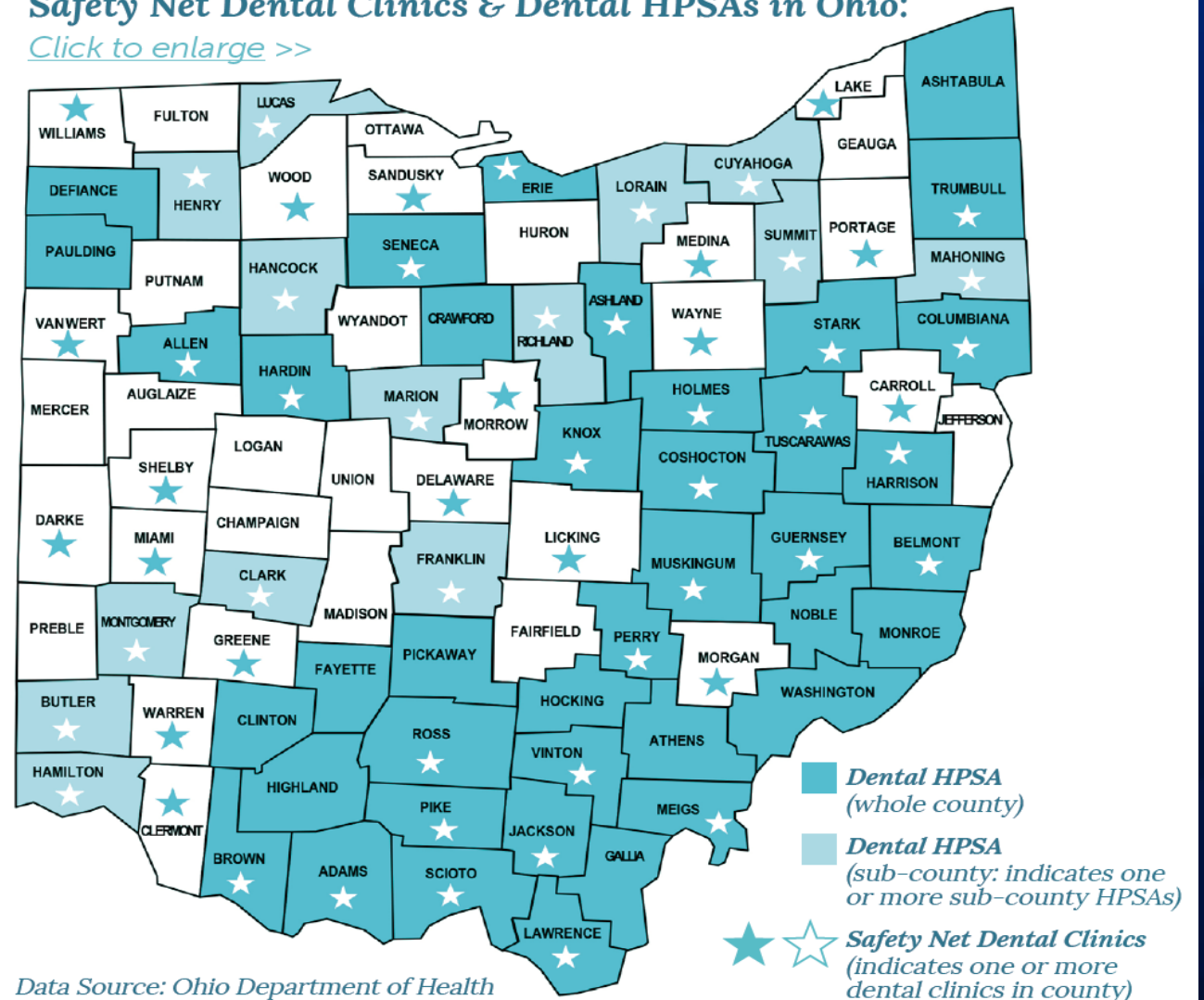
Ohio has a shortage of dental providers who accept Medicaid, which significantly impacts oral health outcomes in Ohio.

