

Dental Informatics Online Community Webcast

What is dental informatics?

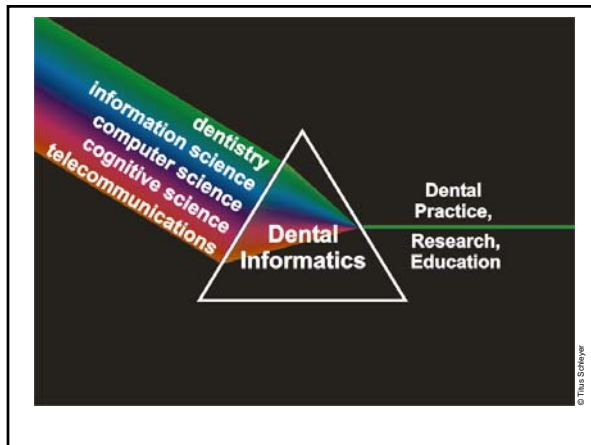
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Anderson Valley, California, 2/2003

Dental informatics

“Dental informatics is the application of computer and information science to improve dental practice, research, education and management.”

Eisner J. The future of dental informatics.
Eur J Dent Educ. 1999;3 Suppl 1:61-9.



Information science

... is the collection, classification, storage, retrieval, and dissemination of recorded knowledge treated both as a pure and as an applied science.

Sample research questions:

- Is SNODENT an accurate representation of dental diagnoses?
- How can a patient's oral health status be summarized from comprehensive data about oral health and general health?

Computer science

... is a discipline that involves the understanding and design of computers and computational processes.

Sample research questions:

- How can various pathologies on radiographs be detected using neural networks?
- How can decision support systems help dentists develop optimal treatment plans?

Cognitive science

... is a science that draws on several fields (as psychology, artificial intelligence, linguistics, and philosophy) to develop theories of perception, thinking and learning.

Sample research questions:

- How should computer-based dental charting systems be designed for optimal user performance?
- How can detection of early-stage oral cancer by dentists be improved?

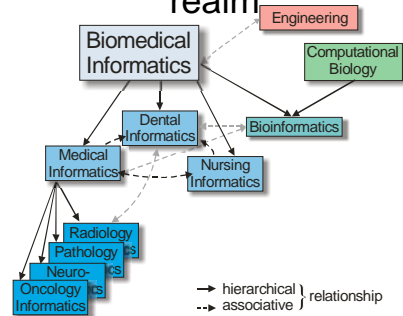
Telecommunications

... is the science that deals with communication at a distance.

Sample research questions:

- How can a complete and comprehensive oral health record for a patient be assembled on the fly using electronic records from different providers?
- What communication requirements do real-time, comprehensive teledentistry systems have?

The biomedical informatics realm



Sample research projects in dental informatics

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Education 3-D Interactive Tooth Atlas

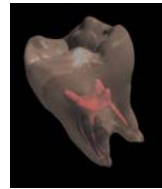
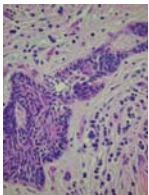


Image from "3-D Interactive Tooth Atlas"

Research questions:

- How can an accurate 3D representation of a natural tooth be generated on the computer?
- How can the user interact optimally with the computer-based 3D-model?
- Is this resource better for teaching dental anatomy than conventional methods?

Clinical practice Computer expert system for the histopathologic diagnosis of salivary gland neoplasms



Reilly M, Coma J, DDS, MS

Research questions:

- How does the diagnostic performance of the expert system compare to the diagnostic performance of human experts?
- What types of inference mechanisms are particularly well-suited to diagnosing salivary gland neoplasms?

Firriolo FJ, Levy BA. Computer expert system for the histopathologic diagnosis of salivary gland neoplasms. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1996 Aug;82(2):179-86.

Clinical practice Usability of four practice management systems

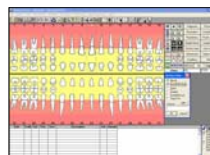


Image courtesy of Dentrio Dental Systems

Research questions:

- Which usability problems are common in dental software?
- What is the rate of completed, incorrectly completed and incomplete user tasks?

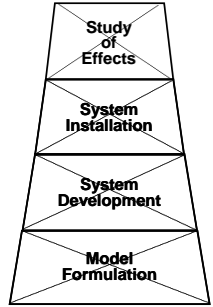
Thyvalikakath T, Schleyer T, Monaco V. Usability of four practice management systems, in preparation.



Big Hole Valley, Montana, 9/2001
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Where is the science in biomedical informatics?

The tower of science in informatics



studying the effects of these systems on the reasoning and behavior of health care providers, organization(s) and process(es)

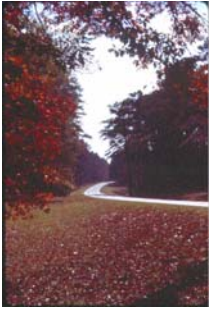
installing such systems and then making them work reliably in real-world environments

developing innovative computer-based systems that deliver information or knowledge to end users

models for acquisition, representation, processing, display or transmission of biomedical information or knowledge

Friedman C. Where is the science in medical informatics? JAMIA Feb 1995. Vol. 2 No. 1; 65-67

Thank you for your attention!



Natchez Trace, Mississippi, 11/2001
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