COHRI News

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Consortium for Oral Health Research and Informatics

January 2013, Volume 3, Issue 1

HISTORY. MISSION & BENEFITS OF COHRI

History

The Consortium for Oral Health Research and Informatics (COHRI) was formed in February 2007 during a "users group" meeting of dental schools who used the same electronic health record 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.

Who Are Our Individual Members?

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 **axiUm**, a dental software institution management solution. Our members' expertise and dedication are key strengths of COHRI.

Mission

- *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*

Benefits of Membership

COHRI members work collaboratively and synergistically to promote and conduct clinical research and improve dental education. 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. 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*

MEMBER INSTITUTIONS & ORGANIZATION STRUCTURE

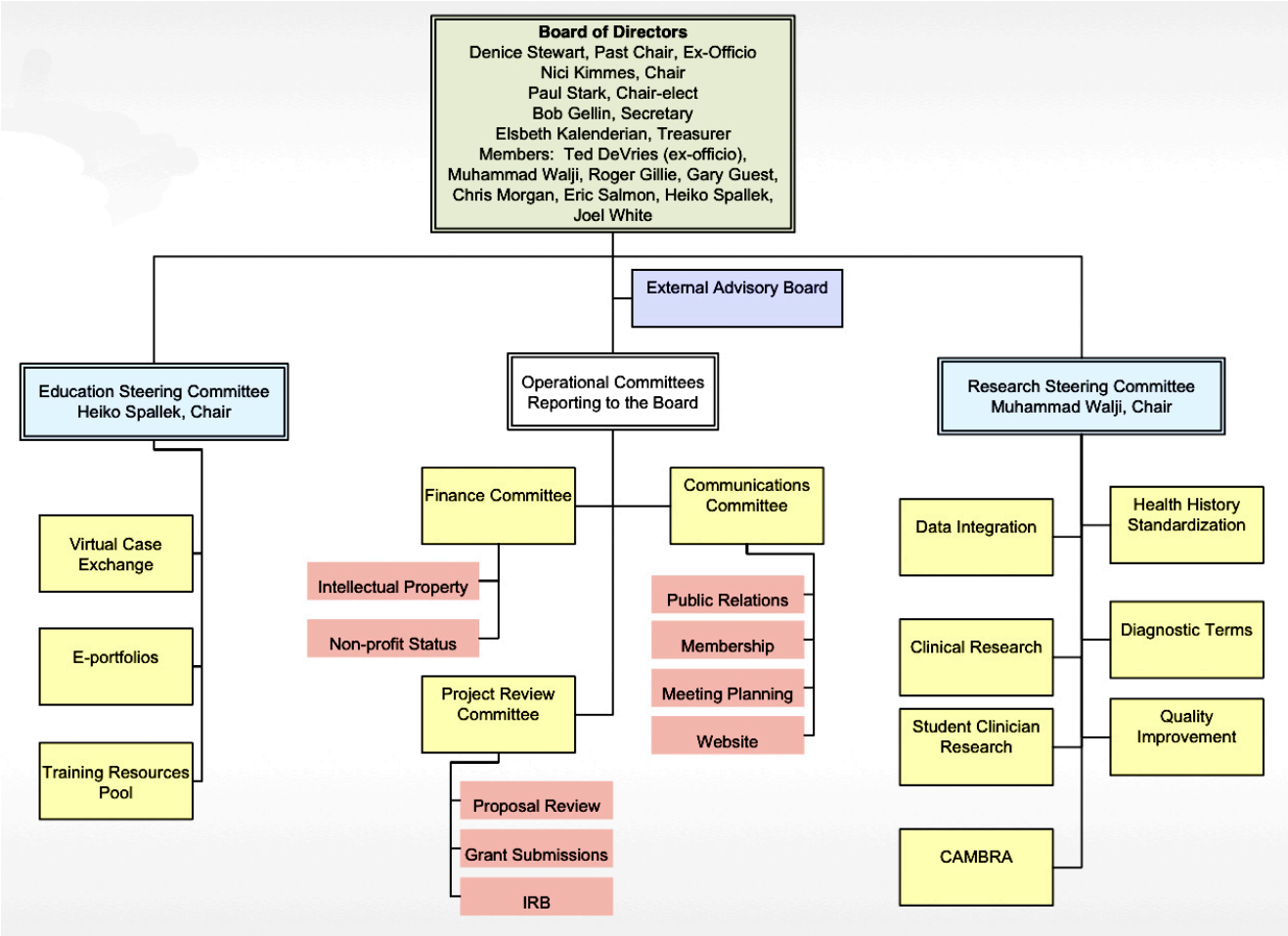
MEMBER INSTITUTIONS (31)