- Approximately 30% of licensed Ohio dentists are Medicaid providers.
- Only 14% of licensed Ohio dentists treat a significant number of Medicaid consumers (submitted claims for 250 or more consumers).

There are 10 state-designated dental health resource shortage areas and 149 federally designated dental HPSAs in Ohio. All of these areas need at least one additional dentist to meet federal or state guidelines for minimally acceptable population to dentist ratios.

### Safety Net Dental Clinics & Dental HPSAs in Ohio:

[Click to enlarge >>](#)



# Use of Ohio Hospital Emergency Departments for Oral Health Problems, 2016-2019

## County of Residence

Rates of hospital ED visits for NTDCs varied significantly by county of residence (Figure 4). Of the 18 counties with the highest rates, 17 were in rural or partially rural counties, and seven of them were in Appalachia. Higher ED visit rates also occurred in a pocket of counties in the north-central area of the state, and four urban counties (Cuyahoga, Hamilton, Lucas, and Montgomery) had an ED visit rate that exceeded the state rate. Appendix A provides a list of all counties in Ohio and their rate of ED visits for NTDCs.

## ED Visits by Insurance

More than one half of all NTDC-related hospital visits were by Medicaid-insured patients during this period. Of the 391,223 hospital visits with a primary diagnosis for a NTDC between 2016 and 2019, the largest percentage were paid for by Medicaid (54%), followed by persons who were uninsured and paid out-of-pocket (18%); together these sources of payment covered seven in 10 persons who visited the ED for a NTDC. Coverage by private insurance (16%), Medicare (10%) and other coverage (2%) accounted for the remaining sources of insurance coverage (Figure 5).

