CASE REPORT

Global health challenges in treating an elderly institutionalised patient: an oral medicine perspective

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SUMMARY

A 64-year-old institutionalised woman presented to our clinic for the management of black hairy tongue. Despite the predictable outcome in treating this disease, this case presents multiple challenges such as the patients' cognitive impairment, her family dynamics, social factors and the health system as a whole, that makes it difficult to treat.

CASE PRESENTATION

A 64-year-old woman was transported to our clinic at the Oral and Maxillofacial Medicine and Diagnostic Sciences Department of the Case Western Reserve University School of Dental Medicine in Cleveland, Ohio, by ambulatory paramedics. She was accompanied by her daughter, who is her medical power of attorney. She presented as a malnourished individual who suffered from dementia. Although still alert, she was not oriented to person, place or time. Because of all these problems, she attracted the attention of a lot of dental students, faculty, staff and patients.

The patient was unable to convey an accurate medical history because of her incoherence, primarily due to an impaired cognitive capacity. This was evident by her tendencies to repeat the same questions and statements over and over again and her inability to relate to certain parts of her history. Even though her speech was preserved, verbal communication was often limited by difficulties in expressing her desired thoughts and concerns accurately. Under those circumstances, communication appeared to be more overtly behavioural. For example, she would periodically grasp her throat and chest indicating that she was having a hard time swallowing. As a result, her daughter filled out her medical-dental health history form on her behalf and provided consent for us to clinically evaluate her mouth and formulate an assessment from the patients' oral health status. She also granted permission for the sharing of the patients' health records, thus allowing for critical evaluation of her medication regimen to ensure that she was following our recommendations at each stage of her treatment.

Her medical history included depression, anxiety, post-traumatic stress disorder, conversion disorder, fibromyalgia and dissociative personality disorder among many other non-psychiatric medical conditions. She presented to our clinic with the chief complaint of having chronic tongue

pain. Review of systems is significant for chronic pain, major physical disabilities, psychiatric illnesses and other debilitating symptoms that preclude the maintenance of proper oral hygiene. Her clinical exam revealed a black, fuzzy, hairy-carpet-like lingual growth on the dorsal surface of the tongue, anterior to the circumvallate papillae and sulcus terminalis (figure 1). This is evident for black hairy tongue. She was also diagnosed with oral candidiasis and salivary hypofunction, that is, xerostomia.

Treatment recommendations consist of educating the patient on the side effects of anti-psychotic medications, meticulous daily oral hygiene including gentle debridement with a soft toothbrush or tongue scraper, increasing oral hydration and incorporating the use of an anti-septic. Therefore, initially, we recommended she use chlorhexidine gluconate 0.12% rinse for 30s and spit three times a day, Dakin's solution 0.15% (five scrapes on the dorsal surface of the tongue) once a day, Biotene gel application on the tongue three times a day and glycerin gel application on her lips once a day. At her follow-up appointments, we were provided with a log of her medication regimen from the nursing home. The log corroborated the allegations that the facility did not respond appropriately to our recommendations. There was often a discrepancy between our recommendations and what was dispensed to the patient, as shown in the very slow progress she was making with her oral condition. This forced us to provide written instructions to the doctor, in addition to prescriptions.

Since her daughter resides in Chicago, Illinois, the patient was often accompanied by her niece, who serves as a surrogate for her daughter during all her follow-up appointments. Her daughter and niece seemed to serve as an 'anchor' to provide the patient with regular reassurance in her confusion and disorientation. The patient was incoherent and would often go off on tangents; therefore, it was challenging to assess any improvements in her pain levels. In order to facilitate communication with the patient, her daughter or niece had to respond in a very matter-of-fact but clear fashion, "This is Dr. Dalal. The dentist. So, let's focus on your mouth right now. This is why we are here." Overall, the patient was generally calm, but her incoherence and tendency towards distraction lead to longer appointments and caused agitation in the paramedics as they had to wait until she was dismissed.

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Figure 1 Clinical features during the initial appointment consistent with black hairy tongue.

