



Opinion paper on the role of teledentistry in enabling improved oral care outcomes

Global task force for improving
access to dental care.

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Project aims

To clarify the role of teledentistry as a possible adjunct to improving oral health, especially when access to oral care services is limited.

To achieve this, Oral Health Foundation and Unilever conducted a substantial literature review of the evidence behind the barriers to dental access around the world.

This coincided with a review of the research behind technology-supervised dentist advice as an enabler to increase access to a dentist.

Alongside an investigation into the evidence, a global panel of leading dental professionals were assembled to give verbal accounts of their experiences of dental access in developing nations and to gather feedback on the benefits and potential rollout of teledentistry in their respective countries.

Introduction

Nowadays, the link between oral health and general health is clearly understood and supported by many global bodies, such as the World Health Organisation. However, oral diseases are still very common all around the world and possibly need a more pragmatic approach.

Though a preventative approach to oral health is the best option, many people do not have regular access to oral care services and therefore miss the necessary care and specific preventative education that will help to keep their mouth and body healthy. This is especially true for populations in remote and rural areas, low socio-economic groups of people with little access to dental care, and patients with both physical and mental disabilities or having mobility issues which could make visiting a dental practice more difficult.

We defined the major barriers to access oral healthcare, reviewed most recent publications on teledentistry projects, commented on the outcomes, and we suggest opportunities for evidence-based oral health advice that can be delivered by implementing specific teledentistry models, thus helping to improve access to dental care.

“Teledentistry is the use of electronic information, imaging and communication technologies, including interactive audio, video, data communications, as well as store and forward technologies, to provide and support dental care delivery, diagnosis, consultation, treatment, transfer of dental information, and education.”

American Teledentistry Association

Barriers to access oral healthcare

Limitation of access to health care during the Covid-19 pandemic clearly highlighted the importance of health information and exchange and underlined a need to implement digital solutions. The limited dental workforce (dentists, dental nurses, dental therapists, dental hygienists, clinical dental technicians) in both developed and under-developed countries is of major concern, affecting the provision of optimal oral care particularly for people in rural areas or overpopulated cities.

Shortage of available local providers can lead to minor dental problems being overlooked and becoming severe, resulting in a negative impact on overall health and reduced quality of life.

Professor Tri Erri Astoeti, Indonesia: “Dental access in Indonesia is very limited. The population is about 270 million but unfortunately, the number of dentists is very low – about 37,000 dentists.”

Professor Dr Humayun Kabir Bulbul, Bangladesh: “Due to COVID 19 pandemic, clinical dental service became very narrow or sometimes didn’t operate at all. Patients were also scared to visit the dentist as they need to take off facial masks.”

Dr Hoang Trong Hung, Vietnam: “The big issue right now after a dentist graduates. A new dentist must practice in a hospital setting first. It means that it’s 18 months before getting licensed. From the start of their training, it is seven and a half years before they can fully practice.”

Health inequalities are one of the most important problems of social injustice worldwide, and are increasingly recognized as a serious, public health concern. Oral health inequalities exist globally throughout the lifecourse amongst and between different population groups. People in lower socioeconomic groups are more likely to have poorer oral health than their counterparts in higher groups and limit their visits to oral healthcare services to urgent emergency calls. Lack of access to oral health services affects the most vulnerable and disadvantaged populations most. People on low incomes, people living with disabilities, older people living alone or in care homes, those living in remote and rural communities and people from minority groups carry a higher burden of oral diseases.

Professor Tri Erri Astoeti, Indonesia: “Most dentists stay in the big cities instead of the rural areas.”

Professor Dr Humayun Kabir Bulbul, Bangladesh: “In Bangladesh, there are around 12,000 dentists and dental surgeons, which is not enough for the 170 million population. The doctor-patient ratio in Bangladesh is 1 to 14,000. This ratio cannot give you a real picture because most of the dental surgeons or dental services are confined in urban areas. In remote areas this ratio is much higher.”

Dr Hoang Trong Hung, Vietnam: “One-in-five people in Vietnam have caries but unfortunately, 90% remains untreated. Dental access for the elderly people is the biggest problem where serious blockages arise.”

Financial constraints may negatively contribute to the level of dental care delivered to people in certain poor socioeconomic groups. The cost of dental visits, travel expenses and difficulties to reach a dental professional may be a financial barrier for many.

Professor Tri Erri Astoeti, Indonesia: “Despite having a national insurance scheme for the poorer population, dental health is not a priority for people on low incomes.”

