

**JANUARY 2018**

# Oral Health Matters

**Center for Oral and Systemic Health**

Discover | Innovate | Translate

## ***In the news***

### **Center for Oral and Systemic Health**

**Welcome** to the second issue of *Oral Health Matters*, a semi-annual newsletter to keep you updated on the latest research activities in the Center for Oral and Systemic Health (COSH) at the Marshfield Clinic Research Institute.

The second half of 2017 has been very busy for COSH. Here are a few of the highlights:

- Dr. Amit Acharya, COSH's director, was named Executive Director of the Marshfield Clinic Research Institute (MCRI).
- Dr. Neel Shimpi earned her PhD in Biomedical and Healthcare Informatics from the University of Wisconsin - Milwaukee. She accepted the Associate Research Scientist position and began this new role within COSH in August.
- Alok Panny, Research Specialist, presented oral health information at the Marshfield Clinic's 7th Annual Diabetes Conference.
- Oral health information was presented by Dr. Ingrid Glurich, Project Scientist, to bariatric surgery support groups.
- Annie Steinmetz, Project Manager, earned her Project Management Professional (PMP) certification.



**Marshfield Clinic**

**Research Institute**

Center for Oral and Systemic Health

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# Family Health Center of Marshfield Celebrates 15<sup>th</sup> Anniversary

Family Health Center of Marshfield, Inc. (FHC) and Marshfield Clinic Health System (MCHS) are celebrating the 15th anniversary of providing oral health services in the FHC/MHCS service area which spans much of central and northern Wisconsin. Since the first Dental Center opened on November 1, 2002 in Ladysmith, the dental infrastructure has grown to 10 centers with the latest addition of the Menomonie Center in 2017. Collectively these Centers have served the dental needs of 154,153 patients through September 2017. While FHC’s mission is to provide dental access to all based on need, not ability to pay, over the years specific policies and targeted outreach have been conducted to assist high need groups including: veterans, the community of patients with disabilities, those with dental emergencies and pain, and those experiencing barriers to employment due to dental disease. FHC has treated patients traveling from every county across the state of Wisconsin seeking care.

COSH has a very special connection with FHC because its origins can be traced back to FHC’s vision to create a research infrastructure to support translational research and create opportunities to improve service delivery to patients. FHC supported Dr. Amit Acharya’s work to develop an integrated medical-dental EHR and encourage the evolution of integrated care delivery to its patients. Dr. Acharya continues to serve FHC as its Chief Dental Informatics Officer. FHC has also supported COSH efforts in establishing a dental quality

dashboard to facilitate tracking of population dental health and professional performance, achievement of meaningful use incentives and development of clinical decision support tools to create alerts that identify emergent patient dental or medical issues.

Dental Center	Date Opened
Ladysmith	2002
Chippewa Falls	2007
Park Falls	2008
Neillsville	2009
Medford	2009
Rice Lake	2010
Marshfield	2010
Rhineland	2012
Black River Falls	2013
Menomonie	2017

In addition to the dental services operationalized by FHC under the leadership of its Dental Administrator, Terri Kleutsch, FHC supports an extended range of community and health services to promote access to holistic healthcare for patients in need. The effective partnership developed by FHC, MCHS and COSH continues to advance the paradigm of delivering patient-centered healthcare to all patients, supported by research and education.

Additional Programs and Services Supported by Family Health Center				
AmeriCorps	Behavior Health	Center for Community Outreach	Child Advocacy Center	Community Connections
Foster Care Medical Homes	Immunization Funds	Pharmacy Support	Prepaid Health Services Program	Substance Misuse Services

# Project Spotlight

## Dental Quality Analytics Dashboard

The Dental Quality Analytics (DQA) dashboard is a tool used by dental providers throughout the Marshfield Clinic Health System (MCHS). The goal of the DQA project was to develop a dental quality analytics interactive dashboard to view clinical data documented via the electronic health and dental records at MCHS. With this interactive tool, dental providers are able to remain informed about the performance of the system as a whole, by individual centers and/or by individual providers, on nine clinical and seven operational measures. The development of benchmarks and access to current individual provider performance serves as a feedback loop for providers to assess performance and identify quality improvement measures as required.

