



The Great Awakening - Digitalization in Dental Healthcare during the pandemic COVID19

Priyanka Paul Madhu^{*1}, Yojana Patil¹, Aishwarya Rajesh Shinde¹, Sangeeta Kumar², Pratik Phansopkar³

¹Department of Public Health Dentistry, Tatyasaheb Kore Dental College and Research Centre, New Pargaon, Kolhapur - 416137, Maharashtra, India

²Department of Prosthodontics, New York University College of Dentistry, 24th Street, New York - 10010, United States of America

³Department of Musculoskeletal Physiotherapy, Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha - 442001, Maharashtra, India



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ABSTRACT

Coronavirus disease in 2019, also called COVID-19, which has been widely spread worldwide had given rise to a pandemic situation. The public health emergency of international concern declared the agent as the (SARS-CoV-2) the severe acute respiratory syndrome and the World Health Organization had activated significant surveillance to prevent the spread of this infection across the world. Taking into the account about the rigorousness of COVID-19, and in the spark of the enormous dedication of several dental associations, it is essential to be enlightened with the recommendations to supervise dental patients and prevent any deprivation of education to the dental graduates due to institutional closure. One of the approaching expertise that combines technology, communications and health care facilities are to refine patient care, it's at the cutting edge of the present technological switch in medicine and applied sciences. Dentistry has been improved by cloud technology which has refined and implemented various methods to upgrade electronic health record system, educational projects, social network and patient communication. Technology has immensely saved the world. Economically and has created an institutional task force to uplift the health care service during the COVID 19 pandemic crisis. Hence, the pandemic has struck an awakening of the practice of informatics in a health care facility which should be implemented and updated at the highest priority.

*Corresponding Author

Name: Priyanka Paul Madhu

Phone: 989077020

Email: drpriyanka0690@gmail.com

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INTRODUCTION

The infection has rapidly developed worldwide is called COVID-19. The international concern of public health emergency declared SARS-CoV-2 the severe acute respiratory syndrome coronavirus 2 and the World Health Organization had activated significant surveillance to prevent the spread of this infection across the world. This infection first came in 2019 in Wuhan, China, that resulted in the 2019–2020 pandemic, which became a worldwide threat as it had spread across the world. It became the first pandemic caused by a coronavirus ([Spagnuolo](#)

et al., 2020). The public was limited to circulate outdoors, maintaining social distancing and the termination of every task, even closure of educational institutions and the population was requested to use safety gloves and protective mask. These activities have the goal of reducing the probability of people to come in contact with the asymptomatic infected patient (Li *et al.*, 2020). The professionals in the health sector anticipated this as a national emergency. All the health care workers and paramedics have been the first line warriors to fight against the disease. An article was published in The New York Times on 15 March 2020 titled “The Workers Who Face the Greatest Coronavirus Risk”, interpreted that dentists are widely exposed to the threat of getting affected by COVID-19 (Iqbal, 2020). Hence to take specific actions against this infectious disease, numerous personal protection measures were recommended to the Dental professionals like a reduction of practising operative procedures which can cause aerosols, taking into the account about the rigorousness of the COVID-19 and in the spark of the enormous dedication of several dental associations, it is essential to be enlightened with the recommendations to supervise dental patients and prevent any deprivation of education to the dental graduates due to institutional closure (Meng *et al.*, 2020).

Health Informatics Is Transforming Health Care

One of the approaching expertise that combines technology, communications and health management facilities to refine patient care, it's at the cutting edge of the present technological switch in medicine and applied sciences. The essential sectors of oral health information systems are monitoring of oral disease patterns over time and data. The Online Oral health database was formed by the world health organization (WHO) in 1996 that was supported by WHO's Collaborating Centre of oral health at Malmö University, Sweden and University of Japan, Niigata. Various dental schools, such as the school of dental medicine (SDM) had contributed to joining the Consortium for Oral Health Research and Informatics (COHRI). An oral health database called as Big Mouth Dental Data Repository is developed from electronic health records. The students have enabled 1.5 million unidentified health records and the faculty to query and research (Chhabra *et al.*, 2016).