This case depicts several global health factors that are common obstacles we face when treating institutionalised patients with cognitive impairment. Managing black hairy tongue by an oral medicine specialist is straightforward. However, it is the culmination of other global health factors observed in this patient that makes it a very challenging case to treat. Nonetheless, in the case of my patient, we were successful in accomplishing resolution and long-term elimination of this condition (figure 2).

GLOBAL HEALTH PROBLEM LIST

- ▶ Due to her psychiatric illnesses, the patient is institutionalised.
- ▶ Organising the logistics of having the patient keep her appointments is challenging.
- ▶ The patient is not autonomous; therefore, we have to rely on her power of attorney who lives in a different state (Chicago, Illinois).
- ▶ There is a discrepancy between our medical recommendations and what is carried out by the nurses at the nursing home residence.

GLOBAL HEALTH PROBLEM ANALYSIS

Institutionalised patients

The elderly population in the USA is growing at a significant rate. As of 2012, the USA had the highest number of people aged 65 years and above among the developed countries, with over 43 million people in this age category. By 2050, this

Figure 2 Clinical features of the tongue after treatment.

population is predicted to almost double the population in 2012 to over 83 million people. In 2015, the US Bureau of the Census estimated that around 5% of this age group occupies long-term healthcare facilities, such as nursing homes.¹ An additional 1.5% of people in this category are placed in residential care settings that provide even lower levels of nursing support. The increase in this population is expected to give rise to an equivalent increase in the number of elderly residents admitted to nursing care facilities. Consequently, this is expected to increase dental treatment needs and place more demand on dental and healthcare systems.

Previously, residents often presented to long-term care (LTC) facilities with dentures, which are a lot easier for nursing home staff to clean than if they were to maintain their natural teeth. However, nowadays, the percentage of older adults who are retaining their natural teeth into old age is steadily increasing. This new trend welcomes new patterns of disease that become significant in those individuals who must rely on others for maintenance of their oral hygiene.^{2–4} Often, elderly patients admitted to LTC facilities present late, as they are more likely to experience underlying barriers making them more prone to developing oral health problems. This could potentially be due to medications that may cause dry mouth, a diet high in refined sugars provided at LTC facilities, the difficulty the residents endure with maintaining effective oral self-care due to their physical limitations and a decrease in patient activation due to varying degrees of cognitive decline.

Furthermore, they may experience even greater barriers to receiving adequate dental care than their independent counterparts, as a consequence of the lack of assistance in oral hygiene at LTC facilities. The low prioritisation of dental issues is often because staff find it to be one of the most difficult tasks to provide to their residents owing to the amount of time required to complete the task, their fear of being bitten by a resident and their lack of cooperation. With these challenges, residents now require more dental care than in the past, but nursing home employees are rarely prepared to provide it as there are a few staff members who are trained to cope with the growing number of residents with dementia who resist routine dental hygiene practices.

Chalmers *et al* have shown that institutionalised patients with dementia experience even higher rates of oral disease than those who do not suffer from dementia.⁵ This is a result of a variety of different factors such as the aforementioned issues including a loss of manual dexterity, complicated psychological factors, high levels of behaviour problems, lack of communication, poor diet and the low prioritisation of dental care in LTC facilities. Another impediment to poor oral health in the elderly is a lack of oral health literacy. According to Title V, Subtitle A, of the Patient Protection and Affordable Care Act (ACA) (2010), “The term ‘health literacy’ means the degree to which an individual has the capacity to obtain, communicate, process, and understand health information and services in order to make appropriate health decisions.”⁶ Furthermore, the American Dental Association (ADA) Health Literacy in Dentistry Action Plan, 2010–2015 demonstrates that, “In the U.S., limited literacy skills are a stronger predictor of an individual’s health status than age, income, employment status, education level, and racial or ethnic group. Limited health literacy is estimated to cost the U.S. between \$100 and \$200 billion each year.” The ADA also states that limited health literacy is ‘a potential barrier to effective prevention, diagnosis and treatment of oral disease,’ and that ‘clear, accurate and effective communication is an essential skill for effective dental practice’.⁷ Improving oral health literacy is a

crucial step towards helping the public appreciate the value of oral health and seek services. Unfortunately, primary care providers are often unaware of the importance of maintaining adequate oral health. Consequently, they are unlikely to encourage proper hygiene practices to this vulnerable population.