Academic Centre for Dentistry (ACTA - Amsterdam)	University of Illinois at Chicago, College of Dentistry
Baylor University, College of Dentistry	University of Kentucky, College of Dentistry
Columbia University, College of Dental Medicine	University of Louisville, School of Dentistry
Creighton University School of Dentistry	University of Michigan, School of Dentistry
Harvard, School of Dental Medicine	University of Minnesota, School of Dentistry
Indiana University, School of Dentistry	University of Nevada Las Vegas, School of Dental Medicine
Medical University of South Carolina, College of Dental Medicine	University of Oklahoma, College of Dentistry
Meharry Medical College, School of Dentistry	University of Pacific, School of Dentistry
Midwestern University, College of Dental Medicine (Arizona)	University of Pittsburgh, School of Dental Medicine
Nova Southeastern University, College of Dental Medicine	University of Southern California, Ostrow School of Dentistry
Oregon Health & Science University, School of Dentistry	University of Tennessee, College of Dentistry
Temple University, School of Dentistry	University of Texas, School of Dentistry (Houston)
Tufts University, School of Dental Medicine	University of Texas Health Science Center (San Antonio)
University of California San Francisco, School of Dentistry	University of Washington, School of Dentistry
University of Florida, College of Dentistry	Virginia Commonwealth University, School of Dentistry
	Willamette Dental Group (Oregon)

The 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. The Board meets monthly by conference call.

Board of Directors

Position	Name	Institution	Email
Chair	Nicole Kimmes	Creighton University	nsk@creighton.edu
Chair-elect	Paul Stark	Tufts University	paul.stark@tufts.edu
Past Chair	Denice Stewart	Oregon Health & Science University	stewarde@ohsu.edu
Secretary	Bob Gellin	Medical University of South Carolina	gellinrg@musc.edu
Treasurer	Elsbeth Kalenderian	Harvard University	elsbeth_kalenderian@hsdm.harvard.edu
Research Chair	Muhammad Walji	University of Texas Health Science Center at Houston	muhammad.f.walji@uth.tmc.edu
Education Chair	Heiko Spallek	University of Pittsburgh	hspallek@pitt.edu
Member	Roger Gillie	University of Michigan	rgillie@umich.edu
Member	Gary Guest	University of Texas Health Science Center at San Antonio	guestg@uthscsa.edu
Member	Chris Morgan	University of Louisville	chris.morgan@louisville.edu
Member	Eric Salmon	University of the Pacific	esalmon@pacific.edu
Member	Joel White	University of California at San Francisco	whitej@dentistry.ucsf.edu
Ex-officio	Ted DeVries	Exan Group	tdevries@exansoftware.com



COMMITTEES AND WORKGROUPS

If you are interested in becoming more involved with COHRI, here is a list of all of our current committees and associated workgroups along with the responsible Chairs.