At present Dentistry is left in a state of disengaged mutiny in the index of internet providers and technology. General dental practitioner's ways have till now not made simpler for patients referrals to the NHS Hospital. A plan to provide innovative personalized dental services has been not organized, and

an integrated technological approach for dentistry has yet to be perceived (Knott, 2013). There are about $\frac{1}{4}$ of the world's 7.8 billion population are persisting in their homes; daily life remains uncertain. Once the patients return to their habits, such as a regular dental checkup, they will need reassurance that dental providers are delivering safe and high-quality care. Hence, Today's health care providers must be sound with technology and skilful at accessing journal articles and databases like PubMed and Cochrane Oral Health, which specializes in a meta-analysis of dental research.

ADVANTAGES OF INFORMATICS IN HEALTH CARE

Substantial Savings

By an improved electronic and connected system, any laboratory outcomes would be reaching their terminus promptly which can enhance an advanced and a generous fitting care distribution to create a reduction in any kind of malpractice and errors in regards to health informatics. It could also increase efficiency where before there was extravagant incapacity.

Divided Knowledge

Health informatics distributes a direction for knowledge about medication, patient care delivery, medications and treatment protocols which improves the decision making among the Health care workers that result in improving their skills. The practice of medicine gets better by a continuous flow of knowledge between the patients and doctors, which helps everyone within the alignment of care, treatment, anticipated communication among the hospital administrators and patients.

Patient contribution

Patients access to their electronic health records helps them to be empowered and give a decisive contribution to take care of one's health. A follow up on medications, or any symptoms will become more productive, and patients will be taught by more knowledge about their diagnosis. Excellent outcomes can be expected with better interaction with health care professionals.

Impersonalization of vigilance

A work of significance is standardized on statistical data for the doctors to retrieve an understanding of patients to offer proper care. Data collected from a patient can be arranged to analyze the cause of illness and treatment to be provided. It is still an approach to be routinely practised for determining the consequence of the data management system

over a period of time. A system of excellent accuracy and validity in managing records that the health administration can bring into practice has yet to be achieved.

Escalation in Coordination

There is an improvement in specialization within Health care, by allowing the patients to retrieve care from numerous different people in hospital stay, pharmaceutical concerns, blood levels, radiographs, discharge instructions. Good coordination escalates the quality of Health informatics.

Improved results

The immediate changes observed in a health care system requires good coordination to achieve a better diagnosis with reduced occurrence of errors which can be experienced by an electronically equipped health records. The health care workers will no more be bound with the manual task as it will be automatically upgraded, in turn preserving finances and time. This will be beneficial for maintaining economic growth too.

Health administration has undergone a massive reconditioning which has been promptly updated by the technology, and health informatics assures better outcomes in more substantial efficiency, improved care with coordination (Epstein *et al.*, 2010).

RESEARCH PROJECTS

Electronic Health Records (EHRs)

Dentistry has been improved by cloud technology which has refined and implemented various methods to upgrade electronic health record system. Dental schools require quality of research and prominent educational facility to encourage them for prospects towards modernization. Patient data which includes medications, diagnosis, vital signs, smoking status, demographics and treatment protocols, has also improved. Best clinical decisions with proper diagnosis result in a better outcome of the patient.

Educational Projects

This centre, the National Institutes of Health Center [Excellence in Pain Education], supports instructional technology aspects to produce, distribute and evaluate curricular assets of health care professionals which enhances pain education. Biomedical Informatics Online Certificate Program (OCP); by using evidence based educational principles, it reinforces the program by providing a proper online format for E – lectures.

E-portfolios for dental education – In a student daily life, E portfolios have become the digital repositories. Dental educators are offered the responsibility for a better determinative and summative assessments and providing students a longitudinal, self-administered and integrated learning.

The consortium of oral health research and informatics (COHRI) — this system works on standardization of research work with integrated data management in EHRs. It's an approach to practice evidence-based dentistry which promotes vital projects into research and enhances dental informatics in education. A method of updated technology facilitates better practice (Madhu, 2017).