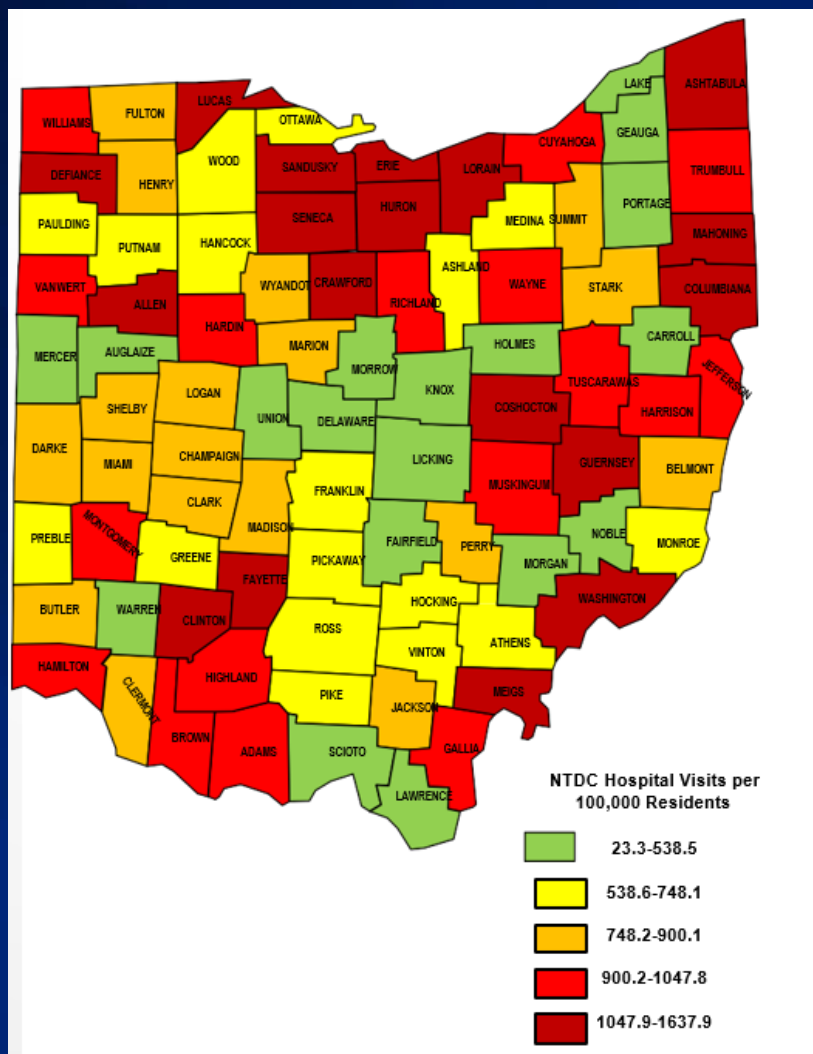
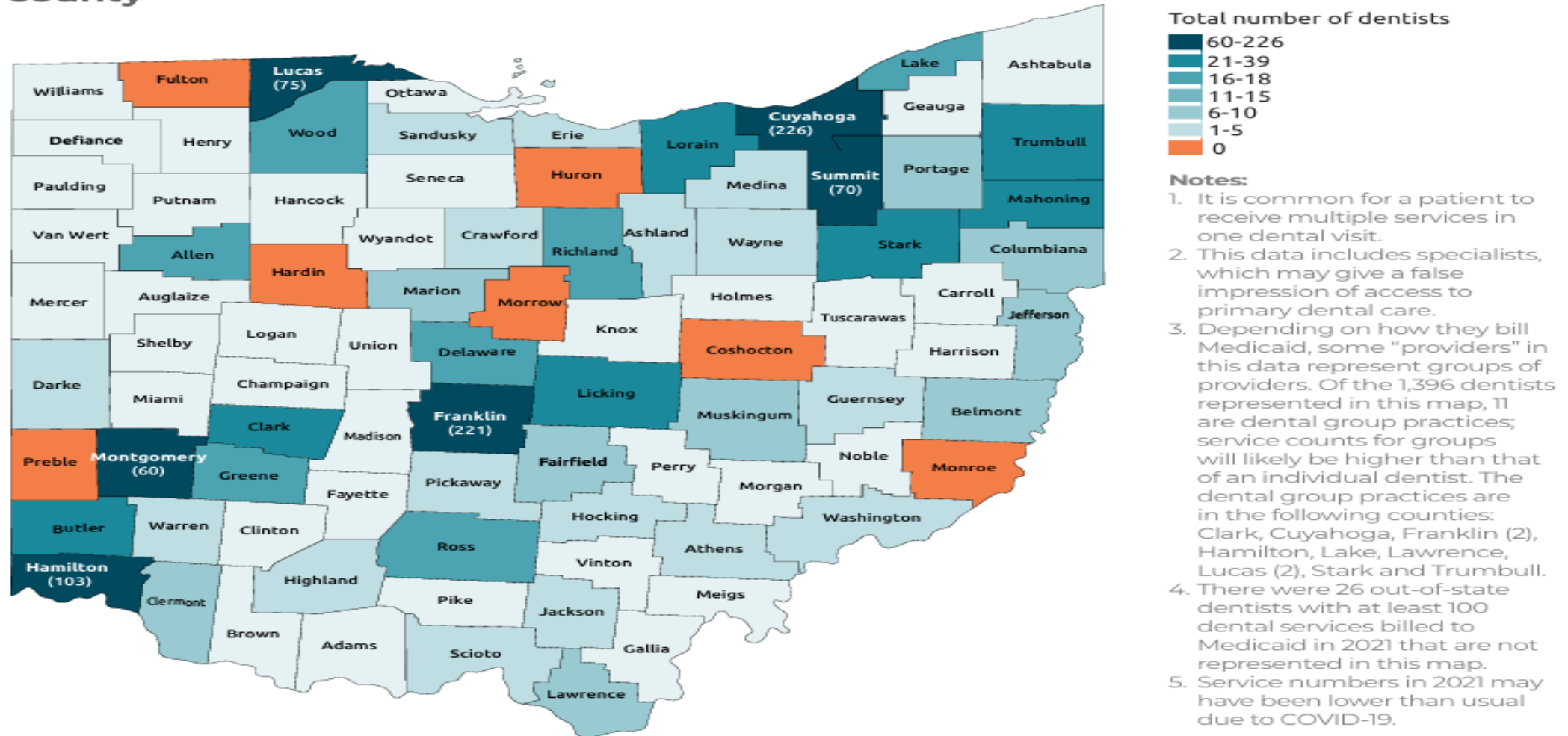