Dr Hoang Trong Hung, Vietnam: “The costs of dental treatment are very high in Vietnam so that’s why dentists base themselves in the modern cities like Ho Chi Minh City, Hanoi, and Da Nang. High costs mean that in some rural and mountain areas, there are no dental clinics or dentists at all.”

Dr Latifa Berrezouga, Tunisia: “The people in remote regions have little transportation so cannot access dental care.”

Other specific barriers for not visiting a dentist regularly could be the waiting time to get an appointment. Specific populations may face other limitations such as impaired mobility and emotional barriers, such as fear of going to the dentist. Elderly, and especially those in care or with particular health problems (e.g. dementia), are a particularly vulnerable group.

Additionally, there appears to be an absence of dental clinics or dentists across many local health centres in developing nations. There is also a lack of dental knowledge with the allied non-dental personnel who manage the local health centres.

Dr Armelia Sari Widyarman, Indonesia: “The main reason why people in Indonesia don’t want to go to the dentist is because they’re scared. Scared of the pain. Scared of the costs. They know that this is very expensive so decide to take traditional medicine for the cure.”

Dr Latifa Berrezouga, Tunisia: “You may prevent the disease, but when the disease is already there, some people cannot afford the treatment because it’s expensive or because they are waiting for an appointment for several months, or sometimes up to one year. We must look for a specific and efficient model to combine both diagnosis and treatment and ensure that treatment will be done.”

Dr Paapa Puplampu, Ghana: “Across 120 district hospitals in Ghana, only half of them have dental clinics.”

Professor Dr Humayun Kabir Bulbul, Bangladesh: “In Bangladesh, there are a limited number of dentists in primary health care centres.”

Opportunities that teledentistry can offer as a solution to overcome barriers to oral healthcare

Access to specialized workforce

The Internet has long been a source of countless opportunities for personal fulfilment, professional development, and information. With the COVID-19 pandemic, it has become essential for working, learning, keeping in touch and accessing basic services, including health services. The latest data show that uptake of the Internet accelerated during the pandemic. Most of the world's population nowadays is covered by a mobile-broadband signal, but blind spots remain. In most developing countries, mobile broadband (3G or above) is the main, and often only, way to connect to the Internet. Surveys conducted in emerging and developing countries across four global regions found that most adults in these countries own – or have access to – a mobile phone of some kind, capable of accessing the internet and running apps.

Licensed dental professionals play an essential role in providing optimal advice, delivering treatment required as part of an overall oral care plan resulting in favourable oral health outcomes. Teledentistry models have shown that off-site allied personnel can make a difference and effectively select those patients that need urgent and specialized in-person care by a dentist. Preventive messages, early intervention procedures, recording of oral health status and selection of patients in terms of urgency for in-person treatment can be performed by trained personnel in health centers or even at home in remote areas. Practices therefore can free up time for specialized care for those in need. Patients will benefit from lower costs, because of reduced travel, less time off work and a decrease in the number of appointments needed to complete care. Education and preventive measures can effectively improve oral health in underserved regions or countries. Several Teledentistry projects have shown results that are comparable to in-person consultations.

Dr Paapa Puplampu, Ghana: “The model of teledentistry is going to be a great deal for private practitioners who were out of business during COVID-19. Teledentistry is a new area that we can fully embrace.”

Dr Armelia Sari Widyarman, Indonesia: “Using teledentistry before the patient comes directly to the clinic or the hospital means it is so much easier to avoid infection of the COVID-19 disease.”

Professor Tri Erri Astoeti, Indonesia: “Teledentistry allows us to connect with patients all over Indonesia, giving them access to consultations, treatment and prescriptions.”

Address oral health inequalities

Several teledentistry models have been shown to impact oral health of specific population groups that find it difficult to access existing dental centres or practices. Because of the known link between oral health and general health and the shared risk factors, teledentistry models using non-dental health personnel can offer a cost-effective means of delivering preventive measures and limit expensive visits to dental care units for these specific population groups.

Teledentistry is work in progress, but will be part of future dentistry, especially in countries where inequalities are a big problem. Teledentistry projects initiated by Unilever are very well documented and greatly appreciated by target populations.

Expansion to more countries is very much encouraged.

Dr Paapa Puplampu, Ghana: “Digitising the dental practice can help more patients access specialised care, just with their phone. It will address many of the inequalities.”

Professor Dr Humayun Kabir Bulbul, Bangladesh: “Underprivileged people from rural areas, those who are deprived of getting an appointment with a dentist, would benefit from teledentistry.”

