

DentiNect: Misleading tale of success or digital misconception- In the light of covid-19

Sundus Wahid

Abstract

DentiNect is a brain child of orthodontic resident struggling to create a digitally enabled Orthodontic Health care delivery system across Pakistan & globe. In 2019, DentiNect was endorsed by Pakistan Association of Orthodontists (PAO) as an original innovation in data driven "Tele-Orthodontic" services platform. The years of team work has driven a mere idea to an acceleration stage Tele -Orthodontic health care venture lodging as a Go- To market software platform. This unique software proprietary is offering LAMP stack with basic Machine Learning operatives in its current version "DentiNect 3.0".

Keywords: Digital orthodontics; orthodontic advisory; tele-orthodontics

Introduction

The article highlights the challenges faced by developing economies in the light of Covid-19, adaptation of newer market trends in next few years to curb the aftermath of Covid-19, impact of Covid -19 on dental health care industry and necessary adaptations by the healthcare industry as a whole to counter such dilemmas in the future. The factors found in literature indicate that employing digital technology will extend far beyond workflow management, electronic records, imaging or rapid prototyping and will have to evolve organically where patient point of contact will become necessary to enhance accuracy of diagnosis in real time through communication points, remote monitoring and data driven outcomes.

Discussion

The parallels of Covid-19 have been drawn to great economic depression of 1929, centurial plaques of 13th century "European black death", great plague of London that nearly

lasted for 300 centuries with 40 outbreaks, 19th century's smallpox endemic or "miasma" famously known as Cholera¹. The advanced world including world powers were most hit, utterly unprepared to witness such socio-economic meltdown, exposing the frail and failing ecosystem of globalization, poor policies and facade of equality. However, there have been some positive lessons from this crisis. Most important is that humanity has come to a common ground to adapt a thorough resilient mindset in new pretenses and preferences for the future ahead.

Following are some positive from Covid-19 crisis:

Education: Education will be online with billions spending on building new E-Learning platforms and upgrading existing ones. The positive outcome of this will be creation of opportunities for the under-deserved to have access to such resources.

Resource Management: A paradigm shift to multiply the limited resources to large population groups can be achieved through technology alone.

E-commerce: The advanced technologies with established E-commerce networks have withstood these hard times where the net worth of Amazon grew many folds. The developing countries will rapidly progress

Former Post Graduate Resident, Department of Orthodontics

Islamabad Medical and Dental College.

Founder DentiNect & OroDonti.

Ssundus.wahid317@gmail.com

towards driving E-Commerce trade, digital payments, and online gateways. It is assumed by 2024, 5 billion of the world population will be in an online marketplace².

Environment: The lockdown has decreased the green gas emission by 24.4%². The excessive work commute pressures have enhanced the demand of remote skill management, effective time utilization and efficient outcomes.

New Global Policy: A more national approach towards globalization will push the developed countries to hire and up-skill their own workforce with added technology gateways ensuring sustainable solutions for unseen future crises.

Health Care: The healthcare sector needs to redirect resources from infrastructure to information communication technology, healthcare management information systems, robotics, machine learning and data driven caches. This will scale up the missing demand -need gap in the sector, upgrade research initiatives and make healthcare accessible to everyone.

Dental Health Care:

- Dentists are said to be at 8% higher risk rate on contracting Covid-19 as compared to other healthcare professionals and at the same time most economically hit (90% drop of in-clinic patients visits)³
- The nature of the job suspends airborne aerosols in the environment for longer hours with not nearly as effective approach on one-hour gap time to sanitize the practice.
- The doctors who used to cater one patient / 30 minutes now work in shifts with limited services only being offered to emergency cases
- All elective procedures like orthodontic braces, wire changes, esthetic procedures have been canceled in major practice groups.

The dogma of managing Orthodontic Emergencies in Covid-19:

An orthodontic emergency can be defined as a problem arising from an orthodontic

appliance requiring an unscheduled appointment⁴ for e.g. breaking of functional or fixed appliances, dislodging of a fixed retainer, broken or loose wires, auxiliaries, brackets, bands, retainers or lost appliances or pain as a consequence of treatment or either of the factors mentioned above. It is suggested to send photos (still a diagnostic gold standard) or audio visuals directly through electronic channels to the concerned team; under supervised virtual assistance nearly all orthodontic emergencies can be managed with minimal exposure.

Where Does DentiNect Stand in Covid-19: Past, Present and Future?

- The word “Digital” is redefining conventional processes by establishing online, fully automated processes through digital signals with little or no need for human interaction⁵. The estimated cost reduction per patient through tele-health can be between 30%-50%⁶ and on full scale adaptation can reduce the overall health costs by 16 billion dollars⁷.
- The front liners on the war against Covid-19 are the healthcare professionals and since the break of pandemic an estimated 20% of healthcare professionals have contracted the disease with uncertain global death figures⁸
- To reduce direct exposure and put a valuable asset (decades of learning with painful specialization journey-unique skill set) as doctors on high risk category “Digital Transformation” needs to be inculcated as a part of everyday practice through;
 - Tele-health
 - Tele-orthodontics
 - Indirect supervision
 - Skill & capacity building
 - Virtual care
 - Remote dental monitoring
 - At - home triage services

DentiNect can help the dentists and staff to stay “in” work “at” home with added benefits of increased convenience, greater accessibility, and effective use of resources.

