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Review Article

Implication of Teledentistry in Intellectual and Developmental Disabilities (IDD) and Nursing Homes

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Abstract

In United States there are approximately 11.2 million children with special health care needs. In other words, one in five households caring a child with special health care needs. People with intellectual and developmental disabilities (IDD) has struggle with the access of care, transportation and dental anxiety. With the accessibility of oral health care facilities disproportionately distributed in rural areas, it is challenging to provide oral care to intellectual and developmental disability population. Teledentistry can be a great tool for bridging this gap by increasing the accessibility and also it helps to get familiar with the dental offices and get an idea about what to expect. This in turn, helps tremendously to improve the quality of care. Increasing health care disparities coupled with the decreasing cost of technology, there is a growing interest in the adoption of teledentistry. Evidence already suggests that teledentistry, even with additional costs, benefits in plummeting the inequalities in the provision of oral health care.

Keywords: *Teledentistry; Telehealth; Intellectual Disability; Geriatric*

Introduction

The term "children with special health care needs" (CSHCN) has various definitions in the literature. One definition commonly cited is "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also necessitate health and related assistances beyond that required by children usually" [1].

Teledentistry has the potential for creating and maintaining oral health for underserved population, such as elderly people in nursing homes and people with special needs. The incorporation of teledentistry into the mainstream dentistry is a multifaceted and collaborative procedure in which plentiful factors at each level are involved, starting from individual level to entire organizational level. Focusing on barriers of the execution of a teledentistry can provide valuable discernments and it can help to apprise potential decisions regarding the benefits of teledentistry [2].

Teledentistry has been emerging since 1994 as a resource to allow dental providers to communicate with patients over long distances. Networking, distant consultations, the sharing of digital dentistry information and analyses are handled by an exclusive branch of dentistry-related telemedicine recognized as teledentistry. It allows association by numerous practitioners concerning necessary treatment for patient. Teledentistry can be significantly utilized with vulnerable populations. It would upsurge the accessibility of oral health providers, besides subsiding time and cost associated with consultations. Synchronous (Real-time videoconferencing) and asynchronous (store and forward techniques) are frequently used approaches for teledentistry [3].

There have been wide-ranging technological revolutions in the field of dentistry in recent years. The most important developments have been made in the consumption of telecommunications technology, specialized software for patient screening and follow-up and digital imaging services, capabilities that were contemplated out of reach 20 years ago are now a reality in dental office setting. The discipline of dentistry has recently advanced far more than it had during the earlier 20 centuries. Latest technologies have not only enhanced the quality of dental care but have also made it feasible to achieve partial or complete patient management even at distances of thousands of miles from dental practices [4].

Significance

15% of the world's population, which is approximately one billion people, suffer from disability. The prevalence of disability is greater for developing countries. One-fifth of the estimated global population experience significant disabilities [5].

The number of individuals in the United States with developmental disabilities is increasing noticeably. These individuals present distinctive challenges for dentists in planning and carrying out dental treatment. As it has been documented that the existing oral health delivery system is not functioning well for special needs populations [6].

New technology and delivery models are beginning to transpire that may hold potential for creating and maintaining oral health for underserved population, such as elderly people in nursing homes and people with special needs. Oral health negligence and Elevated level of unmet oral health needs are becoming progressively prevalent among amongst elderly individuals of long-term care facilities, while frail and dependent residents are the most in need of professional dental care. This article discusses the utilization of teledentistry and challenges of providing oral health services for this population [7].

Indications of teledentistry for patients with intellectual and developmental disabilities

Patients with intellectual and developmental disabilities face distinctive behavioral and psychological barriers in accessing oral healthcare. These difficulties may comprise the requirement for special transportation vehicle with attendants, wheelchair capacity, special equipment, including professional nurse or adult caretakers [8]. The use of modern technology solutions like teledentistry can be a valuable supplement to the traditional approaches.

Challenges in gathering comprehensive health information about people with special health care needs are plentiful. Therefore, additional technologies can provide valuable insights. For instance, remote support, smart home technologies, wearable devices, telehealth as well as other technologies that collect health information (e.g., health apps, glucometer, exercise devices, etc) [9].

People with intellectual and developmental disabilities find shift to unfamiliar surroundings, such as healthcare settings challenging, and these transitions may prompt disruptive behavior, fear and anxiety. For children with DD who live in countryside regions, traveling a long distance to a dentist office compounds the additional challenges they face in receiving treatment. Behavior complications may increase during the prolonged drive to a facility, and the child may become so uncooperative that the dental visit has partial significance [10].

