Published in final edited form as:
J Am Geriatr Soc. 2015 February ; 63(2): 375–378. doi:10.1111/jgs.13240.

Oral Health Care for Older Adults with Serious Illness: When and How?

Xi Chen, DDS, PhD[1] and **Christine E Kistler, MD, MASc**[2]

[1]Beijing Stomatological Hospital, Capital Medical University, Beijing, China

[2]Department of Family Medicine, University of North Carolina, Chapel Hill, North Carolina

Abstract

Older adults with serious illness are particularly vulnerable to oral disease due to worsened overall health, progressive functional loss and polypharmacy. Meanwhile, inability to communicate oral health needs, increased functional disability and psychological distress also hamper timely oral health care and lead to prolonged suffering and compromised quality of life. While many seriously-ill older adults with poor oral health receive no oral health care prior to death, unnecessary treatment is also common. In response to these issues, a new oral health care model is proposed to better address the oral health needs of older adults with serious illness. This model aims to promote comfort, maintain oral function and improve quality of life. End-of-life oral health trajectories and stage-appropriate oral health care strategies are also introduced to guide the care of these vulnerable individuals.

Keywords

oral care; older adults; end of life; terminal illness

Oral disease, such as oral candidiasis, xerostomia and stomatitis, is highly prevalent in older adults with serious illness, which may cause life-threatening complications and substantially compromise the quality of life of these individuals[1–7]. As a result of progressive functional loss, oral hygiene is usually poor in frail older adults at the end of life[8], which facilitates the colonization of respiratory pathogens on the surfaces of teeth and dentures and increases the risk of life-threatening respiratory infections[9]. Dry mouth is the most prominent oral health problem among seriously-ill patients and affects more than 90% of hospice cancer patients. It may substantially interfere patient's speech, alter taste sensation, makes chewing and swallowing difficult and painful, cause bed breath and affect their social activities[2,7]. Dental caries are also commonly seen in institutionalized older adults in the last year of life, affecting about 40% of the remaining teeth of these individuals[10]. Odontogenic pain can limit food choices and nutritional intake, accelerating terminal declines and compromising

Corresponding author. Xi Chen, Beijing Stomatological Hospital, Capital Medical University, 4 Tiantan Xi Li, Dongcheng District, Beijing, China, 100050, Phone: 86-10-5709-9314, xxi_chen@hotmail.com.

Conflict of Interest: The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

Author Contributions: Concept and model development: XC. manuscript preparation: all authors.

quality of life. If untreated, acute dental pain or infection can also cause delirium and disruptive behaviors[11], disturb homeostatic equilibrium and increase the risk of cardiovascular complications[12]. Other oral health problems such as oral candidiasis, mouth pain and ill-fitting dentures are also commonly seen and may impair quality of life of end-of-life patients[4,5].

While unnecessary treatment are commonly provided to those at the terminal stage of life,[10] most terminally-ill older adults with treatable oral health conditions receive no oral health care prior to death[10,13]. Multiple factors may contribute to the lack of appropriate oral health care in these individuals. Evidence shows that 40% of terminally-ill patients lose their ability to communicate oral health needs with their caregivers[10], and therefore have to suffer treatable oral pain or infection for a prolong period of time. Patients and their families may be less likely to prioritize oral health care needs owing to increased disease burden, transportation difficulties and psychological distress at the end of life. Due to the different focuses on training and practice, physicians, nurses and other healthcare providers may lack skills in identifying and managing oral disease and conditions[13,14]. The current dental practice model also hinders the access of seriously-ill patients to necessary oral health care. Currently, the training and therefore involvement of dental professionals in caring for patients with serious illness is limited[14]. Even when dental professionals are involved, patients with serious illness or advanced frailty usually need to be transferred to dental offices for oral examination and treatment. This process could be physically challenging and stressful for many patients and their caregivers. It not only increases the barrier for terminally-ill patients to obtain necessary oral health care, but also elevate the risk to disrupt their homeostatic equilibrium. Moreover, although guidelines call for palliative oral health care to focus on alleviating pain and infection[15,16], when and how to implement this strategy in routine dental practice has been inadequately studied. Therefore, oral health care for older adults with serious illness is hardly evidence-based, raising concerns for quality of care.