As a result, residents in LTC facilities often experience poor oral health that can have a significant impact on their quality of life. For example, poor oral health has been linked to multiple systemic diseases, such as diabetes, cardiovascular disease, osteoporosis, preterm labour and pneumonia.^{8–11} Furthermore, in a systematic review, van der Maarel-Wierink *et al* have proven that proper hygiene practices can in fact decrease the risk of developing aspiration pneumonia,¹¹ a leading killer of the institutionalised elderly population.¹² Concisely, oral healthcare in nursing homes is not seen as a priority and often falls to the bottom of the to-do list among many other chores. This could potentially delay the assessment, identification and treatment of dental problems.

In this case report, the patient presented is a good example of all the challenges that institutionalised, elderly patients will most likely face in an attempt to address their oral health needs. For example, our patient currently resides in a facility where there are no dental healthcare aids readily available to assist them with their oral healthcare needs. Moreover, they have one medical aid responsible for 37 residents. The inadequate staffing levels may have an effect on the time spent by nursing aides in providing oral care for their residents. Consequently, she developed black hairy tongue, caused by bacterial accumulation in her mouth, associated with a chronic burning sensation. In turn, this limited the amount and type of food she was able to eat.

The issues previously discussed may be mitigated by understanding the attitudes and perceptions about oral health in nursing assistants, intervening on an as needed basis by offering educational programmes to their staff, supplementing the care for the patient with written instructions to the primary care provider and caregivers, establishing effective communication skills with other healthcare professionals and our geriatric patients, developing an oral assessment plan for institutionalised residents and implementing a protocol to regularly assess the oral health of all residents on admission to an institution and at regular intervals afterwards.¹³ Furthermore, dental professionals are urged to provide care, treatment and psychosocial support in a culturally competent manner, thus, offering patient-centred, empathetic care.

Patient autonomy

In the elderly, institutionalised population, maintaining daily oral care remains challenging primarily due to the significant impact of cognitive impairment. An impediment further compounding this problem is that it is more challenging for them to access the dentist due to transportation problems. When they find ways to reach the dentist, they don't usually fully grasp all the information necessary to make a decision about their treatment or recognise the potential consequences towards lack of compliance. They don't take initiative towards caring for themselves, as they often exhibit a decrease in patient activations, which is expressed as 'how confident, skilful, and knowledgeable they are about taking an active role in improving their health'.¹⁴ Consequently, patients of this vulnerable populations usually lack the ability to provide informed consent for their own treatment.

Dentists have an ethical and legal obligation to obtain informed consent prior to any dental treatment. However, conditions that result in cognitive declination will impact one's ability to provide

informed consent. Ohio's Durable Power of Attorney for Health Care, Section 1337.13(A)¹ allows the 'patient' to designate a substitute decision-maker to provide informed consent on their behalf if they become incapacitated. In the cases of those who did not designate a substitute decision-maker, Section 2133.08(B) recognises a hierarchy of relevant decision-makers for those who are incapacitated and have not executed a document. For this patient, the person assigned to be the patients' medical power of attorney is her daughter who happens to reside in Chicago, Illinois (a 6-hour drive away). The patients' overall health is contingent on the active support of her daughter, the medical power of attorney, and her niece, the caregiver.

In general, restricting the autonomy of patients can be justified by the ethical principles, beneficence and non-maleficence. For example, it could be argued that water fluoridation is morally wrong as it takes away the option of consuming fluoride. However, irrespective of the public's consent, water fluoridation should not be considered a commodity and should be available for everybody regardless of their socioeconomic status. This is because it provides impactful benefits in that it can control and halt early stages of tooth decay. In fact, the Centers for Disease Control and Prevention declared community water fluoridation to be 1 of 10 great public health achievements of the 20th century. In this example, the autonomous choice of the public conflicts with the government's duty of beneficence.