DentiNect Features through History 2019-2020

Release	Prototype	1.0	2.0	3.0
Date	Aug 2019	Sep 2019	Jan 2020	May 2020
Features	Basic Ceph software Functional dashboard Diagnostic fields Primary website 1.0	Doctor and Patients dashboards. Primary registration Automated summaries. PDF attachments.	Website Portal integration. Payment Gateway incorporated. Patient Workflow management. (DM) Dental tourism forms. Image uploading.	GDPR Doctor finders Verified E-CVs. History sheet notes. Improved dashboard Improved Ceph software. (additional features added) Automated picture template buildup.

Present:

DentiNect: 24/7 Intelligent Oral Health Solutions changing Dentistry through connected Care satisfactorily answers to these existing problems, and is not merely a digital myth. After the break of Covid-19, team DentiNect re-evaluated their Go- To market strategy, halted all operations, ran extra mile and redesigned the existing platform to establish newer care of direct contact points between patients and doctor as “MVP 3.0”. DentiNect has clearly emerged as “**true global innovators**” with a new adaptation approach in Covid-19.

The existing DentiNect platform offers:

- The growing need of clinical decisions driven by data
- Limited human intervention with primary focus on perfecting outcomes
- Increased diagnostic accuracy
- Cross border collaboration
- Sustainable income streams
- Decreasing the chair side times
- Patient accessibility without waiting times
- Leveraging access to specialists
- Direct patient contact care points

Future:

Converting a mere “idea” into “functional” modality requires a lot of hard work, sacrifice

and persistence. A need for an implementation model “DentiNect” from dental domain to medical domain will scale, boost and upgrade the fractured health care delivery system of Pakistan. In times like these the government needs to reform the private –public partnerships, reconsider efficient healthcare policies, release immediate debt free loans to up skill & expand delivery force mechanisms to enable entrepreneurial ventures. In the future DentiNect will offer:

- Future B2B, B2C online marketplace
- Academia hub
- Improved diagnostic software
- Customer relationship management domains

Why DentiNect?

DentiNect solves a number of immediate academic-oral health problems by establishing a direct interpolation between the centered users- private practices, residents, supervisors, dental hospitals and academic institutes. This unique point of interpolation significantly reduces the treatment costs associated with:

- Limited access orthodontic diagnostic software
- Specialized hardware’s

- Additional patient traveling costs
- Prolonged patient waiting times
- Specialized care skill set
- Practice overhead
- Data waste

Conclusions

Sun Tzao in Art of War says “there always lies an opportunity in the midst of chaos”¹⁰.

It’s comprehended that after Covid-19 the face of conventional dentistry and Orthodontics will be changed forever, patient centric care will be on the top of the treatment alternatives, technology mesh cannot exist independently, a sustainable global model is needed towards a unified approach to diagnose better in limited resources, and resources can be only quadrupled through technology. We need to use Covid-19 as a grand opportunity in our favor, define our new roles as progressive “empathetic” clinicians this demands a sense of greater responsibility & unification where personal or professional interests should be let off to a singular goal of helping residents, students, patients & everyone in our reach for an

evolving sustainable global dental community.

References

1. Defoe D. A journal of the plague year. Penguin classics, 1722:36-48.
2. Hogg D, Hogg M. Population Pyramids. Disquete, 1986:1-15
3. Ahmadifard, A. Unmasking the hidden pandemic: sustainability in the setting of the COVID-19 pandemic. Br Dent J 2020, 229:343-345.
4. Caprioglio A, Pizzetti GB, Zecca PA, Fastuca R, Maino G, Nanda R. Management of orthodontic emergencies during 2019-NCOV. Prog Orthod. 2020, 1:21-24.
5. DL Rogers. The digital transformation playbook: Rethink your business for the digital age. Illustrado, 2016:10-15.
6. Gogia S. Fundamentals of telemedicine and telehealth. Elsevier, 2019:10-30
7. N.Oudshoorn. Telecare technologies and the transformation of healthcare. Plagrave MacMillan, 2011:50-65.
8. C Henegham, J Oke, T Jefferson. Covid-19 how many healthcare workers are infected? Centre for Evidence Based Medicine, 2020, 1:1-2.
9. Kumar S, Bano S. Comparison and Analysis of Health Care Delivery Systems: Pakistan versus Bangladesh. J Hosp Med Manage. 2017, 3:1.
10. Sun Tzu. The art of war. Simon & Schuster, 2020:100-115