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Needs in service provision for oral health care in older people. A comparison between Greater Manchester (UK) and Utrecht (The Netherlands).

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INTRODUCTION

By 2050, a quarter of the population in both the United Kingdom [UK] and the Netherlands will be defined as being 'older people' (over sixty-five years of age). This equates to approximately 11.4 Million and three Million people respectively ^{1,2}. Alongside this change to the number of older people in the population, there have also been a number of changes to older people's oral health. The number of Disability Adjusted Life Years (DALYS) for edentate older people (have no remaining teeth) has fallen by 12.4% between 1990 and 2010³. However, those who are dentate (have all or some of their remaining teeth) increasingly present with complex restorations (e.g. crowns, bridges and dental implants) and high levels of disease ⁴. Unlike the edentate, the number of Disability-Adjusted Life-Years (DALYS) in this group has increased from 34.5% to 57.3% over the same time period³. These factors will create substantive challenges for oral health care service provision in the future, both in Long Term Care (LTC) facilities and for those older people who are cared for at home, which will represent the majority of the population ⁵⁻⁷.

A growing proportion of older people will be unable to perform oral self-care as they become increasingly care dependent ⁸. Cognitive decline, physical impairment, changing diets and increasing xerostomia due to polypharmacy all increase the risk of dental decay ⁹.

In the Netherlands, the prevalence of caries in older people varies between 20-60% amongst older people living at home and 60-80% in LTC ^{10,11}. In 2006, Visschere et al. found that that 39% of people in LTC had pain in their mouth and only 20% had seen a dentist within five years. Moreover, a third of community dwelling older people reported pain ^{12,13}. In the UK, 61% of residents in Greater Manchester were deemed to require dental care, 66% were unable to perform oral self-care and 72.8% LTC residents had tooth decay⁸. Many did not brush their teeth and only attended a dentist when they had a problem ⁸.

Given this growing dental public health challenge, the importance of preventing dental disease in care dependent older people is increasingly being recognized ¹⁴. In response to this, an evidence based National Oral health care Guideline for Older people in LTC (OGOLI) was introduced in 2006 in the Netherlands. The OGOLI consists of four elements, an educational element about the causes and effects of bad oral health and methods to improve older people's oral health at an individual, healthcare worker and organizational level ¹⁵. OGOLI was one of the first initiatives of its kind. However, The Dutch Health Care Inspectorate visited 29 LTC facilities who had introduced OGOLI in 2014 and found that it had been poorly implemented in all but two homes ¹⁶. Reasons for poor implementation were: oral care was not implemented in the quality criteria of the LTC facility, a dentist was often not available when care was needed, caregivers had a lack of knowledge about oral health (care) and patient records were insufficiently regarding oral care. Visschere et al. (2015) reported similar findings in their study in Belgium. Overall, there was a lack of nurses to assess the oral health needs of residents and their

experiences regarding oral health was poor ¹⁷. In another study conducted in the Netherlands, Everaars et al. (2015) found that the level of knowledge about oral health amongst older people and their carers was also poor ¹⁸.

The UK has no national oral health guideline for older people in LTC facilities. Again, a report conducted by Public Health England (PHE) in the North-West of England found the standard of oral healthcare to be poor ¹⁹. Over a third (37%) of carers did not assess the oral health and hygiene needs of their clients.

Lack of access to suitable, timely and responsive oral health care services is also a problem. In the Netherlands, service provision in LTC facilities is provided by public health services and is covered by National Insurance, whilst those who dwell in the community are required to pay for additional services over and above their existing private health insurance. As a

result, many dependent older people living at home, face high treatment costs and experience financial barriers in seeking oral health care ¹⁸. In the UK, all adults pay a substantive contribution toward the cost of care in the National Health Service (approximately 80% of the full cost): a basic examination, including radiographs and a scale and polish will cost the patient around €20. In the Netherlands, without oral health insurance, older people can incur costs of around €120 for the same level of treatment.