Research Steering Committee (Muhammad Walji, Chair)

- **CAMBRA** — Joel White & George Willis
- **Clinical Research** — Joel White
- **Data Integration** — Muhammad Walji
- **Diagnostic Terms** — Elsbeth Kalenderian
- **Health History Standardization** — Nici Kimmes
- **Quality Improvement** — Denice Stewart & Elsbeth Kalenderian
- **Student Clinician Research** — Denice Stewart

Education Steering Committee (Heiko Spallek, Chair)

- **E-portfolios** — Heiko Spallek
- **Training Resources Pool** — Eric Salmon
- **Virtual Case Exchange** — Heiko Spallek

Operational Committees Reporting to the Board

- **Communications Committee** — Roger Gillie
- **Finance Committee** — Elsbeth Kalenderian
- **Project Review Committee** — Joel White

COHRI ACCOMPLISHMENTS & ACTIVITIES

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

WORKGROUP ACTIVITIES:

1. The CAMBRA workgroup was established in 2011 and developed a COHRI Standardized Caries Risk Assessment form, helped provide content expertise for caries diagnosis for the EZcodes, developed a decision tree for caries risk, developed a clinical decision support tool through the caries risk assessment short form and are just about ready to finish standardized interventions for CAMBRA.
2. The Diagnostic Terms workgroup meets weekly by phone and twice yearly in person. It just completed the annual revision of the EZCodes dental diagnostic terminology and held the inaugural conference discussing barriers to further implementation of the terminology in November in Boston.
3. The Clinical Research workgroup meets weekly for 1.5–2 hours to discuss issues related to current grant projects, 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.
4. The Data Integration workgroup meets weekly to develop the work funded through the G08 grant (development of the data repository).
5. The Student Clinician Research workgroup is developing a ToolKit to help students understand the basics of planning research activities.
6. The Quality Improvement workgroup was established in 2011 and meets regularly.
7. The Health History Standardization workgroup developed the COHRI Standardized Pediatric and Adult Medical and Dental History forms. The group meets weekly by phone and is currently finalizing standardized reference coding for the pediatric medical history and putting together an implementation package for COHRI members.
8. The Education Steering Committee is currently focusing on e-portfolios, an axiUm training resource repository and virtual case exchange. See "A Closer Look" at the end of this newsletter where the Education Steering Committee is featured.
9. A Communications Committee was recently formed to facilitate communication among members and dissemination of information.
10. The Finance Committee is currently working on establishing non-profit status for COHRI.

DATA STANDARDIZATION:

1. Developed and implemented a standardized adult medical and dental history
2. Developed a standardized pediatric medical and dental history
3. Developed and implemented EZCodes 2012 standardized dental diagnostic terminology
4. Developed a standardized CAMBRA protocol

PRESENTATIONS:

1. Posters - AMIA 2009, ADEE 2009, ADEA 2010, ADEE 2010, AAMC 2012
2. Two programs at ADEA 2011 - Lunch and Learn and New Ideas
3. Three presentations at ADEA 2012

GRANTS:

1. Awarded multi-center G08 grant for development of a data repository
2. Awarded multi-center R01 grant to validate the EZCodes dental diagnostic terminology
3. Awarded multi-center R01 grant to evaluate patient safety in dentistry
   "Developing a patient safety system for dentistry" This project aims to reduce patient harm, and improve the quality of care delivered in dentistry. As a long-term goal, it is important to understand the causes of dental adverse events and develop interventions to minimize their occurrence. The objective of this project is to develop the tools necessary to document dental adverse events, generate a classification scheme and repository that can help organize and link adverse events, and allow five dental organizations to begin to systematically collect and analyze adverse events.
4. Awarded ADA Gies Award grant
   "Collaborative pilot study of the impact of the use of the EZCodes dental diagnostic terminology in treatment planning on critical thinking skills of dental students as measured by the Health Science Reasoning Test" The purpose of this project is to investigate whether or not the introduction and use of the dental diagnostic terminology (EZCodes) in treatment planning per the electronic health record (axiUm) can positively impact dental students' critical thinking skills. This is a collaborative effort between the Medical University of South Carolina, Harvard and UT Houston.