In addition to the clinical and operational measures, the team has developed a panel to monitor glycemic levels in patients and identify patients with dysglycemia. DQA graphically presents information on patients with dysglycemia served by the dental and medical centers within the MCHS. Algorithms in DQA detect diagnostic codes including prediabetes, gestational diabetes, Type I DM and/or Type II DM.

### Summary tab displays include:

- Periodontal status
- Oral health status
- Periodontal parameters
- Co-morbidities of patients with diabetes
- Dental procedures among patients with diabetes

### Measures tab displays include:

- Undiagnosed dysglycemic referral statistics
- Change in blood glucose with periodontal treatment

The providers have the ability to view monthly progress towards benchmarks for the clinical, laboratory-based and operational measures of dysglycemia. Providers are also able to track and compare individual performance with performance across other Marshfield Clinic Dental Centers and providers.



Dental Quality Analytics Dashboard - Dysglycemic Panel

## Featured COSH Team Member



*Neel Shimpi B.D.S, M.M., Ph.D*

Neel Shimpi B.D.S, M.M., Ph.D. is currently working as a tenure-track associate research scientist at the Center for Oral and Systemic Health at Marshfield Clinic Research Institute (MCRI) in Marshfield, Wisconsin. She has a bachelor's degree in dental surgery from India and a master's degree in Healthcare Management with a major in healthcare informatics from Cambridge College of Management in Massachusetts.

Dr. Shimpi also has diplomas in clinical research and hospital administration. Most recently, she completed her doctoral degree in Biomedical and Healthcare Informatics at the University of Wisconsin Milwaukee.

Dr. Shimpi has been involved in research for over five years, focusing her expertise on applying informatics to projects involving artificial intelligence, educational curriculum development, clinical and oral-systemic health research, among other applications. She has published articles in many

national journals and presented at national and international conferences. Her work on oral cancer knowledgeability among health care providers was highlighted by the Oral Cancer Foundation in 2016. She has mentored many student interns and dental residents in the conduct of research studies.

Her research interests include medical and dental informatics, developing clinical decision support tools and expert systems, educational toolkits for healthcare providers, ontologies and terminologies, principles of evidence-based practices and investigating the oral-systemic relationships with high potential for translation into clinical practice. Dr. Shimpi's work at the MCRI has given her the opportunity to expand her expertise and contribute to translational research across a broad spectrum of initiatives including: application of artificial intelligence to create decision support tools to screen patients for cancer risk applying, development of patient education modules and implementation of meaningful use approaches in the medical record that target enhance quality, safety, and efficiency of healthcare delivery.

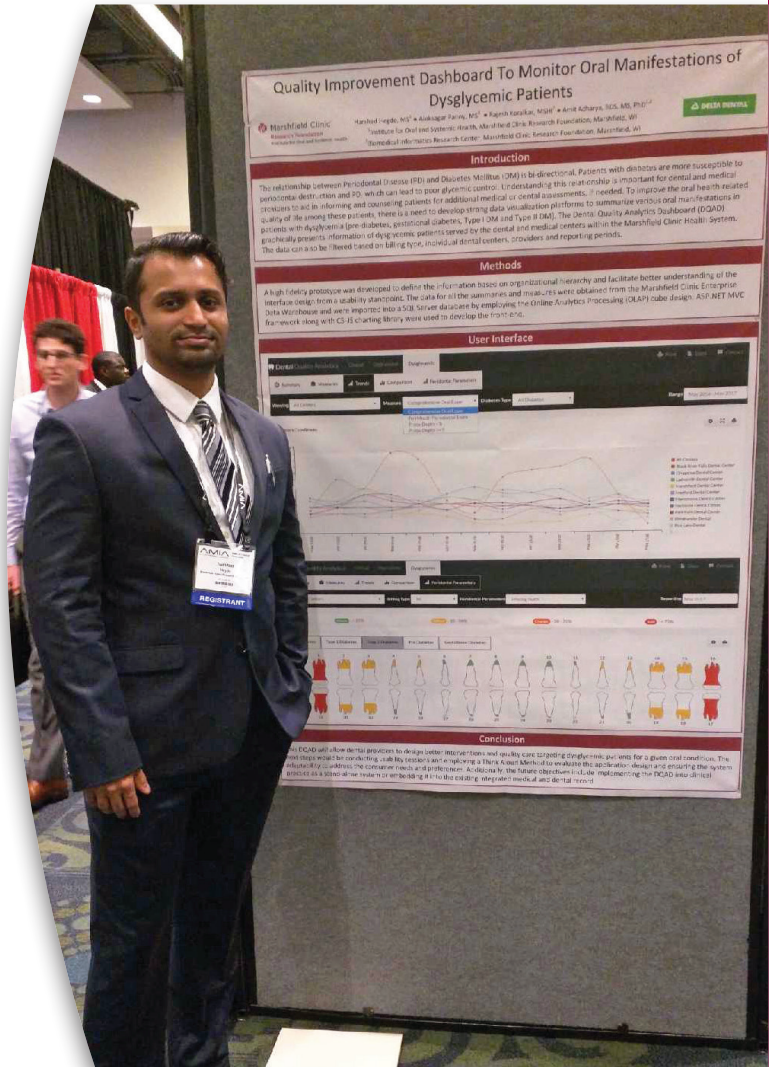
In her free time, Dr. Shimpi enjoys playing tennis, skiing, golfing and traveling.