Figure 1: Rate of ED Visits by County, 2016-2019

# DENTAL SHORTAGES IN OHIO

Figure 9. Dentists who billed at least 100 services to Medicaid in 2021, by county



Source: Ohio Department of Medicaid

# MERCY HEALTH PLATFORMS – *Venues of Care*

# MERCY ORAL HEALTH PLATFORMS – *Venues of Care*

- Youngstown Medical Office Building Dental Clinic
- Inpatient consults and dental clearance clinics
- 24/7 emergency department dental coverage
- Operating room dental services
- Mobile van services



# YOUNGSTOWN MEDICAL OFFICE BUILDING- *Dental Clinic*

- 8 fixed dental operatories





# INPATIENT CONSULTS & DENTAL CLEARANCE CLINICS

- CV value Clinic
- RAD / ONC Clinic
- Bariatric Surgery Clinic
- MAT / MOUD Clinic
- Centering Pregnancy Clinic

# CENTERING PREGNANCY CLINIC

- Infant mortality and low term birth rate
- Dental disease is infectious, contagious, and transmissible
- Dental health of a child is directly related to dental health of mother
- Development and implementation of oral health education model
- Development and implementation of dedicated pregnancy clinic providing preventative and definitive dental care to expectant mothers

# 24/7 EMERGENCY DEPARTMENT DENTAL COVERAGE

- #1 utilization of ED for Level I and Level II non-emergent services is for dental
- Serve as the only ED safety net

# OPERATING ROOM DENTAL SERVICES

- Dedicated pediatric anesthesia team
- Dedicated pediatric dentistry OR - trained dental assistants
- Special needs, IDD, ASD, OR dental clinic
- Medically compromised patients



# MOBILE DENTAL VAN SERVICES

- Mercy Health is dedicated to improving the health of the communities we serve by providing comprehensive health care to people who do not have doctors or who are not currently accessing the health care system.
- The KIKEL Smile Stations are staffed by a team of dentists, dental hygienists and dental assistants.
- A comprehensive scope of dental services are provided
  - Oral exams
  - Teeth cleaning
  - Dental x-rays
  - Dental sealants
  - Dental restorations
  - Dental extractions
  - Oral hygiene instruction
  - Oral cancer screenings
  - Direct linkage referrals to clinic, OR
- Mobile Dental Vans also participate in numerous community Health Fairs and Special Olympics providing educational services and providing oral hygiene kits.







# RURAL ORAL HEALTH ROTATION

# VETERANS DENTAL SERVICES

# SCHOOL – BASED DENTAL SERVICES

- **Educational**
  - All students
  - Provision of care for unmet dental needs
  - Increased utilization of dental services in the private sector.
- **Preventative Services**
  - Complete exams, dental x-rays
  - Dental cleanings
  - Dental sealants
  - Fluoride varnish

# COLLABORATIVE TRAINING PROGRAMS

- YSU School of Dental Hygiene (RDH)
- YSU Expanded Function Duties Auxiliary (EFDA)
- Choffin School of Certified Dental Assisting (CDA)
- CWRU Expanded Function Duties Auxiliary (EFDA)
- OSU College of Dentistry – *OHIO Project*
- University of Pittsburgh School of Dental Medicine – *SCOPE Project*
- NEOMED M-3 Oral Medicine Clerkship rotation
- NEOMED Bitonte College of Dentistry D3 or D4 rotations

# RESEARCH PROJECTS

# RESEARCH PROJECTS – *Dental Residents*

- Prevalence of structural Cardiac Disease Requiring Bacterial Endocarditis Prophylaxis among Dental Patients
- The Measurement of Fluoride Levels in Well Water
- ADHD and Pediatric Obstructive Sleep Apnea
- Dental Implications of MAT/ MOUD Therapy