A new oral health care model aiming at promoting comfort, maintaining oral function and improving quality of life is, therefore, warranted to address the oral health needs for older adults with serious illness. Here oral health care is a broad concept. Besides the traditional dental treatments, this new practice model also emphasizes daily oral hygiene, prevention and especially, oral comfort care. Instead of transferring patients to dental offices for treatment, it promotes bedside oral health care and symptom management through enhanced physician-nurse-dentist collaboration. More specifically, this new treatment model consists of four key components.

(1) Interdisciplinary collaboration in oral health care for older adults with serious illness

As discussed, older adults with serious illness are particularly vulnerable to oral disease due to worsened overall health, progressive functional loss and polypharmacy. Meanwhile, inability to communicate oral health needs, increased functional disability and psychological distress also hamper these individuals to receive timely oral health care, leading to prolonged suffering and compromised quality of life. Given that these individuals don’t see dentists regularly but receive regular care from medical and nursing professionals, it is

necessary to enhance physician-nurse-dentist collaboration to better address the oral health needs of these individuals.

This interdisciplinary practice model has several benefits. First, it helps promote oral health care and enables it to become an essential component of the overall care plan of older adults with serious illness in different disciplines (e.g. oncology or neurology) and settings (e.g., inpatient wards or community-based hospice programs). Additionally, with the support from their dental colleagues, physicians, nurses and other palliative care providers may be able to identify oral health needs for seriously-ill patients and arrange referrals in a timely manner. By teaming up dental hygienists and hospice or home health nurses, oral hygiene and other preventive interventions that are otherwise challenging or impossible could be effectively provided for uncooperative patients[17]. Many oral health issues (e.g., xerostomia, oral candidiasis and mouth pain and infection etc.) could also be managed at bedside. This team approach is particular helpful for hospice and terminally-ill home-bound patients because these individuals substantially lack access to necessary oral health care[18]. It will also reduce the need to transfer patients to dental offices, minimizing the stress of patients and their caregivers and the potential disruption of homeostasis resulting from the transfer. Finally, this interdisciplinary collaboration could also help dentists understand patient's prognosis, better address the two crucial issues in palliative oral health care (e.g., when and how to implement palliative treatment) and minimize futile and potentially harmful dental treatment for this vulnerable population, improving quality of care.

(2) Palliative dental classification system

Patterns of dying distinctly differ among older adults with different diseases and conditions[19], suggesting that the impact of terminal functional decline on oral health may differ in patients with different dying trajectories. From a dental perspective, oral health deterioration at the end of life can be generally classified into three trajectories: the unexpected death trajectory, the terminal cancer trajectory and the progressive functional loss trajectory (Table 1). Individuals who die unexpectedly from acute diseases or accidents don't usually experience substantial loss of oral self-care function before death. Oral health deterioration may not be clinically significant in these individuals if oral hygiene and regular dental care are maintained before death[20]. For terminal cancer patients, anticancer therapy and related symptom management may cause severe xerostomia, which increases the risk of dental caries, affects oral function, and substantially compromises quality of life. Oral candidiasis, mucositis and oral pain are also common in these patients[2,3,13]. Older adults with serious organ failure or advanced frailty experience a progressive functional decline prior to death[19]. Although their dying trajectories may differ, these individuals share a similar pattern of oral health change at the end of life[8,10] and could be categorized into the progressive functional loss trajectory. As a result of functional loss, inadequate caregiver support and oral health neglect, these individuals experience complex oral health declines before death, including poor oral hygiene, increased dental pain and infection, tooth loss, oral soft tissue pathology and ill-fitting dentures[1,8,10], which may in turn accelerate terminal decline and cause serious systemic complications. The dying trajectories with their distinct impacts on oral self-care ability, oral disease patterns and quality of life indicate that

different oral health care strategies should be used to address the oral health needs for individuals with different oral health trajectories at the end of life.

(3) Stage-appropriate oral health care strategies

Despite the variations in duration, all dying trajectories can be divided into three stages: the decline stage, the pre-active dying stage and the actively dying stage (Figure 1). Oral health needs also differ in each dying stage. To prevent serious systemic complications and improve quality of care, a stage-appropriate oral health care plan considering patient's prognosis, oral health needs and functional reserve should be developed and implemented through interdisciplinary collaboration between physicians, dentists and other healthcare providers.