While teledentistry has been adopted and is used increasingly for patient care, the dental profession is still in the relatively early stages of utilizing technology in similar ways. The number of patients with intellectual and developmental disabilities is increasing in number and complexity, calling for new approaches to assist with access to care. The current article outlines the benefits of new technology in the evaluation of all patients but particularly the more complex population that has been diagnosed with a disability [11].

At any given point in time in the life of people with special health care needs, many different health care providers and systems may be convoluted in decisions that could be barrier in efficient communication amongst the providers. Medical, dental, social, guardian, inde-

pendent living organization and case management systems may all be working with the patient; nevertheless, there is often inadequate or no communication between them, predominantly as the child ages or transitions between healthcare settings. Health care providers should take on active roles in linking patients with integrated systems and should ensure that information about their condition is transferred precisely between systems [12].

Indications of teledentistry for elderly people in nursing homes

The number of elderly individuals in nursing homes has noticeably augmented in recent years, with nearly 19% of those aged 85 years and older living in such organizations in USA. Older individuals have more inconveniency accessing efficient interventions for prevention as well as treatment of oral disease than do younger individuals. Nearly 70% of elderly individuals can be categorized as functionally independent, which may be described as the capacity to visit the dentist regularly, however 14% are categorized as frail which may be described as having chronic conditions that limit mobility or receiving palliative care that may lead to poor access to dental care. Nearly 5% of elderly individuals are functionally dependent; this status is more characteristic of those who are lives in nursing homes. Almost 72% of elderly individuals are categorized as dentate, that is, with more than 18 natural teeth. They are at amplified risk for oral health diseases. Moreover, systemic conditions combined with dental disease, which is more communal in the elderly, may necessitate more complex treatment procedures [13].

Teledentistry can aid in diagnosing oral pathologies, and assessment of dental prostheses in regard to chewing ability amongst elderly individuals living in nursing homes. Elevated level of unmet oral health needs implies that improving access to oral health care for this aging population is crucial. In addition to increasing awareness amongst dentists, physicians, geriatricians and the healthcare community as a whole must collaborate with the dental care society to cultivate teledentistry programs tailored toward elderly individuals living in nursing homes [14].

Utilization of asynchronous teledentistry could be cost effective model, nevertheless, synchronous teledentistry the real-time consultation could possibly attain better outcomes due to two-way communication amongst the patient and an oral health professional [15].

There are manifold challenges in delivering oral health services for elderly individuals living in nursing homes. To achieve developments in the oral health of these residents, we must transform the education of oral health professionals, educate nursing home staff about importance of oral health, use current oral health specialists in new ways in community settings, integrate oral health behaviors into overall health and social service systems. In addition to that we need to reform oral health reimbursement systems [16].

Developing new system of teledentistry for elderly individuals living in nursing homes may provide an opportunity to form a new paradigm of oral health care based on integration of overall health and social services with an emphasis on prevention. Good oral health is fundamental to healthy aging. Since effectual interventions for prevention of oral disease subsist, good oral health can be accomplished by older adults. Teledentistry technology can play a vital part in ensuring that this transpires [17].

Conclusion

Overall health rehabilitation of people with special health care needs is a multidisciplinary challenge, which entail implementing new healthcare delivery system. “Store and forward” (Asynchronous) teledentistry may offer assistances for the IDD population because it offers flexibility in the timing of data collection for dental visit. Some teledentistry applications have excluded children with challenging behaviors as it is too demanding and necessitates additional time to perform a “real-time” (Synchronous) teledentistry visit [18]. When children and adults with intellectual and developmental disabilities are able to receive initial examination through teledentistry, they are relatively less stressed in future dental visit, more positive outcomes for the child as well as family are anticipated [19].

There is an unswerving trend in the existing literature supporting the efficacy of teledentistry for Patients with Intellectual and Developmental Disabilities (IDD) and for elderly people in nursing homes. Further research is needed to identify the adeptness, competency, utilization and expenditures of teledentistry as it could offer the key to improving access to oral care [20].

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Conflict of Interest Statement

The authors declares that they have no conflict of interests.

Ethics Statement

There was no human or animals participants involved. There was no human data that was collected.

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