This paradigm parallels the circumstances elderly, institutionalised individuals generally face. Due to their gradual cognitive decline, they lack the capacity to manage their oral hygiene independently and are unable to make decisions on when to seek a professional for help. Fortunately, they have family members who have the complex responsibility of supporting the patient using the powers granted to them as substitute decision-makers. The power of attorney must understand how and when to intervene, address their overall health needs and ultimately enhance their quality of life despite their mental state.

By way of illustration, in this patients' case, it was her family members and not the staff members of the nursing home who realised she had a problem intraorally that was impacting her food intake. This patient lacks autonomy, and it works towards her benefit; she has family members who serve as her voice and provide attention and directed assistance to her on a daily basis. However, this patient's lack of autonomy also poses many challenges. For example, scheduling her appointments at our specialty clinic is time-consuming; therefore, follow-up appointments don't occur in a timely manner. We usually allocate a 1-hour time slot for the initial intake appointment and anywhere between 15 and 30 min for follow-up visits to address her oral condition. Regardless of the purpose of her visit, it always takes us 3 hours on average to see her. This is mainly due to the time it takes for the paramedics to unload the patient from the ambulance, her uncooperation and resistance to opening her mouth for a sufficient period of time to be able to examine her and her tendencies to repeat a word, statement or question over and over again. We then have to bring her in when the dental students are on vacation or after-hours to be able to accommodate 3-hour time slots to treat her. Furthermore, we have to coordinate all her appointments in the presence of either her daughter or her niece, which further limits our availabilities. Even if they are absent for just a few minutes while they find parking, she experiences an immense sense of fear. This is evident in her behaviour as she refuses to open her mouth and insists that we call them in front of her.

In order to overcome these barriers, mobile dental services and other forms of alternate transportation services should be more

readily available to minimise barriers of access to care in this population. On another note, research has shown that involving the patient in the final decision-making process, despite their mental state, can make a profound difference in their overall treatment.¹⁵ Lastly, the involvement of a family member in health-related discussion is crucial to ensure compliance with treatment regimens.

Treatment challenges and public policy

US Surgeon General David Satcher released a report in 2000 to address the 'silent epidemic' of oral diseases by emphasising the relationship of oral health to one's overall health. It states that, "Oral health means much more than healthy teeth. It means being free of chronic oral-facial pain conditions, oral and pharyngeal (throat) cancers, oral soft tissue lesions, birth defects such as cleft lip and palate, and scores of other diseases and disorders that affect the oral, dental, and craniofacial tissues, collectively known as the craniofacial complex. These are issues whose functions we often take for granted, yet they represent the very essence of our humanity. They allow us to speak and smile; sigh and kiss; smell, taste, touch, chew, and swallow; cry out in pain; and convey a world of feelings and emotions through facial expressions. They also provide protect against microbial infection and environmental insults."¹⁶ As a consequence of this report, there has been a call to action to address the unmet dental needs in underprivileged populations who face numerous barriers that prohibit access to care.

The US Department of Health and Human Services released Healthy People 2010, an exhaustive list identifying the nations' public health priorities, to address health promotion objectives and tackle disease prevention. Specifically, this list includes 17 oral health objectives, which are used as measures of success of federally funded public oral health programmes. This allowed us to monitor progress and ultimately improve oral health across the country by developing further state, community and private initiatives. In order to achieve the goal of Healthy People 2010, the ADA established a programme in 2003 called 'Give Kids a Smile,' an annual, non-profit, community-based initiative to promote paediatric oral health in underserved communities. The goal of this programme is to break down barriers with access to care for children by providing pro-bono, comprehensive dental examinations and treatment for millions of children. This includes professional cleanings, fluoride treatment, sealants, restorations and oral surgery, as well as supplying every child with free dental supplies including toothpaste and toothbrushes. Furthermore, the ADA supported the initiation of the oral cancer awareness campaign to promote the importance of early detection of oral cancer. Moreover, the ADA endorsed the induction of 'ADA/Colgate Diabetes and Gum Disease Campaign' to educate dental health professionals and the public on tailored-specific treatment needs of diabetic patients. Also, the promotion of community water fluoridation has spiked an increase in the percentage of the US population on community water supplies from 57.4% in 2000 to 73.9% in 2010.¹⁷