Depending on the underlying diseases, the decline stage may last from weeks as with cancer patients to a year or more in older adults with advanced frailty. During this stage, patients may suffer severe xerostomia, oral pain and infection, dysphagia, and ill-fitting dentures, significantly impairing oral function, overall nutrition and quality of life. Many of these issues can be managed by physicians and nurses at bedside with dental support. When necessary and tolerated, oral health care could also be given in dental offices focusing on improving quality of life, maintaining oral function and nutrition, and preventing oral pain, infection and its systemic complications. Elective treatment (e.g., fabrication of a new denture) could also be considered to meet the personal needs of seriously-ill patients, but aggressive surgical treatment (e.g. multiple extractions in one visit) or intensive non-surgical treatment given in a short period of time (e.g. root canal treatment) should be avoided.

As older adults' conditions worsen, they will enter the pre-active dying stage. Xerostomia may worsen due to renal failure, decreased fluid intake and deregulation of fluid and electrolytes. Opportunistic oral infection and pain may increase resulting from the deterioration of the immune system. However, since death is likely to occur soon, in-office dental treatment should be avoided. Bedside oral health care should focus on improving oral comfort and pain care using an interdisciplinary approach.

In the actively dying stage, older adults may become unconscious and require caregivers to maintain their oral comfort. For those who still remain conscious, dry mouth may again be one of the most prominent oral care issues, worsening not only due to kidney failure, dehydration but also the use of anticholinergic medications common during the actively dying process. Physicians and nurses must be on guard against the risk of opportunistic oral infection and pain, improve oral comfort and maintain dignity for these individuals.

(4) Personalized oral health care

Dental treatment is mostly elective in nature. Seriously-ill older adults may elect not to receive oral health care due to the lack of resources for care. Self-perceived oral health needs and values may also vary in seriously-ill older adults and their families with different sociodemographic, educational and cultural backgrounds. In line with the tenets of hospice and palliative medicine, it is essential to adopt a personalized approach to palliative oral health care. While oral health care plans should be based on the patient's oral health

trajectory and dying stage, as well as the multi-disciplinary team's clinical assessment, it should also respect the different values to best address the oral health needs of seriously-ill patients and their family. This is particularly important for individuals who value oral health and related quality of life in their entire life. Although prosthodontic treatment may not be helpful on oral function, when requested, it should be considered for terminally-ill patients to address their aesthetic needs and maintain dignity for these individuals.

In summary, the current practice model fails to adequately address the oral health needs in older adults with serious illness. Oral health care should be incorporated into the overall care plans of these individuals using a stage-appropriated approach. Physician-nurse-dentist collaboration should be enhanced to improve quality of care for these vulnerable patients. However, the feasibility and efficacy of this new model needs to be carefully evaluated before implementing it in daily practice. The clinical criteria to define different oral health trajectories and dying stages need to be developed and validated. Collaborative models of oral health care for seriously-ill patients in different setting should also be developed and evaluated, providing a direction for future studies.

ACKNOWLEDGMENTS

This paper was supported by NIDCR Grant No. K23DE022470.

Sponsor's Role: The funding institutes had no role in the concept and model development or in preparation of the manuscript for publication

REFERENCES

1. Chen X, Clark JJ, Preisser JS, et al. Dental caries in older adults in the last year of life. J Am Geriatr Soc. 2013; 61:1345–1350. [PubMed: 23865859]
2. Sweeney MP, Bagg J, Baxter WP, et al. Oral disease in terminally ill cancer patients with xerostomia. Oral Oncol. 1998; 34:123–126. [PubMed: 9682775]
3. Wilberg P, Hjermstad MJ, Ottesen S, et al. Oral health is an important issue in end-of-life cancer care. Support Care Cancer. 2012; 20:3115–3122. [PubMed: 22434497]
4. Jobbins J, Bagg J, Finlay IG, Addy M, Newcombe RG. Oral and dental disease in terminally ill cancer patients. Br Med J. 1992; 304:1612. [PubMed: 1628090]
5. Gordon SR, Berkey DB, Call RL. Dental need among hospice patients in Colorado: A pilot study. Gerodontics. 1985; 1:125–129. [PubMed: 3861444]
6. Kandelman D, Petersen PE, Hiroshi U. Oral health, general health, and quality of life in older people. Spec Care Dentist. 2008; 28:224–236. [PubMed: 19068063]
7. Fischer DJ, Epstein JB, Yao Y, et al. Oral health conditions affect functional and social activities of terminally ill cancer patients. Support Care Cancer. 2014; 22:803–810. [PubMed: 24232310]
8. Chalmers J, Pearson A. Oral hygiene care for residents with dementia: A literature review. J Adv Nurs. 2005; 52:410–419. [PubMed: 16268845]
9. Azarpazhooh A, Leake JL. Systematic review of the association between respiratory diseases and oral health. J Periodontol. 2006; 77:1465–1482. [PubMed: 16945022]
10. Chen X, Chen H, Douglas C, et al. Dental treatment intensity in long-term care residents in the last year of life. J Am Dent Assoc. 2013; 144:1234–1242. [PubMed: 24177401]
11. Chalmers JM. Behavior management and communication strategies for dental professionals when caring for patients with dementia. Spec Care Dentist. 2000; 20:147–154. [PubMed: 11203891]
12. Liu S, Carpenter RL, Neal JM. Epidural anesthesia and analgesia. Their role in postoperative outcome. Anesthesiology. 1995; 82:1474–1506. [PubMed: 7793661]

