

COHRI NEWS

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Issue 1

NEWSLETTER OF THE CONSORTIUM FOR ORAL HEALTH RESEARCH
AND INFORMATICS
CONSORTIUM FOR ORAL HEALTH RESEARCH AND INFORMATICS
A CONSORTIUM OF DENTAL SCHOOLS AND ENTITIES USING THE AXIUM

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COHRI HIGHLIGHTS



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Recent publications:

The development of a dental diagnostic terminology.

Kalenderian E. Ramoni RL. White JM. Schoonheim-Klein ME. Stark PC. Kimmes NS. Zeller GG. Willis GP. Walji MF. *JDE*. 75(1):68-76, 2011 Jan

Evaluating a dental diagnostic terminology in an electronic health record.

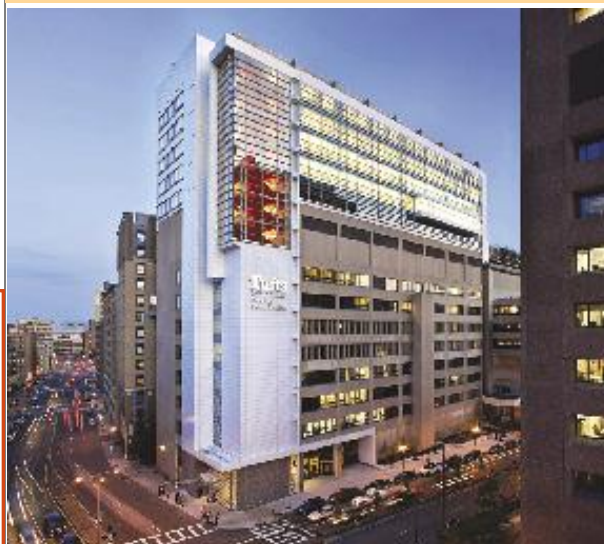
White JM. Kalenderian E. Stark PC. Ramoni RL. Vaderhobli R. Walji MF. *JDE*. 75(5):605-15, 2011 May.

Dear Colleagues,

COHRI is pleased to announce that its name has changed to the Consortium for Oral Health Research and Informatics, to emphasize our focus on research. However, our commitment to patient care and education still remains as strong as ever.

COHRI Board

Summer Meeting, July 26th and 27th, Boston, MA



COHRI is excited to return to Boston, the Birthplace of Democracy and the Birthplace of COHRI, for the 2012 summer meeting, co-hosted by the Tufts University School of Dental Medicine and the Harvard School of Dental Medicine. As the program takes shape, it promises to be exciting and educational. There will be lectures, grant-writing workshops and reports from workgroups.

In 2007, COHRI held its first meeting in Boston, attended by 20 representatives from 10 dental schools. Since then, COHRI has grown to 29 member institutions with more than 75 active participants.

More specific details about the meeting will be sent out shortly, so keep an eye out for an email. This year, like last year, we will be able to offer Continuing Education credit for those who attend. Please contact Paul Stark at paul.stark@tufts.edu with any questions.

COHRI ACHIEVEMENTS

Although the consortium only came into existence since 2007, the member schools have worked collaboratively and achieved a great deal in such a short time.

Accomplishments to date:

- ◆ Developed and implemented a standardized medical/dental history intake form (see page 4)
- ◆ Developed and implemented a standardized diagnostic terminology (EZcodes), which are currently being used at 17 COHRI institutions (see page 4)
- ◆ Developed a standardized CAMBRA protocol (see page 4)
- ◆ Awarded multi-center G08 grant for development of a data repository
- ◆ Awarded multi-center R01 grant to validate the EZcodes
- ◆ 3 Manuscripts, describing the development of COHRI (JDE October 2010), the development of the EZ-codes (JDE January 2011) and evaluating the EZ-codes (JDE May 2011) have been published
- ◆ Poster presentations (AMIA 2009, ADEE 2009, ADEA 2010, ADEE 2010, AAMC 2012)
- ◆ 2 programs at ADEA 2011—lunch and learn and new ideas

Current consortium activities:

- ➔ The CAMBRA workgroup was established in 2011 and has developed standardized questions and is working to implement the form in axiUm. The form will be revealed at the 2012 Summer Meeting.
- ➔ The Quality Improvement workgroup was established in 2011 and meets regularly.
- ➔ The Diagnostic Term workgroup meets at a minimum 4 times per year. It has just accomplished a revision of the EZcodes and during that process met weekly.
- ➔ The Clinical Research workgroup meets weekly for 1.5 – 2 hours to discuss issues related to the G08, R01, develop ideas for future grant submissions, work on manuscripts, posters and abstracts as well as write grants. The group shared their IRB submissions allowing for an easier process for the schools involved with the grants.
- ➔ The Data Integration workgroup meets weekly to develop the work funded through the G08 grant (development of the data repository).
- ➔ The Student Clinical Research workgroup is developing a ToolKit to help students understand the basics of planning research activities.
- ➔ The Health History Workgroup developed the standardized health and dental histories. It just finalized which part of the histories will be considered required to use and which parts will be considered “additional”.
- ➔ The Education arm developed a number of virtual patients and continues to add to the library. Additionally two PBL teaching cases, teaching how to add and manage patients in the axiUm EHR were shared with all the COHRI members.
- ➔ The Operational arm developed the website, developed a Membership Agreement and wrote an extensive business plan. Also, detailed Bylaws were developed and approved by the entire membership.
- ➔ The Board meets monthly by conference call.
- ➔ The Membership meets twice a year: once during the Exan Summit in January in Vancouver, Canada and once at its semi-annual meeting, which to date has been hosted on a rotating basis by the Board members’ school.



RECENT PUBLICATIONS**The development of a dental diagnostic terminology.**

Kalenderian E. Ramoni RL. White JM. Schoonheim-Klein ME. Stark PC. Kimmes NS. Zeller GG. Willis GP. Walji MF. *Journal of Dental Education*. 75(1):68-76, 2011 Jan

ABSTRACT

Standardized treatment procedure codes and terms are routinely used in dentistry. Utilization of a diagnostic terminology is common in medicine, but there is not a satisfactory or commonly standardized dental diagnostic terminology available at this time. Recent advances in dental informatics have provided an opportunity for inclusion of diagnostic codes and terms as part of treatment planning and documentation in the patient treatment history. This article reports the results of the use of a diagnostic coding system in a large dental school's predoctoral clinical practice. A list of diagnostic codes and terms, called Z codes, was developed by dental faculty members. The diagnostic codes and terms were implemented into an electronic health record (EHR) for use in a predoctoral dental clinic. The utilization of diagnostic terms was quantified. The validity of Z code entry was evaluated by comparing the diagnostic term entered to the procedure performed, where valid diagnosis-procedure associations were determined by consensus among three calibrated academically based dentists. A total of 115,004 dental procedures were entered into the EHR during the year sampled. Of those, 43,053 were excluded from this analysis because they represent diagnosis or other procedures unrelated to treatments. Among the 71,951 treatment procedures, 27,973 had diagnoses assigned to them with an overall utilization of 38.9 percent. Of the 147 available Z codes, ninety-three were used (63.3 percent). There were 335 unique procedures provided and 2,127 procedure/diagnosis pairs captured in the EHR. Overall, 76.7 percent of the diagnoses entered were valid. We conclude that dental diagnostic terminology can be incorporated within an electronic health record and utilized in an academic clinical environment. Challenges remain in the development of terms and implementation and ease of use that, if resolved, would improve the utilization.

Evaluating a dental diagnostic terminology in an electronic health record.

White JM. Kalenderian E. Stark PC. Ramoni RL. Vaderhobli R. Walji MF. *Journal of Dental Education*. 75(5):605-15, 2011 May.

ABSTRACT

There is no commonly accepted standardized terminology for oral diagnoses. The purpose of this article is to report the development of a standardized dental diagnostic terminology by a work group of dental faculty members. The work group developed guiding principles for decision making and adhered to principles of terminology development. The members used an iterative process to develop a terminology incorporating concepts represented in the Toronto/University of California, San Francisco/Creighton University and International Classification of Diseases (ICD)-9/10 codes and periodontal and endodontic diagnoses. Domain experts were consulted to develop a final list of diagnostic terms. A structure was developed, consisting of thirteen categories, seventy-eight subcategories, and 1,158 diagnostic terms, hierarchically organized and mappable to other terminologies and ontologies. Use of this standardized diagnostic terminology will reinforce the diagnosis-treatment link and will facilitate clinical research, quality assurance, and patient communication. Future work will focus on implementation and approaches to enhance the validity and reliability of diagnostic term utilization.