This emerging oral health care issue provides an opportunity to encourage co-design and co-production methodologies, where all stakeholders are involved and potential service-users are stimulated to play a substantive role in the future design of oral health care services. One example of such an approach is a Priority Setting Partnerships (PSP), which encourages service-users to set priorities and play a key role in the future design of healthcare services ²⁰. Previous research in the UK and the Netherlands, established two PSPs to explore the perceived problems and priorities for

service provision using a range of different stakeholders from both countries^{18,21}. With this methodology, the research team in both the UK and the Netherlands were able to record the views and perspectives from the different stakeholders in both countries and better understand the priorities and challenges of improving oral health care service provision. The aim of this paper is to compare and contrast the views from the two countries on the future priorities for service provision and to discuss these results in the context of a quality framework for older people in the UK and the Netherlands.

MATERIALS AND METHODS

Priority Setting Partnerships (PSPs) support the process by enabling users to set priorities and incorporating their perspectives in the planning of future oral health care service provision²³. PSPs are based on a consensus methodology and were developed by the James Lind Alliance in the UK to help mitigate the asymmetrical relationships that often exist between researchers and users of services^{20,24}. They comprise of a series of sequential steps to build consensus and help start the co-design and co-creation process by listening to the expressed views of service users. Within the PSPs, the Nominal Group Technique (NGT) was used to understand older people's problems and provide an opportunity to discuss potential solutions²². The NGT is a structured approach to achieving a consensus. The research team start by formulating nominal questions (questions with non-ordered response categories) and then these are presented to the stakeholders in the group. Participants are asked to record their thoughts individually, before sharing them with the rest of the group in a 'round-robin' format, one at a time. This process is recorded by

the research team who then lead a group discussion on each idea.

Participants are then asked to vote on each idea.

The original studies were provided with ethical approval from the University of Manchester ethics committee (Project Reference: 13281).

The PSP established between Greater Manchester (further referred as 'The UK' and the Netherlands used the NGT with four distinct groups of stakeholders; : 1. 'Users', 2. 'Carers', 3. 'Third Sector' and 4. 'Specialists'.

'Users' were defined as older people whom make use of oral health care services (1), 'Carers' consist of personal carers of (frail) older people (2); representatives of charitable organizations, LTC institutions and health care insurance companies were referred as ' Third Sector' (3) and specialists with clinical (oral health care) knowledge and experience regarding (frail) older people, such as dentists, geriatricians, elderly care physicians and general practitioners were labelled as 'Specialists' (4).

As highlighted above, NGT enabled the research team to undertake a structured discussion with all four stakeholder groups and allowed a comparison of their different priorities, with each group being given equal weight ^{22,25} The detailed methods for the two PSPs are described in Brocklehurst *et al.* and Everaars *et al.* ^{18,21}.

During the NGT, a set of six initial questions were asked as a prompt, where after further open discussions were encouraged:

1. What aspects of oral health are important for you now?
2. What aspects of oral health would be important to you as you loose your independence?
3. How should we best prevent dental disease in older people?
4. What does good dental care look like (as older people become increasingly dependent)?
5. What would you fear happening to your mouth i.e. what negative outcomes would you want to avoid as you loose your independence?

6. What are important research questions to ask?

In both countries, each participant was provided with the study information and questions for the NGT in advance, and were encouraged to make notes and comments in preparation. After individual reflection, a discussion was facilitated to allow each participant to express their thoughts to each question. A shared ranking exercise was then undertaken, after further structured small group discussions. Facilitators from the Netherlands were present at the first and fifth PSP group in the UK to enable reproducibility of the methodology in the Netherlands. The views of the different groups were recorded verbatim using a digital recorder and were transcribed verbatim into text documents.

Transcriptions were written in the mother tongue to ensure context was accounted for. In addition to recording the views of the participants for each question, a coding frame was developed for thematic analysis ²⁶.