13. Oneschuk D, Hanson J, Bruera E. A survey of mouth pain and dryness in patients with advanced cancer. Support Care Cancer. 2000; 8:372–376. [PubMed: 10975686]
14. Chung JP, Mojon P, Budtz-Jørgensen E. Dental care of elderly in nursing homes: Perceptions of managers, nurses, and physicians. Spec Care Dentist. 2000; 20:12–17. [PubMed: 11203870]
15. Sweeney MP, Bagg J. Oral care for hospice patients with advanced cancer. Dent Update. 1995; 22:424–427. [PubMed: 8948189]
16. Wiseman M. The treatment of oral problems in the palliative patient. J Can Dent Assoc. 2006; 72:453–458. [PubMed: 16772071]
17. Sloane PD, Zimmerman S, Chen X, et al. Effect of a person-centered mouth care intervention on care processes and outcomes in three nursing homes. J Am Geriatr Soc. 2013; 61:1158–1163. [PubMed: 23772769]
18. Gluzman R, Meeker H, Agarwal P, et al. Oral health status and needs of homebound elderly in an urban home-based primary care service. Spec Care Dentist. 2013; 33:218–226. [PubMed: 23980554]
19. Lunney JR, Lynn J, Foley DJ, et al. Patterns of functional decline at the end of life. JAMA. 2003; 289:2387–2392. [PubMed: 12746362]
20. Chen, Xi; Naorungroj, S.; Douglas, CE., et al. Self-reported oral health and oral health behaviors in older adults in the last year of life. J Gerontol A Biol Sci Med Sci. 2013; 68:1310–1315. [PubMed: 23525480]

Table 1

The oral health trajectories at the end of life

	Unexpected Death Trajectory	Terminal Cancer Trajectory	Progressive Functional Loss Trajectory
Terminal Decline	Brief	Rapid	Slow and Progressive
Prediction of Prognosis	Unpredictable	Relatively Reliable	Less Reliable
Oral Self-care Function	No Changes	Varied	Decreased
Oral Health Changes	Minimal Changes	Xerostomia Oral Soft Tissue Pathology	Poor oral hygiene Caries Oral pain/infection Tooth loss Denture-related Problems Xerostomia Soft tissue pathology
Treatment Strategies	No Changes in Practice	Stage-appropriate treatment strategies*	

*The detail of the stage-appropriate treatment strategy will be explained in Figure 1.

Figure 1

The stage-appropriate oral health care strategy

Stage	**Decline Stage**	**Pre-active Dying Stage**	**Actively Dying Stage**	
	----------→	----------→	----------→	Death
Duration	Years -- Months	Months – Weeks	Weeks – Days	
Major Oral Health Problems	• Xerostomia • Loss of oral function • Oral infection • Oral pain	• Xerostomia • Oral infection • Oral pain	• Xerostomia • Oral infection • Oral pain	
Treatment Goals	• Improve quality of life • Maintain function and nutrition • Prevent pain and infection • Prevent systemic complications of oral disease • Meet personal needs	• Improve comfort • Manage oral pain • Control infection	• Improve comfort • Manage oral pain	
Approach	• May consider in-office treatment if tolerant • Cautious with invasive procedures • Avoid aggressive, intensive treatment	• Bedside management • Avoid in-office treatment • Avoid invasive procedures	• Bedside comfort care	S