## A Literature Review of the Technological Advancements in the Field of Salivary Diagnosis

Christopher Saba, DDS – Department of Dentistry

### Background

The earliest use of saliva as a diagnostic tool dates back to the early 1900's when Michael and Karl<sup>1</sup> each of whom examined saliva for various components that would be useful for the diagnosis of gout and rheumatism. Since this time saliva was found to have a much more wide range of diagnostic applications including the monitoring of pharmaceutical drugs such as insulin, caffeine, cellular enzymes, etc. In 2002, the NIDCR (National Institute of Dental and Craniofacial Research) began a research effort to progress the development of technologically viable systems that would be suitable for commercial use. Several research institutions had in this development by constructing methods to utilize saliva in various computer analysis and increasing the sensitivity and specificity in finding such diseases as Diabetes type 2, Periodontal disease, Breast cancer, Cerebral Disease and dental caries just to mention a few.

### Method

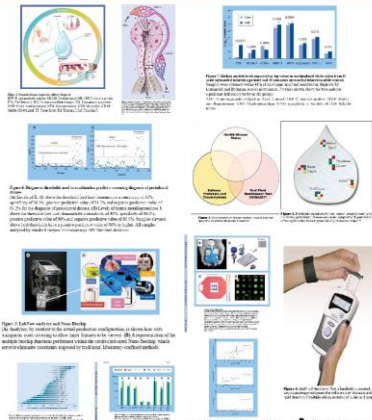
A literature literature review involving journals and publications that has researched the current technologies used to analyze saliva including future prospects for bringing salivary diagnosis to every health care provider. The research will be focused on 3 developing technologies currently being used 1) MICROARRAYS (microarray-based chemical systems) 2) Oral Fluid Nanosensor Test 3) LabNow analyzer and Nano-Beads. All systems examined either the protein molecules found in saliva. The saliva is harvested and by the creation of computer programs that saliva is broken down to its simplest form to be analyzed for various markers for disease.

### Results

Strong findings in the area of Cerebral Disease and Periodontal Disease was found to be more prevalent using these systems. Due to current technology and computer software sensitivity for more complex diseases cannot be found on a constant basis.

### Conclusion

The future of salivary diagnosis is approaching the use of hand held devices such as the Oral Fluid Nanosensor and more personalized diagnosis for patients. The OralDNA lab is moving toward this specific personalized approach to testing patient. A computer technology advances will the finding of more complex diseases with the simple use of a vial of saliva.



## Contemporary Management of Anticoagulated Oral Surgical Patients

Surge Area, MDH Dental Residency Program, Department of Dental Education, St. Elizabeth Health Center, Springfield, Ohio



## Saliva: Its Potential Use for Critical Pre-admission AMI Detection

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### Introduction

Approximately 13.2 million people in the US have coronary artery disease, of which only a small fraction have suffered an acute myocardial infarction (AMI). Symptoms, cardiac protein presence in the emergency room require rapid, accurate, and sensitive diagnostics to determine the severity and cause of the cardiac condition. Clinical research is currently striving to be the benchmark for pre-admission cardiac diagnostics. The accuracy and timing of the procedure could be the difference between life and death.

### Methods

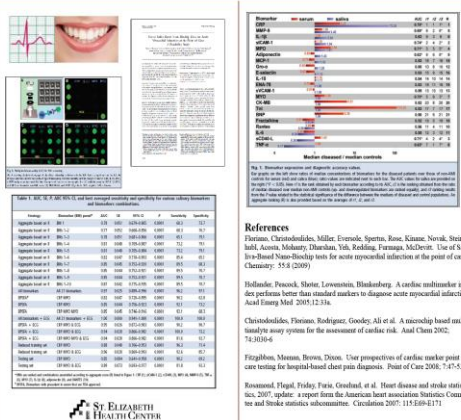
77 patients in serum and unstimulated whole saliva was processed from 41 AMI patients within 48 hours of chest pain and from 43 healthy cardiac controls. Saliva was tested in comparison with Enzygnost and a strip method. Data was analyzed using logistic regression and area under curve (AUC) to evaluate the diagnostic ability of the 2 biomarkers.