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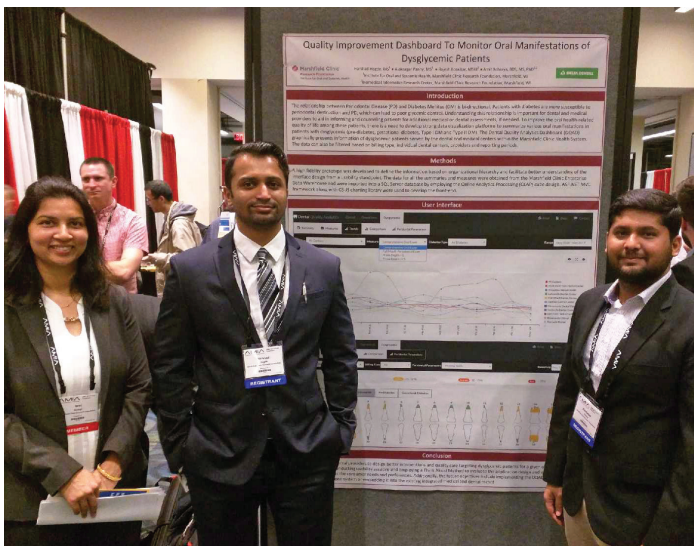
# COSH Presents at the AMIA 2017 Annual Symposium in Washington D.C.

Mr. Harshad Hegde, Informatics Research Architect, presented a poster entitled, “Quality Improvement Dashboard to Monitor Oral Manifestations of Dysglycemic Patients,” at the American Medical Informatics Association (AMIA) 2017 Annual Symposium in Washington D.C., November 4 – 8, 2017. Also in attendance, representing COSH, was Dr. Neel Shimpi, Associate Research Scientist and Mr. Alok Panny, Research Specialist.

AMIA is the professional home of leading informaticians: clinicians, scientists, researchers, educators, students, and other informatics professionals who rely on data to connect people, information, and technology. AMIA® is the center of action for more than 5,000 health care professionals, informatics researchers, and pioneers in biomedicine, health care and science. AMIA is an unbiased, authoritative source within the informatics community and the health care industry. AMIA and its members are transforming healthcare through trusted science, education, and practice in biomedical and health informatics.

