Welcome!

We are delighted to present the first edition of our Dental Informatics Working Group Newsletter. This quarterly publication is designed to provide our readers with accessible and informative content about the latest trends, innovations, and activities of the Dental Informatics Working Group (DIWG) within the International Medical Informatics Association (IMIA).

Our goal is to delve into a wide range of topics, including electronic dental records, data analytics, tele-dentistry, and the exciting applications of artificial intelligence in dentistry. With each issue, we aim to showcase the diverse approaches and applications that are shaping the field of dental informatics. Join us as we embark on this enlightening journey and uncover the transformative potential of informatics in oral healthcare.

In this issue:

1. Activities of the Dental Informatics Working Group
2. What is Dental Informatics?
3. How can I join the workgroup?
4. A brief history of Dental Informatics

Who are we?

We are an initiative comprised of diverse professionals united by a common passion for harnessing the power of informatics to enhance oral healthcare delivery. By joining our forces, we can collectively advance the field and drive positive changes.

Our activities are designed to foster the professional growth of dental practitioners, health informaticians, researchers, IT professionals, medical and allied professionals, and educators, among others; facilitate dental and health informatics, develop innovative dental education initiatives, and foster collaborative research projects. Together, we strive to build a robust evidence base that will benefit the entire dental informatics community and ultimately improve patient outcomes.

Join us today and be a part of our vibrant network of dental informatics enthusiasts, where you can make a meaningful impact while furthering your own professional development.
What do we aim for?

Now that you know who we are, we think it is now appropriate to share with readers the objectives of this group:

1. To create a collaborative global network of professionals leveraging the power of dental informatics
2. To drive excellence in oral healthcare through data-driven insights and evidence-based practices
3. To enable seamless, secure integration and exchange of dental health information across borders
4. To raise awareness of the power of dental informatics for transforming delivery and access to oral health services, increasing research capability, and facilitating interdisciplinary practice and consumer engagement for better patient care
5. To promote and contribute to education and workforce development in digital and dental informatics

Activities of IMIA’s Dental Informatics Working Group (DIWG)

Dental education activities
Aimed at providing students and general dental practitioners with knowledge and skills to understand the intersection between informatics and oral healthcare.

Collaborative work
Aimed to build cooperative strategies comprised from various disciplines to foster knowledge sharing and interdisciplinary exchange of ideas and experience to develop and implement solutions.

Research
Aimed to develop an evidence base of various aspects in dental informatics, its implementation and applications, as well as the ethical and social implications of informatics in oral healthcare.

Webinars
Aimed to disseminate information on key aspects, trends and applications of dental informatics through online sessions and discussion panels among dental students, genetal dental practitioners and researchers.

How can I join?

We are also interested in growing this group. Therefore, we cordially invite you to join IMIA’s Dental Informatics Working Group, where passionate professionals like yourself can come together and contribute to our activities.

You will have the opportunity to build collaborative interdisciplinary networks with professionals, researchers, and clinical practitioners who share a common goal: harnessing the power of informatics to enhance oral healthcare delivery. Whether you are an expert in the field, a professor, a student, or a researcher, your unique perspectives will be invaluable in our collective efforts.

Join us today and be a part of our vibrant network of dental informatics enthusiasts, where you can make a meaningful impact while furthering your own professional development. Please contact us at dentalinformaticsimia@gmail.com
What is Dental Informatics?

Dental informatics is not a new term recently introduced. Its first appearance dates back at the end of the 60s in a paper published by Zimmerman. However, it is a field derived from medical informatics and which also is part of the broader field of biomedical informatics. Nevertheless, dental informatics is still considered an emerging field as it has been defined in many ways and usually tends to bring confusion among readers. Therefore, to ease our readers on this topic. We believe that a starting point of this first issue of our newsletter is to simply provide you with an explanation that is simple to catch and fits in our approach, as a Working Group, to dental informatics:

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

Then, this definition can be further expanded to describe dental informatics as a discipline from the field of biomedical informatics that is focused on the retrieval of data, its storage (information science), and finding ways (through research and education) in which this information can be used to strengthen/improve the provision of oral healthcare (practice and management). The challenge in understanding Dental Informatics is probably due to many scenarios which we will briefly describe below:

First, the basis of dental is dental informatics is taken from many disciplines such as social sciences, psychology, anthropology, linguistics, engineering, mathematics, and, of course, medicine and dentistry. As a result, as human resources specifically trained in dental informatics are limited, the conceptual and methodological approaches may depend on who is conducting the research projects. This, in consequence, brings confusion to readers and those interested in advancing the field of dental informatics.

Secondly, the research methods to conduct research in dental informatics are also varied and are taken from those employed in computer science, information science, cognitive sciences, and telecommunications.

A brief history of dental informatics

The term “dental informatics” was introduced by Zimmerman et al. in 1968 and appeared in the MEDLINE-indexed literature in 1986 (Benoit et al., 2022; Schleyer et al., 2003). Abbey & Zimmerman published the first book on dental informatics in 1992, which offered a conceptual overview of this field (Abbey & Zimmerman, 1992).

Historically, dental informatics has been considered to be a part of information technology. However, the motivation for dental informatics differs fundamentally from information technology. Dental informatics seeks advancement in the application of information and computer science to improve research, practice, management, and dental education, as compared to a primary focus on the implementation, application, and support of computer technology and telecommunication in information technology. Due to the differing nomenclature and early definitions in this field, it is possible that works prior to 1968 have been published but were not labeled as such. There are no dedicated dental informatics journals saved for the Journal of Computerised Dentistry published by Quintessence Publishing, Inc. Some journals have established a dedicated section for dental informatics, such as in the Journal of the American Dental Association (Schleyer et al., 2003).

The field of dental informatics has expanded significantly over the last 50 years alongside medical informatics and biomedical informatics.

(Continued on page 4)
A brief history of dental informatics (cont.)

Developments have been made through several studies on standardized clinical coding systems, data capture and clinical data reuse (Benoit et al., 2022). Image processing and computer-aided diagnosis (CAD) and computer-aided instruction are active fields of research (Schleyer & Spallek, 2001).

Between 2012-2017, the rate of adoption of electronic dental records in the United States increased from 52% to 77% (Acharya et al., 2012; Chauhan et al., 2018). Following this development, the need for standardized clinical coding systems (SCCs) that are scalable, sharable and well adapted to dentistry became apparent to take full advantage of EDRs. SCCs allow machine-readable documentation and computerized comparisons of treatment outcomes (Benoit et al., 2022).

In the early 2000s, EZ codes (renamed to Dental Diagnostic System) was created. This was later integrated with SNODENT and renamed as SNO-DDS. In 2012, SNODENT was incorporated into SNOMED CT. Another coding system available for use is the Oral Health and Disease Ontology based on the OBO Foundry (Benoit et al., 2022). However, the adoption and interoperability of systems that utilize the benefits of SCCs remains an area to be evaluated. The development of complete, computer-based dental records is both a challenge and opportunity in dental informatics. Schleyer & Spallek (2001) highlights the hope for a patient-centered, rather than practice-centered dental record to eliminate duplicate information gathering and provide a rich context for treatment through accessing prior diagnostic and treatment records.

More individuals who are interested in the field of dental informatics are required to put theories and concepts of informatics into practice. Currently, dedicated educational programs for advanced degrees in dental informatics are offered by Columbia University and a joint program by University of Pittsburgh and Temple University. There are also many programs which offer digital health and health informatics education as ways that one can explore their interest in this field (Schleyer et al., 2003).

References