PUBLICATIONS:

1. Stark, P.C., Kalenderian, E., White, J.W., Walji, M.F. Stewart, D.C.L., Kimmes, N.S., Meng, Jr., T.R., Willis, J.P., DeVries, T., Chapman R.J. for the Consortium for Oral Health-Related Informatics (COHRI). Consortium for Oral Health-Related Informatics: Improving Dental Research, Education, and Treatment. J Dent Educ. 2010 74: 1051-1065. PMID: 20930236 PMCID: PMC3114442

2. Kalenderian, E., Ramoni, R., White, J.M., Schoonheim-Klein, M.E., Stark, P.C., Kimmes, N.S., Zeller, G.G., Willis, G.P., Walji, M.F. The Development of a Dental Diagnostic Terminology. J Dent Educ. 2011 Jan;75(1):68-76. PMID: 21205730 PMCID: PMC3107733

3. White, J.M., Kalenderian, E., Stark, P.C., Ramoni, R., Vaderhobli, R., Walji, M.F. Evaluating a Dental Diagnostic Terminology in an Electronic Health Record. J Dent Educ. 2011 May;75(5):605-15. PMID: 21546594 PMCID: PMC3119719

4. Kalenderian E, Ramoni R.B., White J.M., Schoonheim-Klein M.E., Stark P.C., Kimmes N.S., Patel V.L., Walji M.F. The importance of using diagnostic codes. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2011 Jul;112(1):4-5. PMID: 21669360

5. Ramoni, R.B.*, Walji, M.F.*, White, J.M., Stewart, D.C.L., Vaderhobli, R., Simmons, D., Kalenderian, E. From Good to Better: Towards a Patient Safety Initiative in Dentistry. JADA 2012; 143(9):956-960.

6. Tokede, O.*, Walji, M.F.*, Ramoni, R., Schoonheim-Klein, M.E., White, J.M., Vaderhobli, R., Stark, P.C., Kimmes, N.S., Patel, V., Kalenderian, E. Treatment planning in dentistry using an electronic health record: implications for undergraduate education. European Journal of Dental Education. Published online 5/18/2012. DOI: 10.1111/j.1600-0579.2012.00759.

7. Tokede, O.*, White, J.M.*, Stark, P.C., Vaderhobli, R., Walji, M.F., Ramoni, R., Schoonheim-Klein, M.E., Kimmes, N.S., Tavares, A., Kalenderian, E. Assessing the use of a standardized dental diagnostic terminology in an electronic health record J Dent Educ. March 2012. In Press.

8. Walji, M.F.*, Kalenderian, E.*, Tran, D., Kookal, K.K., Nguyen, V., Tokede, O., White J.M., Vaderhobli, R., Ramoni, R., Stark, P.C., Kimmes N.S., Schoonheim-Klein M.E., and Patel, V. Detection and characterization of usability problems in structured data entry interfaces in dentistry. International Journal of Medical Informatics. 2012 Jun 29. In Press. PMID: 22749840 PMCID: PMC3492538.

MEETINGS (Most Recent & Upcoming)

COHRI members meet 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.

BOSTON (July 26 & 27, 2012)

COHRI was 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. The hugely successful program included lectures, grant-writing workshops and reports from workgroups.

Highlights include:

- Dr. Bjorn Olsen, Dean for Research, Harvard School of Dental Medicine opened the program expressing enthusiastic support and making the case for use of the EZCodes dental diagnostic terminology in translational research.
- Dr. Muhammad Walji presented "An Inter University Dental Data Repository for Clinical and Quality Research".
- Dr. George Willis provided a CAMBRA update, discussed the guiding principles and set a target date of February 2013 for a fully operational electronic patient record form.
- Dr. Elsbeth Kalenderian discussed how the EZCodes dental diagnostic terminology has been mapped to the CDT and SNOMED terminologies.
- Dr. Nici Kimmes presented the finalized standardized Pediatric Medical and Dental History form.
- Dr. Ross Koppel (Tufts University), gave a fantastic presentation on "Digital Dental Data, Decision Support, Data Standards & Data Interoperability".
- Drs. Rachel Ramoni and Elsbeth Kalenderian provided a lively discussion on "Successful Grant Writing".
- Dr. Shawn Murphy (a neurologist and bio-informatician at Mass General Hospital, Laboratory of Computer Science) delivered an informative presentation on the "Secondary Use of Healthcare Data for Translational Research".