Additionally, the ADA established the National Dental Pipeline Program to increase the enrolment of minority students into the dental profession. Further supporting the recruitment of the under-represented population, the ADA also established the Institute for Diversity in Leadership to encourage women and minority students to pursue leadership roles in Dentistry, offering them leadership skills to enhance their ability to be effective leaders in their communities. American Dental Education Association's (ADEA) long-held position is

that with the lack of a diverse workforce, access to care will be limited or even non-existent in minority communities.¹⁸ Solomon and Sinkford found that African-American dentists treat a high percentage of lower-income patients compared with their non-under-represented minority colleagues.¹⁹ Similarly, the ADEA's survey on senior dental students in the class of 2002 demonstrates that more black dental students were planning on practising in underserved communities than white dental students.²⁰

Lastly, the ADA supported a programme called 'Behavior Modification, Dentists and Cancer Control,' which was formulated to assess the success of continuing education programmes designed to increase dentists' ability to detect oral cancer at its earliest stages and provide tobacco use cessation counselling. In conclusion, great strides have been made, primarily with addressing the oral healthcare needs for children. While preventative measures do exist, such as water fluoridation, little progress has been made for the medically complex elderly population residing in LTC facilities.

Providing dental treatment in an LTC facility can present with multiple challenges. First, their lack of access to care is fuelled by a shortage of dentists. As of 2012, there were 6246 licensed dentists residing in Ohio serving an estimated population of more than 11.5 million (11 544 225) people. This is equivalent to one dentist, including specialists, for every 1848 Ohioans.²¹ The Health Resources and Services Administration, part of the US Department of Health and Human Services, expects the shortage of dentists to worsen over time. The federal government's report projects that by 2025, the dentist deficit is predicted to double nationwide, such that an additional 15 600 full-time equivalent dentists will be needed to meet the demand for care. In Ohio, the overall number of licensed dentists is expected to decrease with time, such that by 2025, Ohio will be short by more than 600 dentists. Consequently, as of 2012, there are 65 areas in Ohio with dental health professional shortages,²² due to an inadequate supply of dental practitioners and an uneven distribution of dentists available to serve people living in these communities. Therefore, many people often go without dental treatment regardless of their income or insurance coverage.

Furthermore, there is a shortage of dentists formally trained to treat the elderly population. A significant portion of US dental school graduates felt that they were inadequately trained in treating the elderly population; therefore, they were more reluctant in treating those patients.²³ This confirms the observations made by Antoun *et al* in that practising dentists are also less willing to treat the elderly patients residing in LTC facilities.²⁴ General dentists reported that they lack the confidence required to treat them^{25 26} and find that it is not worth the inconvenience for them to leave their daily practice. Their ability to provide care on-site is limited due to a lack of suitable areas for dental treatment in facilities and a lack of facilities to treat patients within the hospital setting. As patients become more debilitated or if they are faced with financial constraints, ongoing maintenance must be dealt with in a timely manner. Wolff *et al* emphasised that clinicians need to modify their treatment philosophy from a 'treat everything' perspective to catering to only what is necessary for the patient to be able to function sufficiently.²⁷

In this case, the specialist best suited to address this condition would be an oral medicine specialist, as they are involved with the recognition of oral diseases that reflect both oral and systemic abnormalities that have an effect on their oral and general health. However, there is also a scarcity of oral medicine specialists across the country. Pinto *et al* noted that in their cohort, patients would have been experiencing symptoms for at

least 1 year and have consulted at least two other providers prior to their first encounter with an oral medicine specialist.²⁸ Likewise, Villa *et al* found in a single-centre study that patients had to travel twice the distance to consult an oral medicine specialist, compared with that of their home and referring doctors. Fortunately, this patient lives within driving distance from approximately one out of a handful of academic institutions that offer oral medicine services across the country.²⁹