The Members work in harmony to standardize, develop and integrate data in EHRs; improve informatics solutions in dental education, research and health care; develop research projects which promotes evidence based dentistry; define standards of care and enable implementation of best practice (Madhu, 2017).

Social Network

Online society connects public and promotes them to distribute research activities and opportunities. This has become a virtual era which gives a good chance for the global community to anticipate equally.

The software in Support of Evidence-based dentistry

Curriculum management *tool (CMT)*: This tool supports the dental education which is a key pillar of dental informatics practice and research. It helps in maintaining an authentic and effective dental curricular activity.

Disaster medicine: It is the zone of a clinical specialty which allocates the health care services to the survivors of a disaster and equipped with disaster preparation. It includes medical help and planning to response and deliver medical facilities at the site of disaster. An integrative medical group functions with in threatening and adverse situations, which needs an account of prompt and precise communication among the medical team is predominantly vital. Disaster management protocols include proper training of the entire team and personnel (Norris *et al.*, 2015).

Patient Record and Communication

Inter-sectorial communication is the most standard way to maintain proper records. A determined approach can be achieved in an interdisciplinary platform by the maintenance of communication and patient records. A method which inculcates confi-

dence to the dentist and their patients (Shetty *et al.*, 2014).

Current scenario

In response to the current health crisis, teledentistry is emerging as a viable care option to help "flatten the curve" of the COVID-19 pandemic. The ADA defines teledentistry as "the administration of telehealth systems and approaches in dentistry," which includes "a wide variety of methods and technology to provide health education and medical facility virtually."

Such technologies and tactics include the following:

1. **Live video:** Asynchronous online video between health care providers and patients by practising an audiovisual technology.
2. **Reserve and forward:** Health information (e.g., a patient's digital impressions, radiographs, photographs etc.) can be transmitted via a well reliable communications system to the health care provider, who evaluates the condition of patient by utilizing the stored patient information.
3. **Distant patient monitoring:** Medical data and Personal health collection retrieved from an individual in one location through electronic communication technologies, which is transferred to a health provider in a different geographic area in related support of care.
4. **Ambulatory health:** Public health practice and education are assisted by mobile communication devices such as cell phones, personal digital assistants (PDA) and tablet computers.

ADA is in the process of compiling third-party payor policies concerning payment for telehealth services and making the information available in the COVID-19 interim guide. The ADA also notes that it has been succeeding recommendations issued by CMS de-regulating telehealth and contributing gains for virtual check-in as a way to reinforce primary care and is exploring if this guidance applies to dental care (Stoopler *et al.*, 2020).

Struggle for Implementation

During this phase of lockdown where all universities are closed, yet education should be distributed in every aspect; hence worldwide, many teachers have adopted the technology. Faculty have initiated preparing lesson plans to deliver online teaching to their students. Most of the faculty members have trained themselves over online learning platforms (Mahase, 2020).

Though there is a probability that few lecturers might not be sound with technology and will not be able to adopt this model. This entire transition to an online mode of learning has aroused doubts for the faculty about efficiency to manage with the existing technology (Telli, 2020).

Furthermore, every house acquiring computer setup and IT equipment have become the primary source of work and communication for parents, children, and other relatives. Thus, work from home is going to be an extremely strenuous task for the faculty for conducting classes as per the schedule. A multitude of educational institutes does not have sufficient resources to facilitate online education services with the prompt outcome. The students who lack internet facilities at home and access to laptops are facing significant loss. New ideas have to be reached out for teaching practice. Hands-on work will be complicated, but various webinar series can encourage them to learn better in their respective topic. The quality of education provided online is a sensitive issue that requires mandatory attention (Sahu, 2020).

CONCLUSION

Electronic Health Records improves the safety, quality and efficiency of care and the educational opportunities have increased by the advanced electronic learning management systems. These numerous methods in technologies supply as a prospective to provide a similarly massive impact on the health module of disaster management. Technology has immensely saved the world economically and has created an institutional task force to uplift the health care service during the COVID 19 pandemic crisis. Hence, the pandemic has struck with an awakening of the practice of informatics in a health care facility which should be implemented and updated is the highest priority.

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