### Summary of Results

C-reactive protein demonstrated significant differences in concentrations between patients with AMI and the controls without AMI. These patients were compared. The first panel was saliva based biomarkers consisting of C-reactive protein, myoglobin, and troponin. The second panel contained the biomarkers troponin, myoglobin, troponin, myoglobin, creatine kinase, and myoglobin. The third panel was solely the CEC. The first panel in comparison with AMI exhibited strong screening capacity for AMI (area under curve = 0.95) and for successful the screening capacity of ECG alone (area under curve = 0.60). The second panel was also a strong predictor of AMI (AUC=0.89). In comparison with the ECG, saliva based test may provide a convenient and rapid pre-admission screening for AMI, potentially eliminating the need for timely hospital blood analysis.

### Discussion

Perhaps the most critical aspect of survival during an AMI is the time that it takes from onset to treatment. The shorter the time, the more likely the patient is to avoid. Saliva based panel testing for AMI offers great promise. It's an easy test with high diagnostic capability in conjunction with an ECG. Collection is simple and does not require a lab. Traditional ECG analysis is typically performed by the personnel prior to admission, however this use of blood of patients admitted exhibit definitive ECG evidence of AMI. The elimination of timely in-hospital blood analysis of cardiac enzymes increases the mortality of the AMI patient. Current salivary research is being aimed at testing for salivary assays of troponin, the marker gold standard in AMI diagnosis. Integrating the blood analysis with saliva based testing, and analysis will play an important role in detection of AMI and may offer a select advantage to reducing the time to diagnosis and diagnosis.



## Ten years of Literature Review Showing the Progress in Research of the Relation Between Periodontal Disease, C- Reactive Protein Elevation and Cardiovascular Disease

Jennifer Crespo Gonzalez, DDS

### Background

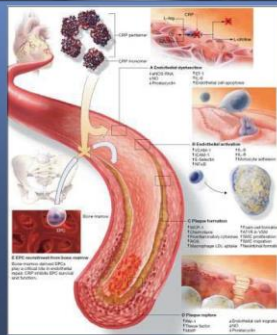
Mild forms of periodontal disease affect 75 percent of adults in the United States, and more severe forms affect 20 to 30 percent of adults. It has been estimated that about 10% of the adult population and about 30% of individuals over the age of 50 years suffer from severe periodontitis. Periodontal disease is considered an inflammatory process characterized by systemic inflammatory host response, which in severe periodontal disease forms elevated levels of the plasma protein called C-Reactive Protein (CRP). CRP is produced by the liver and rises when there is systemic inflammation. Several investigations emphasized the role of moderately elevated C-RP plasma levels as a risk factor for cardiovascular disease (CVD).

### Methods

A review of a decade of literature from 2001 to 2011 involving publications that researched the association of periodontal disease with cardiovascular risk factors, including C-Reactive Protein.

### Results

There is evidence that severe forms of periodontitis have associated triggering of the acute phase proteins, such as C-reactive protein. Research demonstrates a strong association between periodontitis, CRP and cardiovascular disease, with a greater propensity to form ruptured atherosclerotic plaques, responsible for myocardial infarction, ischemic stroke, and peripheral arterial disease.



### Conclusion

This literature review indicated significant evidence on the association of C-Reactive protein levels, elevated in patients with chronic severe periodontal disease, and increased potential for cardiovascular events. Data should caution physicians to be aware of possible oral sources of inflammation that play a role in the pathogenesis of cardiovascular disease.

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## Unnecessary Dental Care in the Emergency Room

Anna Grinberg, DMD, Frank Beck, DMD and David Gemmel, PhD Department of Dentistry, St. Elizabeth Health Center

### BACKGROUND

For years patients have used Emergency Departments for various dental emergencies, such as orthodontic pain, post-extraction pain, teething pain, avulsed teeth, maxillary sinus pain, myofascial pain, temporomandibular joint pain, idiopathic pain, various swellings caused by infection or allergies, hemorrhage, periodontal abscess, pericoronitis, viral infections, traumatic injuries, such as facial fractures, lacerations, and fractures of alveolar process. However, some of this utilization of the Emergency Department visit for dental services may be unnecessary.