VANCOUVER (Sunday, February 10, 2013)

Our annual meeting will be one day prior to the **axiUm** Summit at the downtown Fairmont Vancouver. Meeting agenda:

- 9-12 pm Workgroup Meetings (Education, CAMBRA)
- 1-4 pm COHRI General Meeting
  Dr. HsingChi von Bergmann will speak on "What Role Could the E-Portfolio Assessment Play in Competency Based Education Programs?"
- 4-5 pm Business Meeting

Dr. von Bergmann
Associate Professor
Educational Research Faculty
of Dentistry
University of British Columbia

Fairmont Vancouver

KEYNOTE SPEAKER: DR. HSINGCHI VON BERGMANN

Hear the pros and cons of e-portfolios through two case studies. With the cacophony of ideas from health science educators on fostering students' abilities in critical thinking, problem solving, and ensuring the production of reflective health professionals, various alternative and authentic assessment practices, such as case studies, performance-based assessment, or portfolios, have been introduced to assess students' learning. Specifically, in the past 10 years, discussion around portfolios (digital or non-digital) has mostly centered on their advantages, such as how the use of portfolios enhances students' learning, stimulates introspective thinking and self-assessment/reflective abilities, or introduces positive impacts on decision making processes.

Similar to traditional measurement practices, such as multiple choice, open-ended question or essay-based tests, alternative assessment practices also encounter challenges surrounding reliability, fairness, and validity. Shavelson et al (2009) provide a concise and comprehensible discussion of these difficulties of portfolios. Since 1990, as health sciences education has moved toward being competency-based, the portfolio as a means of assessing students has been widely researched. Psychometricians have argued that use of the portfolio will not provide reliable and valid summative assessment information of student learning. In contrast, Driessen, et al. in their 2007 systematic review of the mixed success phenomenon of using portfolios in medical education argued that the portfolio could be used both formatively and summatively if their observed practical recommendations for health science educators are considered. In this presentation, I will consider these two prominent competing studies and present my analysis of what role the e-portfolio could play in competency-based education programs. Two examples of e-portfolio inclusion will be used to illustrate my arguments.

WHAT IS AN E-PORTFOLIO?

With an e-portfolio, like many technological innovations, there is no consensus on a definition. Usage very often frames the definition. When the uses are many, so the descriptor broadens. Buckley in her 2009 Medical Teacher article has achieved a synopsis of the current thinking about an e-portfolio.

"In general terms, a portfolio can be defined as a collection of evidence that learning has taken place (Challis 1999a). However, the term is used to describe a plethora of learning tools that differ widely in content, usage and assessment requirements (Rees 2005a and b). Portfolios are seen as tools to increase students' self-awareness, to foster students' ability to learn independently and to encourage students to reflect on their own performance (Challis 1999b; Pitts 2007).

In recent years, the use of portfolios as learning and assessment tools in undergraduate medical education has become more widespread, partly due to the trend towards competency–based medical education (Driessen et al. 2007a), and partly due to an increased emphasis on reflective practice (General Medical Council 2003 and 2006). Similar developments have occurred in undergraduate nursing (Glen & Hight 1992; Nursing and Midwifery Council 2008) and in other allied health professions (Paschal et al. 2002)."