To circumvent these issues, geriatric dentistry should receive an increased emphasis across dental schools nationwide. Another approach to increase awareness of their dental needs is by mandating continuing education courses in this field. Additionally, a programme such as 'Give Kids a Smile' should be launched for the elderly to raise awareness on the importance of oral health. This would educate the community on the oral-systemic link, provide oral screenings and care for those with untreated diseases and reinforce and expand the public/private safety net. This has great potential to target the low-income, elderly population who lack access to care. Also, a campaign comparable to the oral cancer awareness campaign may be beneficial to spotlight the medically complex needs of the elderly residing in LTC facilities.

An additional issue that may encumber access to care is that most people in this vulnerable population cannot afford to pay for any dental services. Medicare, the federal health insurance programme for people who are 65 years or older as well as for younger adults with disabilities, does not provide any coverage for routine dental services. On the other hand, Medicaid, the major health coverage programme for low-income Americans, provides limited dental care benefits for low-income adults but offers an extensive, mandatory benefit package for children including comprehensive oral examinations coupled with treatment services. Medicaid gives different states the option to determine the extent of dental benefits offered to adults. Consequently, in 2016, 13 (out of 51) states said that they would cut dental benefits for adults and would cover only emergency dental treatment, whereas four states would provide no dental benefits at all. This resulted in a 10% decline in oral healthcare utilisation among low-income adults.³⁰

The majority of seniors cannot afford to pay out of pocket for private dental insurance, which is expensive and often quite limited. As a result, the majority of the elderly population in the USA usually go without dental treatment. A recent survey of Ohio adults, carried out in 2010, revealed that more than 980 000 seniors (60%) don't have dental insurance. Further, more than 3.9 million (45%) of Ohio adults also don't have dental insurance. This is three times greater than the number of Ohio adults who go without medical insurance.³¹

According to the Ohio Oral Health Surveillance System in 2012, only about 16% of adults 19–64 years and 11.8% of adults 65 years and older in Ohio are eligible for Medicaid. However, Medicaid beneficiaries often face significant challenges in trying to locate a Medicaid-contracted dental provider, due to low reimbursement rates, lengthy payment wait times, administrative challenges and a high number of missed appointments,³² making it more difficult for them to receive dental care. Dental benefits covered by Ohio's Medicaid programme is extensive, yet Medicaid places restrictions on the scope of services offered and the timing of services delivered. For example, Medicaid doesn't routinely cover dental implants, fixed bridgework, immediate full or partial dentures, molar root canal therapy except in rare medical emergencies. Further, adding to the low participation rate in Medicaid is that the policies involved are burdensome,³³ and thus only 20% of dentists countrywide accept it.³²

In 2012, 28% of dentists in Ohio provided dental care services to at least one patient who was Medicaid-eligible. Further, only 13% of dentist provided dental services to a significant number of Medicaid-eligible patients (250 or more). The relatively low number of dentists who participate in Medicaid limits the amount of low-income people from receiving dental care. To bypass these issues, dentist participation could be increased by easing administrative burden. Furthermore, the support of evidence-based models that emphasise prevention, early intervention, caries risk assessment in tandem with the movement to payment models such as pay-for-performance, and bundled payments could ameliorate the impact of oral conditions.

Additionally, other issues that may impede access to care include the lack of awareness of dental benefits, the general public's perception that oral health is less important than general health, the belief that poor oral health among low-income, elderly adults is inevitable and primary care providers who may not educate their patients to pursue proper oral health-care. There are various approaches that should be considered: tailoring oral health literacy campaigns to educate eligible adults on their dental benefits, emphasising the capability that good oral health among low-income adults is possible and building a diverse workforce to better represent and better serve the needs of our patients. This can ultimately increase funding for adult dental coverage.