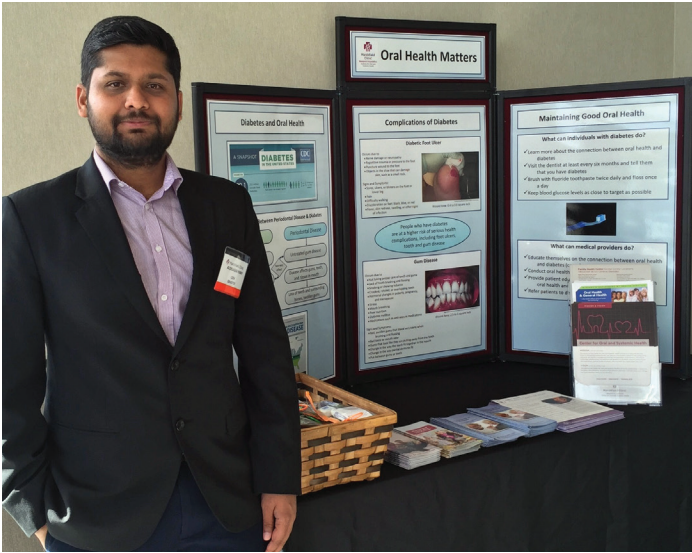


Mr. Harshad Hegde presenting his poster at AMIA.



Dr. Neel Shimpi, Mr. Harshad Hegde and Mr. Alok Panny at AMIA.

## ***COSH Presented Oral Health Information at Annual Diabetes Conference***



*Alok Panny, MS*

Alok Panny, Research Specialist, presented information and provided valuable educational materials on how oral health affects diabetes to healthcare providers and community members at Marshfield Clinic's 7th Annual Diabetes Conference at the Hilton Garden Inn in Wausau, Sept 29th and 30th 2017.

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## ***COSH Project Scientist Presents about Oral Health to Patients who had Undergone Bariatric Surgery***



*Ingrid Glurich, PhD*

Dr. Ingrid Glurich, project scientist, was invited to speak with patients who had undergone bariatric surgery about post-surgical side effects during a scheduled support group session. After an increasing number of patients who had the surgery began approaching Kim

Fuehrer, Bariatric Program Coordinator in Marshfield with questions concerning unexpected emergent oral health issues, Kim reached out to COSH for help in addressing these concerns. The presentation promoted health literacy around the topic, and presented patients with practical guidelines and best practices for preventing or minimizing onset of post-surgical dental and oral side effects that may occur in a subset of patients undergoing these surgeries. Two sessions were presented with 40 patients in attendance.

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*Annie Steinmetz, PMP*

## ***Project Manager Receives her PMP Certification***

Annie Steinmetz, Project Manager-Senior, recently earned her Project Management Professional (PMP) certification. The PMP certification is issued by the Project Management Institute (PMI) and is recognized internationally. Annie will be able to apply the knowledge gained from preparing and completing this certification to current and future COSH projects.

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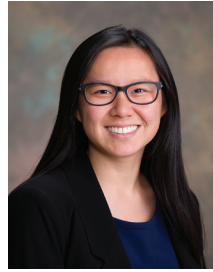
## 2017 COSH Summer Intern Projects



*Callahan Katrak*

COSH hosted two research interns from May to August 2017: Callahan Katrak and Katelyn Kleutsch. Callahan worked closely with Dr. Neel Shimpi to gain an understanding surrounding the associations between diabetes and periodontal (gum) disease. She assisted the project by distributing an eleven-question survey to adult patients in Marshfield Clinic waiting rooms and collecting completed surveys. Survey analysis found that 56% of participants were aware of the diabetes and periodontal disease association, with 19% rating their knowledge surrounding the association as “very good to excellent.” More than 40% of the survey participants also indicated an interest of learning more about the two common diseases.

Katelyn assisted with a study whose aim was to explore the feasibility of a tele-dental interventional approach to assessment of non-traumatic dental condition (NTDC) visits to emergency departments within the Marshfield Clinic Health System (MCHS), under the direction of Dr. Adham Abdelrahim and mentorship of Dr. Neel Shimpi. Annually, NTDCs represent about 1.4% to 2% of all emergency department visits. Emergency room dental care is neither cost-effective and is provisional, at best, offering only temporary relief without addressing the



*Katelyn Kleutsch*

underlying issue leading to the dental emergency. An estimated \$1.7 billion can potentially be saved annually if these visits were diverted to dental offices where appropriate cost-effective treatment could be rendered by dental specialists. Katelyn contributed to the project by assisting with screening and recruitment of potential research participants at Marshfield Clinic's Lakeview Medical Center. Preliminary study findings showed high agreement between the differential diagnoses rendered by the medical and tele-dental provider, decreased wait time for assessment by the tele-dental provider and projection of an estimated 64% in cost savings associated with referral of the patient to appropriate dental management and prevention of emergency room visits. For more information, links to abstracts describing their work can be found at:

### **Callahan Katrak**

<http://www.marshfieldresearch.org/srip/2017-internship-project-abstract-callahan-katrak>

### **Katelyn Kleutsch**

<http://www.marshfieldresearch.org/srip/2017-internship-project-abstract-katelyn-kleutsch>

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## MCRI Summer Research Internship Program (SRIP)

The primary goal of the Marshfield Clinic Research Institute Summer Research Internship Program (SRIP), which started in 1974, is to provide a mentored, hands-on research experience for college undergraduate, graduate, dental and medical students considering a career in research.

Students work with research scientists on an independent project and contribute to all aspects of the research process. Students also lead a journal club discussion, prepare an abstract describing their

research and present their research findings at the annual Research Symposium in August. Opportunities to attend medical Grand Rounds, scientific seminars and shadow clinicians are also available.

Research areas include Biomedical Informatics, Cultural/Medical Anthropology, Epidemiology, Genetics, and Oral and Systemic Health.

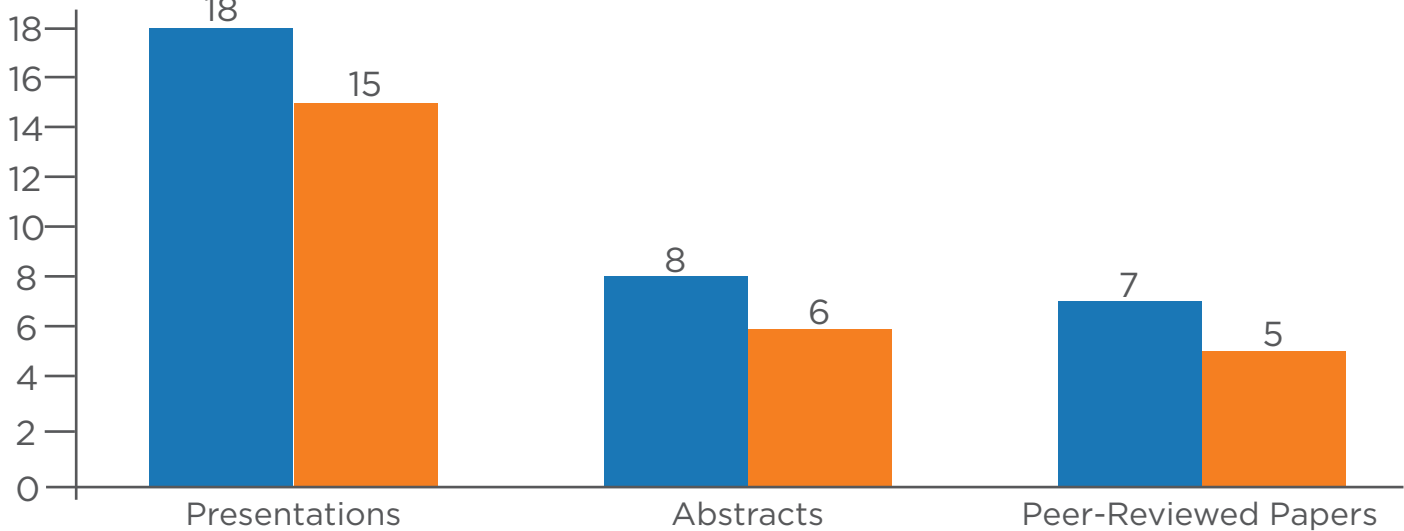
Learn more at [marshfieldresearch.org/srip](http://marshfieldresearch.org/srip)

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## Publications and Presentations

2016 - 2017



■ 2016  
■ 2017

Go to <https://www.marshfieldresearch.org/iosh/publications-and-presentations-2017> for more publications and presentations

For more information on COSH, its investigators, and ongoing, and historical research, please visit COSH at: <http://www.marshfieldresearch.org/COSH/oral-health-informatics>

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