Source

Buckley, Sharon; Coleman, Jamie; Davison, Ian; Khan, Khalid S; Zamora, Javier et al.: The Educational Effects Of Portfolios On Undergraduate Student Learning: A Best Evidence Medical Education (BEME) Systematic Review. BEME Guide No. 11 (2009), Medical teacher. Vol. 31 (4) p. 282-298. http://www.ncbi.nlm.nih.gov/pubmed/19404891

VANCOUVER (Monday, February 11, 2013 & Tuesday, February 12, 2013)

COHRI will have 3 "focus groups" during lunch. A table will be setup for each of these topics:

- Monday: Membership, Quality Improvement and ePortfolios/Education
- Tuesday: EZCodes, Medical History and CAMBRA
- **Tuesday Summit Presentation: "COHRI: Improving Oral Health through Collaboration and Standardization"**

ANN ARBOR, MICHIGAN (July 25 & 26, 2013)

Our annual summer COHRI meeting will be held at the University of Michigan, School of Dentistry in Ann Arbor.

- Save the dates! Meeting agenda forthcoming.

CLOSER LOOK - EDUCATION STEERING COMMITTEE

SETTING A COURSE FOR THE EDUCATION STEERING COMMITTEE

The Electronic Health Record is an integral part of contemporary dental schools in both improved patient care mission and enhanced dental education. Yet most schools are barely skimming the surface of the information lying dormant in the EHR. At its July meeting, members of the Education Steering Committee agreed that the EHR is an essential tool for assisting students to achieve competencies; and that now is the time for dental educators to move beyond an education paradigm of solely relying on tracking student grades and credits for procedures.

Educators must find ways to mine and exploit the salient information potential to enhance our understanding of students' learning process and result: things such as what our students struggle with most, and how our teaching can be adjusted to produce competent oral health sciences practitioners. The Committee's vision is for clinical teaching to embrace the union of technology with the application of methods already proven sound in education sciences. A prime example is the use of scaffolding techniques for students and clinical instructors. The group believes the time is ripe for developing enhanced approaches that efficiently unearth the mother lode of dental data.

For the upcoming year, the Education Steering Committee plans to focus its efforts in three areas:

- E-portfolios
- Training resource repository
- Virtual case exchange

E-PORTFOLIOS

Much more than the transientness of Facebook or Twitter, e-portfolios are fast developing into the digital repository of a student's life, both academic and personal. The student grants admission to certain compartments of the portfolio to educators, potential employers, family or friends. It is in the education compartment, if you will, that we have an opportunity to evaluate what the student has accomplished, what competencies are checked off. Yet e-portfolios are a two-way street of learning for both student and educator. The e-portfolio offers the educator opportunities for formative and summative assessments; for the student there are opportunities for integrated, self-reflective, self-directed and longitudinal learning. What is an e-portfolio? See sidebar.

Further fuel for the e-portfolio bandwagon are the changes enacted when the National Dental Board Examinations moved from a score to pass/fail result. This opportunity opens up e-portfolios to myriad questions from software, infrastructure and evaluation strategies to HIPAA compliance, teacher training and workload management as well as portfolio access beyond the dental school. With the literature offering little in the way of a recognized approach, we're left with more questions than answers at this point. As a first step to frame the e-portfolio discussion, the Steering Committee has invited Dr. HsingChi von Bergmann, from the University of British Columbia, to present at the COHRI Annual Meeting preceding the Exan User Summit in February. (See page 7 for the abstract of Dr. von Bergmann's presentation.)

VIRTUAL CASE EXCHANGE

In today's global knowledge village, easy access to and exchange of information is fundamental to the concept of pooling resources for the benefit of everyone. The Education Steering Committee investigated two options for facilitating the exchange and sharing of interesting cases among educators in order to make clinical teaching more efficient. It sounds straightforward but there are several barriers blocking this endeavor. Central among them is the lack of incentive for case authors to prepare a case and share it. We looked into **MedEdPORTAL®**, an international online publication founded by the Association of American Medical Colleges, and the American Dental Education Association (ADEA).