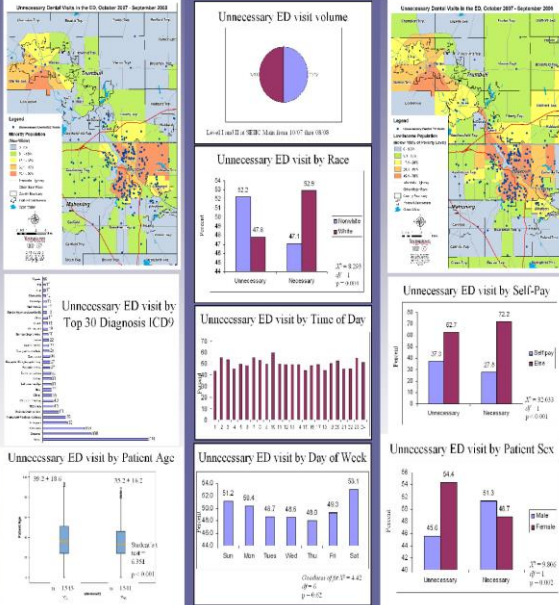
Factors which have been postulated with unnecessary use of the Emergency Room for dental services include: patient's desire to avoid waiting for an appointment for a general dentist, employment during the hours of dental clinic operation, lack of scheduled appointments for minor emergencies, inconvenient hours of operation, and a lack of means to pay for dental treatment.

System problems also contribute to this issue. Many dentists do not accept Medicaid patients or limit the number of such patients in their private practices. Cohen et al have found an association between emergency department use of dental services and changes in Medicaid funding for dental services. The change in Medicaid policy that eliminated dental reimbursement and participation in the program appears to have increased the use of EDs for the treatment of dental problems. Other factors have also been explored in trying to explain use of the Emergency Department for dental services. Mandari et al demonstrated that dental visits were most numerous on Saturday and Sunday and highest during 5pm to 8pm. Use was lowest during 6 am to 9 am.

Use of the Emergency Department for dental care is problematic for another reason as well. While patient discomfort may be temporarily resolved in ED with medications such as antibiotics and analgesics, definitive treatment is still required in the dental office setting. The purpose of this study was to examine the use of the emergency department for dental services at our facility.

### METHODOLOGY

Between October 2007 and September 2008 all level I and II visits to the SEHC ED were reviewed (n = 3,088). ICD9 codes and associated procedures were used to identify unnecessary care in the emergency department that could have been treated in an ambulatory setting (DG). Each encounter ICD9 diagnosis was reviewed to ascertain its necessity as a ED visit. Any encounter with associated procedures was considered necessary. Variables analyzed included self pay status, demographics, charges, and temporal variability.



### RESULTS

Over 1,500 level I and II encounters could have been considered unnecessary use of the emergency department. Dental use was the most common unnecessary visit. Variables associated with unnecessary use of the ED included younger patients, females, nonwhite, and self-pay status. While unnecessary use of the ED was associated with demographics, 67.5 percent of these unnecessary visits had some form of insurance. The rate of unnecessary ED visits varied from 62.7 percent among self-pay patients to 55.8 percent among Medicaid recipients. Interestingly, 44.1 percent of Medicaid encounters could be considered unnecessary. Unnecessary use of the ED was also associated with specific neighborhoods. Unnecessary use of the ED peaked on Saturday and remained high on Sunday. Unnecessary ED use declined from Monday through Thursday, before climbing again on Friday. Total charges for unnecessary visits were \$396,186. The average charge for such visits was \$259 ± 225. Total charges for unnecessary visits with self pay status (n = 575) was \$140,872; average charges among these unnecessary self pay visits was similar, \$255 ± 134.

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# RESEARCH PROJECTS – *Dental Faculty*

- Emergency Department Diversion of NEDCs (2013)
- Reducing Opioid Dependence (2018)
  - Definitive Care Concept
  - Dental Pain Management Curriculum
  - SBIRT Introduction & Implementation