The benefits of COHRI Membership

COHRI members work collaboratively and synergistically to promote and conduct clinical research and improve dental education. Members have the following benefits:

- ◆ *Participate in research with consortium members.*
- ◆ *Sharing data with access to all consortium members' data.*
- ◆ *Share resources, protocols, and processes.*
- ◆ *Collaborate to improve patient care.*
- ◆ *Share information through COHRI website.*



Four key projects of COHRI are of particular use to schools: the standardized medical and dental history form; use of the EZ diagnostic codes; use of the CAMBRA form; and access to the data repository.

Standardized Demographics, Medical History and Dental History

The Data Standardization Workgroup has created standardized Demographics, Medical History and Dental History forms for COHRI schools to use. COHRI schools using the forms must not change any of the question or answers and must use the same set-up for the questions in the EPR form in axiUm. Schools are free to add any questions to their own form at their school. The committee is re-evaluating the forms to determine “core questions” that all COHRI schools should be asking. The forms can be obtained by contacting Nici Kimmes – nsk@creighton.edu.

Diagnostic Vocabulary

The diagnostic vocabulary consists of 1158 diagnostic terms subdivided into 13 categories and 78 sub-categories for easy retrieval. This will allow all of us to standardize how we document diagnostic findings and as such allow for better research capabilities. This vocabulary is protected through copyright, which means that *no reproduction or use of this material is permitted without specific written permission from COHRI*. The COHRI membership has also agreed that in order to maintain integrity of the vocabulary no one can alter, edit, add or delete any of the terms or (sub)categories. COHRI will review the vocabulary bi-annually. Contact Elsbeth Kalenderian - Elsbeth_Kalenderian@hsdm.harvard.edu for information.

CAMBRA

The Caries Management by Risk Assessment Workgroup has developed a set of questions. It will reveal the questions at the 2012 Summer meeting and is working with Exan to operationalize the form in axiUm. Next steps are to explore interventions. For information contact Joel White - whitej@dentistry.ucsf.edu

Inter-University Data Repository

Through the efforts of the Data Integration Workgroup, a repository has been created, using i2b2 as an interface, that allows for queries and reports to be run on data from individual patient visits. For more information contact Muhammad Walji - muhammad.f.walji@uth.tmc.edu

Being a participating member

Being a member of COHRI benefits not only your institution but through the interactions and power of many institutions working together there can be a significant impact on dental education and dentistry.

Summer School!

SUMMER PROGRAMS

In addition to the annual meeting prior to the axiUm Summit, COHRI members meet each summer in a working session. Summer sessions have been hosted at:

University of California San Francisco - 2008

This inaugural summer meeting was a great success and set the ground work for COHRI's future.



Indiana University - 2009

In addition to a lot of hard work, the group managed to get some time at the Indiana Zoo with a special behind the scenes introduction to zoo dentistry from George Willis who has provided crowns, RCT and other treatment for the animals—including our friend here!

University of Texas at Houston - 2010

This meeting was very productive with a lot of work done by the Diagnostic Code Medical/Dental History Workgroups. The group managed to carve out a little time to visit NASA—COHRI in outer space!