MedEdPORTAL

1) Formal publication on MedEdPORTAL is possible as long as the case meets three stipulations:
   - Compliant with the site's author submission and copyright guidelines \
   - Host capabilities in its entirety on the MedEdPORTAL servers (no external linkages)
   - Developed with specific learning objectives
   - Offers a comprehensive Instructor guide
   - Accepted following a formal MedEdPORTAL peer review process.

2) To submit publications to MedEdPORTAL, go to: https://www.mededportal.org/ and click Submit to Publications. MedEdPORTAL also offers iCollaborative, a centralized online platform for collaboration among academic medical institutions for information sharing as well as an open forum for the exchange of ideas and best practices in health care education and delivery. Submissions to iCollaborative can include externally hosted materials but will not undergo a formal MedEdPORTAL peer review. To submit to iCollaborative, go to: https://www.mededportal.org/ and click Submit to iCollaborative.

IFDEA

Housed on the IFDEA website, the Library of Dental Educational Resources serves as a common venue for the effort of dental educators worldwide. There is no charge to use the educational content and to add your own case studies and content. To view or submit content, go to www.ifdea.org.

AXIUM TRAINING RESOURCE REPOSITORY

To avoid member schools recreating the wheel, the Education Steering Committee has begun a project to create a Training Resource Repository. The goal is to make **axiUm** training materials, created by each school for internal use, available to all COHRI members. For instance, the University of Pittsburgh's School of Dental Medicine has a system that de-identifies patient data so that students can use it for their mandatory senior case presentations. Pitt plans to share these training resources under a Creative Commons license so other schools can modify the content for their own use.

Exchange of this vast array of training methods and materials used by schools will facilitate effective teaching strategies and encourage best practices. Project leader, Eric Salmon, will soon be contacting member schools asking for content and assistance. Contact Eric at esalmon@pacific.edu if you would like to help.

REMINDER

The Education Steering Committee meets during the 2013 **axiUm** Summit in Vancouver on Sunday, February 10, 2013 in the morning before the COHRI general meeting.

HARVARD HOLDS EZCODES TERMINOLOGY CONFERENCE

On November 28, 2012 an Inaugural Conference was held in the HSDM Auditorium, to explore the importance of standardization and the need for a diagnostic terminology in dentistry, and to learn the scientific underpinnings of the EZCodes Dental Diagnostic Terminology. The goal was to facilitate a discussion and share solutions to overcome barriers and address needs for implementing a dental diagnostic terminology in the dental profession. Participants included government agency representatives, members of dental professional boards, payors, provider groups, EHR vendors, members of standards organizations, dental school educators and deans. During the morning session, more than 65 attendees listened to 8 speakers who represented different types of healthcare professionals, addressing the various aspects of standardization. During the afternoon session, participants were divided in three brainstorming groups, providing feedback on what the barriers are and what solutions may be to overcome further dissemination of a diagnostic terminology in dentistry. The conference closed with a report out of the three groups and general Q&A session.

Using a dental diagnostic terminology empowers clinicians to document types and frequency of conditions they encounter and enhance communication between them and other clinicians thereby enabling outcomes tracking and data sharing across sites. It allows the ability to assess in-depth variations in health care, health care quality, costs of care, and treatment effectiveness/outcomes. Consistent use of a diagnostic terminology will help hone diagnostic skills. Studies have also shown that arriving at a diagnosis before planning a treatment significantly increases the quality of the treatment plan and ultimately, patient care.

The EZCodes Dental Diagnostic Terminology was developed in 2009 by a diagnostic terminology research workgroup led by Dr. Elsbeth Kalenderian, DDS, MPH, Chair and Associate professor of Oral Health Policy and Epidemiology. Catalyzed by the Consortium for Oral Health Research and Informatics (COHRI), the EZCodes Terminology has been adopted by 15 dental schools and numerous nonacademic institutions in the US and Europe, creating diagnostic centric care for over 2 million patient visits per year.

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