Safety-net dental clinics are designed to provide dental services to individuals experiencing difficulty gaining access to care, including many low-income adults, primarily those covered by Medicaid. Ohio has a network of approximately 100 safety net dental clinics spanning 47 counties. In 2010, they were able to provide dental services to 70 000 Ohio residents.³¹ However, since safety net dental clinics generally offer sliding-scale fee schedules, reduced fee or even free dental care, the demand of dental services often surpasses their capacity to provide dental care, thus making it financially challenging to keep these clinics operating. Their waiting lists can stretch out to weeks or even months long. These barriers are often exacerbated by challenges in obtaining transportation to appointments, covering the cost of copayments and the inconvenience of arranging to take time off work or to make child care arrangements. Consequently, emergency rooms may be the only place patients can access costly and ineffective interventions to address their pain, such as opioid prescriptions. Neely *et al* reported that dental-related emergency department (ED) visits and costs increased at Boston Medical Center in Massachusetts when Medicaid coverage for adult dental care was reduced in July 2010. They also found that by age group, the highest percentage increase in dental-related ED visits was in the 55–65 years (50%) age range, followed by those who are 65 years and older (45%).³⁴

To counteract this issue, the ACA, signed by President Obama in 2010, made major investments to expand access to care in Medicaid and to increase enrolment in the programme. The ACA expanded the Medicaid programme to almost all non-elderly adults with an income at or below 138% of the federal poverty level—about US\$16 245 for an individual in 2015. However, the Supreme Court ruling on the ACA in June 2012 effectively made the Medicaid expansion optional for states. Regardless of the expansion, the ACA also established an array of new authorities and funding opportunities for disabilities. Some adults with disabilities with too much income to qualify through the Medicaid disability pathway may now qualify for Medicaid through the adult expansion group (in states that have adopted the expansion). The ACA also supplied a large investment to health centres, which supply many medical and dental

providers who staff those centres, to expand their dental services and increase the number of patients they serve.

Furthermore, new models have been recently introduced to improve access to oral healthcare in the underserved communities, such as the 'virtual dental home' in sites throughout California. In this model, dental providers offer routine dental care in community settings including Head Start sites, residential facilities for people with disabilities and LTC facilities. These providers are supplied with equipment, such as portable imaging and a web-based dental record system to enable them to exchange patient information with a collaborating dentist. The dentist reviews the data collected, creates a treatment plan, allocates the provider to carry out simple services and refers the patient to dentists for more complex care. Another model introduced is referred to as 'hub-and-spoke,' and it connects dentists in their main practice locations (hubs) to settings in nearby communities (spokes) where the dentist or the dental hygienist provides dental care on scheduled days.

To further expand access to oral healthcare for adults on Medicaid, there are a number of state strategies that could be implemented to help increase dental coverage for adults, such as expanding the dental workforce to include mid-level providers such as dental therapists, who can be qualified to perform preventive care and routine restorative procedures. Dental therapists often face great resistance from dentists, mainly from an economic and quality of care standpoint. Dental therapists don't go through the same amount of schooling as dentists but can perform many of the same procedures. Despite the recognition of numerous oral health disparities, the ADA and other professional dental societies, such as the Ohio Dental Association, strongly oppose legalising dental therapists. Instead, they favour improving access to care by implementing more structural changes such as community water fluoridation, the Ohio Dentist Loan Repayment Program and better using the dental team such as dental hygienists and expanded function dental assistants. On the contrary, this could be a helpful avenue to pursue in order to improve access to dental care by increasing the number of providers, providing additional service hours and improving wait times. In fact, three states—Vermont, Maine and Minnesota—have formally passed legislation to allow dental therapists to practice.