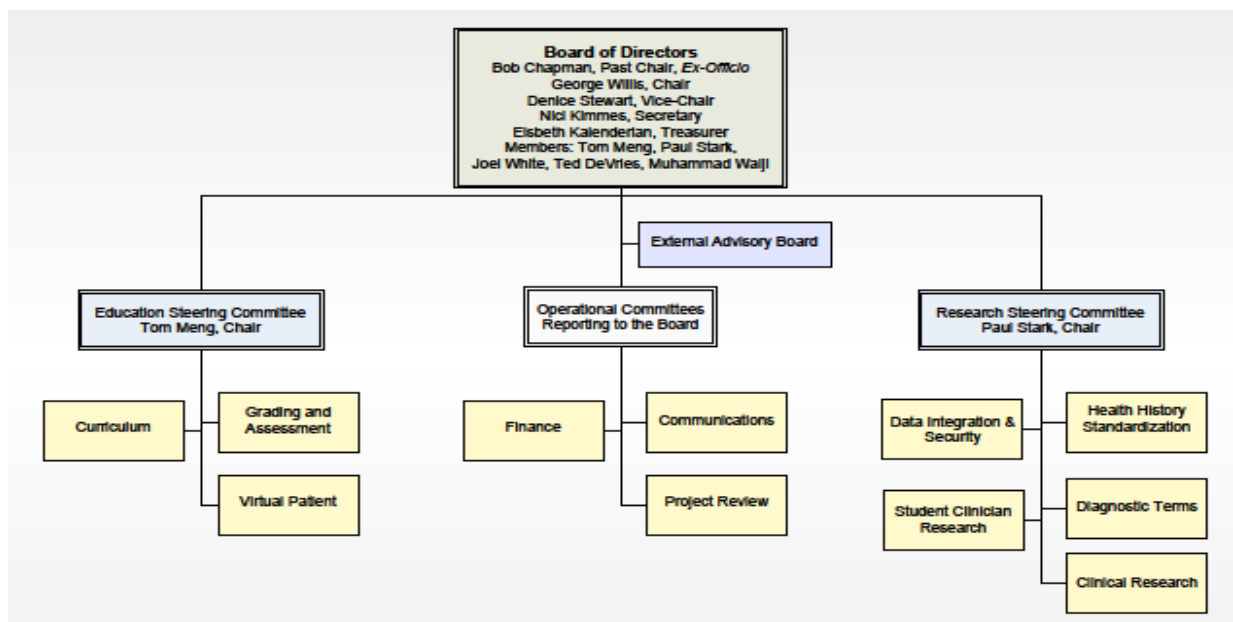
Oregon Health & Science University - 2011

The meeting at OHSU was a great success, and the largest meeting yet. It was highlighted by the formation of 2 new workgroups (CAMBRA and QI) as well as a trip to a winery!

COHRI ORGANIZATION

COHRI structure is based on a Board of Directors, Steering Committees, Workgroups and membership. The roles and responsibilities and rules of operation are set forth in the by-laws document which was approved by the membership.

Board of Directors			
	Officer	Institution	Email
Chair	Denice Stewart	Oregon Health & Science University	stewarde@ohsu.edu
Chair-elect	Nicole Kimmes	Creighton University	nsk@creighton.edu
Secretary	Paul Stark	Tufts University	paul.stark@tufts.edu
Research Chair	Muhammad Walji	University of Texas Health Science Center at Houston	muhammad.f.walji@uth.tmc.edu
Education Chair	Meta Schoonheim-Klein	Academic Centre for Dentistry	m.schoonheim.klein@acta.nl
Finance Officer	Elsbeth Kalendarian	Harvard University	elsbeth_kalendarian@hsdm.harvard.edu
Member	Bob Gellin	Medical University of South Carolina	gellingr@musc.edu
Ex-officio member	Ted DeVries	Exan Academics, Inc.	tdevries@exansoftware.com
Past Chair	George Willis	Indiana University	gwillis@iupui.edu



HISTORY OF COHRI

The Consortium for Oral Health Related Informatics (COHRI) was formed in February 2007 during a Users Group Meeting of dental schools who used the same EHR platform (axiUm). The Tufts University School of Dental Medicine had proposed the idea to form a consortium to share data to facilitate clinical research in dentistry. Subsequently, the first meeting of COHRI was held just 5 months later in June 2007 with representation from 10 dental schools. At the July 2008 meeting, COHRI formalized the organizational structure and created a board of directors.

VISION:
***Link resources for
better research and***

The Consortium for Oral Health Related Informatics has as **mission** to:

- .. Create, standardize and integrate data using electronic health records.
- .. Cooperate with other health related institutions to share data.
- .. Improve informatics utilization in dental education, health care, and research.
- .. Work together as a consortium to develop research projects to promote evidence based dentistry.
- .. Define and facilitate the implementation of best practices and standards of care.

COHRI is made up of general dentists, specialists, clinic and health care administrators, statisticians, dental informaticians, data analysts and modelers, computer scientists, system administrators, and software developers using the axiUm clinic management system. Our members expertise and dedication are key strengths of COHRI.