Dr Hoang Trong Hung, Vietnam: “Teledentistry could connect the south and coast with many of our colleagues who are working in the rural areas of Vietnam.”

Reduce financial constraints

Lack of access to health services, due to costs, distance to travel, lost time from work etc. results in unmet needs. Where these are socially grouped, they reflect inequalities in healthcare delivery. Financial constraints may contribute to the level of dental care that is delivered to people.

In many countries, the number of people not covered by health insurance, is huge.

Recent teledentistry models have shown that this form of provision can reduce not only travel costs, but often limit the number of appointments with a dental practice further reducing the costs.

Professor Tri Erri Astoeti, Indonesia: “Indonesia has 6,000 inhabited islands over five million square kilometres – geographically it is very spread out. We also have rural areas that we cannot physically reach. I hope in the future, teledentistry will allow us to reach all of them.”

Professor Dr. Humayun Kabir Bulbul, Bangladesh: “We support the principle of teledentistry because it removes most of the concerns we have about dental access.”

Dr Armelia Sari Widyanman, Indonesia: “Teledentistry is very cheap, and the doctor is happy to do it because they can just do it from anywhere by just using their phone.”

Overcome other barriers for access to dental care

Other specific reasons for not visiting a dentist regularly could be due to the waiting time for appointments. Fear of the dentist is another reason for not visiting a dentist. Regular examinations are part of a dental prevention routine that can be performed using teledentistry rather than an in-person visit as these groups of people may be more willing to send a picture of their mouth rather than visiting a dentist in-person. Teledentistry should be part of the curriculum in dental schools.

Dr Paapa Puplampu, Ghana: “Teledentistry allows you educate people – to give them an impetus to take hold of their own oral health.”

Dr Armelia Sari Widyarman, Indonesia: “Some people in Indonesian don’t feel comfortable talking with a doctor or dentist. Teledentistry removes this barrier.”

Professor Tri Erri Astoeti, Indonesia: “I hope that through teledentistry, people will realise that talking to the dentist is not scary. teledentistry can solve the problems we have with oral health in Indonesia.”

Dr Latifa Berrezouga, Tunisia: “The experiences in Indonesia, introducing teledentistry into the curriculum is very interesting. If we want to regulate and have an evaluation and assessment in the long term of this field, we have to implement it (into the dental schools) first.”

Case study

One of Unilever’s oral care brands, Pepsodent (also known as Signal and P/S), started offering teledentistry services to people in Indonesia and Vietnam in 2022.

Whatsapp Ask Pepsodent - Indonesia: Supported by the local dental association PDGI, consultations with a dentist via Whatsapp were advertised on Pepsodent toothpaste packs and in a 15-second TV commercial.

All consultations included a recommendation for oral hygiene, regular dental checkups and allows patients to share photos to help the dentist provide a diagnosis.

Between March and December 2022, the project triggered tens of thousands of consultations. During a limited period, the service made a referral to a dental clinic for patients to redeem a free mild tartar cleaning treatment. Post consultation satisfaction scores were significantly high, confirming the value that the project was providing to the population.

“Some time ago, when I had a toothache, I came across the teledentistry service from Pepsodent. After trying it, it was quite easy... I can get free consultation regarding teeth, mouth and gums. Now after following the dentist’s expert advice, I can freely smile and even laugh.”

Translated quote from Facebook user Okti Li in a public Facebook post, 7 Apr 2022

Voice call Telehealth Doctor Anywhere - Vietnam: In partnership with Doctor Anywhere, patients were offered a call with a dentist. The project was announced on the P/S toothpaste pack and in a 5-second TV tag on. Between April and Dec 2022 it resulted in thousands of calls. In most cases, a referral to a dental clinic was made, but all calls also included general oral hygiene recommendations. Again, high satisfaction numbers were recorded.

Conclusion

We conclude that teledentistry can be an effective method for dental referrals, early detection of disease, treatment planning and compliance and treatment viability, especially where the access to dental professionals is limited or not equitably spread over a country or region. A simple check-up or early diagnosis through video communication may limit worsening of disease and eventually reduce extra visits to the practice.

Expanding access to dental care is recognized as one of the advantages of teledentistry. Telehealth and teledentistry services are considered to be a value-based activity, but longer-term research on a larger scale, with standardized methodologies and analyses are needed to fully exploit the opportunities that teledentistry can offer for optimal oral health by bridging the gap between the underserved population and dental care professionals.