Oral healthcare professionals have the potential to make an impact on their daily practice of dentistry by integrating the holistic management of oral diseases and tackling the most common risk factors, ultimately addressing the systemic health implications. Although this task can be viewed as 'threatening' for the dentist due to the potential legal implications, it should be regarded, beforehand, as an ethical imperative, since it is stated in section 2 *non-maleficence* of the ADA's Principles of Ethics and Code of Professional Conduct that the dentist has a duty to do no harm. In fact, as Bennett so correctly mentions, "patient safety is a fundamental principle of dentistry and medicine and good patient care is dependent on patient safety and minimizing medical errors, of which an inadequate medical assessment and lack of medication reconciliation are contributory." The fact that the Code of Professional Conduct further clarifies that it is dependent on the dentist's 'knowledge... to serve their patients and the dentist's obligation of keeping their knowledge... current' makes this task an even bigger and relevant challenge.³⁵

The case put forward by this report should be regarded as expanding beyond the borders of the USA. In fact, oral health is a fundamental component of general health. The FDI (Fédération Dentaire Internationale) World Dental Federation recently

revised the pivotal conceptual approach to oral health, thus substantiating a holistic base that further encapsulates factors related to our patient's values, expectations and perceptions. In fact, the definition of oral health states that: "Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex." The FDI also recognises further attributes of oral health, including: "it is a fundamental component of health and physical and mental well-being. It exists along a continuum influenced by the values and attitudes of people and communities; It reflects the physiological, social, and psychological attributes that are essential to the quality of life; and, it is influenced by the person's changing experiences, perceptions, expectations, and ability to adapt to circumstances."³⁶ On a global scale, major oral health inequalities exist both within and between countries in terms of disease severity and prevalence.³⁷ Public health officials claim that the majority of dental disease is preventable; yet, in May 2013, Marcenes *et al* reported that oral conditions affected 3.9 billion people.³⁸ This statistic is mainly due to the failure to implement preventative care, but it also reflects a failure to understand the social determinants of dental diseases. Dental practitioners need to stop focusing on oral diseases in isolation and start addressing the root causes and the associated risk factors. Thus, dentists

Learning points

- Global oral health inequalities exist both within and between countries in terms of disease severity and prevalence. Oral health is a fundamental component of general health and patient safety - regarded as a fundamental principle of medicine and dentistry - and must be regarded as pivotal to ensure good patient care, while minimising medical errors. This can only be achieved through collaborative care.
- Dentists have a crucial role as healthcare advocates to educate and make an impact on students, community leaders and senior government agencies, to reduce oral health inequities and to improve oral health universally. To fully pursue this goal, they must engage in interprofessional collaborative care (IPCC), raising awareness and disseminating knowledge among other healthcare providers within long-term care (LTC) facilities, namely nurses, regarding the implications and consequences of enhancing the palliative measures through proper oral health. Only through IPCC will the institutionalised population, elderly or not, achieve an optimal, regular, oral hygiene that will subsequently set the grounds for an enhanced quality of life, namely through a proper nutritional intake.
- LTC facilities must conduct assessments at the initial appointment and at regular follow-ups on the functional capacity of the patient from a dental condition and nutritional status standpoint.
- Encourage LTC to designate a dental facilitator to coordinate dental visits, and ensure oral hygiene assessments and recommendations are being conducted regularly and encourage LTC to set up a dental office (mobile or otherwise) at the facility and improve access to care.
- To improve access to care, dental insurance must be incorporated in the infrastructure of medical insurance, or holistic healthcare coverage be provided or implemented.

must be aware that they play a pivotal role, together with other oral healthcare professionals, in the diagnosis, screening and monitoring of non-communicable diseases, applying health screening measures and surveillance using new diagnostic tools, as well as educating patients and decision-makers. This approach will allow the dentist to preserve their responsibility of diagnosing, treatment planning and treating the patient while still serving a leadership role in coordinating tasks and leading a team of oral healthcare professionals.³⁹ Furthermore, academic institutions are also strategically positioned to play a major role in “shaping the emerging field of global health [and] solving some of the most pressing health issues facing humanity today. By enlisting multiple disciplines to unravel the complex determinants of health, by harnessing the passion and energy of students who benefit from formative global health education and service opportunities, and by being on the forefront of scientific discovery and health care delivery, universities are poised to change the landscape of global health and ultimately improve the human condition.”³⁷ Taking initiative to integrate oral health into global health within our institutions can help reduce global health inequity and ultimately improve the oral health of the populations as a whole. In this case, awareness of the connection between oral and global health made a positive impact on the patient’s health.

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