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Meurman, J. H., McKenna, G., Murtomaa, H., Nakao, M., Ogawa, H., Walls, A., & Williams, D. (2018). Managing our older population: the challenges ahead. *Journal of Dental Research*.

**Published in:**  
Journal of Dental Research

**Document Version:**  
Peer reviewed version

**Queen's University Belfast - Research Portal:**  
[Link to publication record in Queen's University Belfast Research Portal](#)

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## Managing our older population: the challenges ahead

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**Key words:** Gerodontology, Community dentistry, Dental education, Systemic health/disease, Consumer healthcare products

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2 By 2050 the population of those aged 65 and over is projected to have reached 1.6 billion worldwide  
3 (Wan et al. 2016). Whilst the general health needs of this age group are being addressed, there is  
4 not yet the same level of attention being given to their oral health needs. We highlight that  
5 deficiency and set out a call to action.

6  
7 Dental health surveys indicate that the proportion of older adults retaining natural teeth into old age  
8 is increasing (Fuller and Steele 2011). Dental caries, periodontal disease and tooth wear continue to  
9 be significant health problems among older adults (Hayes et al. 2016). Oral cancer incidence is also  
10 predicted to rise year on year despite significant advances in knowledge about prevention and  
11 treatment; and cancer is a disease of the aging population (Petersen 2009). Oral diseases constitute  
12 a major public health challenge particularly among the aging poor, disadvantaged and socially  
13 marginalised, who consequently bear a disproportionate burden of pain, suffering, impaired  
14 function in swallowing, tasting, feeling and enjoying life in general (Petersen 2005). Poor oral  
15 hygiene also increases the risk of pneumonia particularly among institutionalized and frail elderly  
16 (Scannapieco and Shay 2014). Further, the loss of natural teeth is related to altered nutritional  
17 intake and poor quality of life, especially in older adults (Gerritsen et al. 2010). Loss of teeth even  
18 associates with all-cause mortality (Polzer et al. 2012). Consequently, it has been recommended that  
19 an oral examination should be part of routine procedures for geriatric hospital admissions so that  
20 the patient's potentially reduced chewing capacity can be taken into account (Poulsen et al. 2006). A  
21 growing body of evidence has highlighted the importance of good oral health in the context of  
22 general health; thus oral health care professionals taking care of older adults and individuals with  
23 multiple medical conditions also play an active role in enhancing general health.

24  
25 There are a number of statements detailing the oral health burden associated with the global aging  
26 population, for example by Griffin et al. (2012) and Kossioni et al. (2017). The World Health  
27 Organization's Global Action Plan for the Prevention and Control of Noncommunicable Diseases  
28 2013-2020 is an important document here emphasized (World Health Organisation, 2015). In the  
29 present article, we expand the existing recommendations suggesting the following actions to be  
30 considered in order to meet the challenges described here.

- 31 1) The healthcare profession should encourage good oral health and help to facilitate  
32 maintenance of a healthy dentition and healthy mouth. Emphasis must be placed on  
33 effective prevention and improved self-care products. Utilisation of the broader health care  
34 team is essential particularly amongst older, institutionalised elders.
- 35 2) There also is a need for an expanded team to help dependent seniors, those with difficulties  
36 in physical, manual dexterity or cognitive issues that impede mouth care. These personnel

1 include caregivers and staff at senior day care and community services, and long term care  
 2 facilities. Training to help caregivers and staff provide mouth care for older adults needing  
 3 assistance is also desirable and should be focused on prevention. In other words, oral self-  
 4 care needs to be added to the list of activities of daily living, assessed to evaluate patients  
 5 for maintaining independence.

6 3) Oral healthcare and general healthcare must be better integrated. Life-long oral health is a  
 7 fundamental human right, underpinned by an 'oral-health-in-all-policies' approach.

8 4) Older adults have different functional needs to young patients. The WHO suggests that for  
 9 the year 2020 adults should retain for life a healthy, functioning dentition of at least 20  
 10 teeth and not require an oral prosthesis. There is a need for research to further determine  
 11 the type of care most acceptable to older adults.

12 5) The 'minimally invasive dentistry' concept is intuitively better suited to the needs of older  
 13 patients, and should be encouraged within existing or new remunerative schemes.

14 6) Every attempt should be focused on the prevention of oral cancer. Counselling the  
 15 population about risk factors such as tobacco, alcohol use and HPV-infection must be a  
 16 natural role for oral health professionals. Early diagnosis is emphasized and a comprehensive  
 17 examination of the oral cavity and adjacent tissues is necessary at every dental  
 18 appointment.

19 7) The importance of common risk factors of prevalent oral diseases and major public health  
 20 problems in addition to their shared social determinants should be recognized. The  
 21 significance of gerontology and gerodontology in dental education, professional  
 22 development training, and professionals' role as oral health care advocates need to be  
 23 appreciated.

24 8) International dental manufacturers should be encouraged together with researchers to  
 25 develop better means for diagnosis, treatment and self-care products specifically targeted  
 26 for the aging population and their needs.

27 9) Governments should strive to deliver good value for money in all aspects of healthcare,  
 28 including oral health services. Researchers must provide healthcare policymakers with high  
 29 quality evidence about the choices on offer for informed decisions and their cost-  
 30 effectiveness. Unfortunately, oral health care is informed by a very small number of high  
 31 quality, randomised, controlled clinical trials which needs to be addressed.

32 10) Innovative research methodologies should be employed to address these issues including  
 33 the use of "big data" and the use of relevant oral health information from large longitudinal  
 34 studies on aging to inform policy and to develop evidence based treatment strategies.

35 In conclusion, the rapid global demographic transition towards an aging population presents  
 36 economic, social and logistical challenges for governments and policy makers. The scale and nature  
 37 of the oral health needs of this aging population must be properly understood if sufficient, easily  
 38 accessible, appropriate oral healthcare is to be provided. It is important to base care on effective,  
 39 universally available prevention. Given that oral disease shares common risk factors and social  
 40 determinants with the major non-communicable diseases, such as cardiovascular disease,  
 41 respiratory disease and metabolic disorders, an interdisciplinary management approach is likely to  
 42 yield better outcomes for both oral health and general health, including quality of life. Cooperation

1 is essential between oral healthcare professionals, researchers, policymakers and industrial  
2 representatives, together with effective advocacy by oral healthcare professionals, for developing  
3 new means and methods to tackle these challenges.

4

#### 5 **Author contributions**

6 All authors have equally participated in all phases of this call-for-action and manuscript preparation.

#### 7 **Conflicts of interest**

8 All authors were delegates of the IADR Presidents' forum organized in Luzern, Switzerland, February  
9 2017, hosted by the GC Corporation.

#### 10 **Acknowledgement**

11 The GC Corporation is thanked for providing the meeting venue to the IADR Presidents' forum where  
12 the call-for-action was initiated.

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