This was to ensure that no important information was lost from the transcripts and enabled an inductive and collective view to be developed across the five groups in the two countries.

For this paper, the codes and themes derived from these previous two studies were analyzed. As the PSPs had not been undertaken before in either the UK or the Netherlands, an inductive approach was considered critical and the emerging data was privileged and given prominence (in accordance with the co-production paradigm adopted). All the transcripts from both studies were merged, coded and overarching themes were then developed by organizing them into clusters based on the similarity of their meaning²⁶. These were then checked against the raw data to ensure that they formed a coherent narrative and were representative of what the participants were trying to convey. Consensus about the coding frame was reached between two researchers (BE from Utrecht and PRB from Greater Manchester). We then interpreted the results of the study in the discussion section using Maxwell's framework which describes six key

domains of quality in service provision: be effective, acceptable, efficient, accessible, equitable and relevant ²⁷. For this study, these domains were organized into three broad themes: 1. relevant, responsive to need and socially acceptable, 2. accessible and effective, and 3. be efficient and equitable ²⁷.

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RESULTS

Overview of focus group participants

An overview of participants in The UK and the Netherlands is shown in Table 1. Overall, the views of participants from both countries had many similarities. Codes are supported by quotes from all focus groups. The source of the quotes are referred as: UK/NL (UK/the Netherlands), Focus group (U=users, C=carers, TS=third sector, S=specialists, J=joint focus group) followed by the sentence number. Two main themes were derived from the focus groups in both countries: 'Individual well-being' and 'Underlying principles of service provision'.

Theme 1: 'Individual well-being'

The individual self-perceived needs of the participants were very similar and have been described in detail in our two earlier papers ^{18,21}. In summary, being pain free, maintaining function (preferably with their own teeth), maintaining a balanced diet and the importance of aesthetics, dignity and self-respect were considered to be key when talking about the

perception of good oral health (Table 2). In the Netherlands, more emphasis was placed on the role of (dental) care professionals to promote good oral health. Both countries also stressed the need for more awareness of the association between oral health and general health and how this may contribute to a better understanding of the importance of oral health in older people.

Theme 2: ‘Underlying principles of service provision’

Table 3 highlights the codes that describe the principles underlying service provision that were considered to be important. Again, there were a lot of similarities between the two countries.

Code 1: Determine key issues and the development of quality criteria

The importance of determining the key issues and best practice for service provision for older people was considered to be the first step in planning new services.

'...I have a big question. What are the key issues affecting dental health for an aging population...?'(UK C1283)

Despite the existing Dutch guideline (OGOLI) in the Netherlands, participants in both countries, felt quality criteria were missing in the present oral healthcare system. Moreover, clinical measures to evaluate oral health conditions, indicators to evaluate the quality of oral healthcare provided and treatment protocols and care-pathways were said to be absent for service provision for dependent older people in both countries.

'...Which simple means, which give optimal treatment for the elderly.. Where does it start, what is the basis...What needs to be minimally present. Also, if you say what is necessary for quality of life...'(NL S638)

Code 2: Improve access to services

Access to oral health care services provided by dental care professionals was seen as a priority in both countries. Access was discussed in terms of physical access to the dental clinic (like ground floors), access to domiciliary services but also access in terms of costs and financial barriers to care. In both countries, the latter was a major concern.

A. Physical access

Participants from both countries agreed that provision of dental care at home is an important consideration for dependent older people. For those who are homebound and not able to visit the dental practice, the dentist and dental hygienist could provide home visits. Some participants thought that curative treatments should take place in a dental practice, but screening and triage could take place in the home. However, problems and questions regarding the financial aspects of this scenario were expressed. Patients and carers both described how regular attendance at

their dental practices increasingly became a problem as their mobility deteriorated.

'...I don't think you can bring your suitcase with all your instruments, but you can have a look if the mouth or teeth are healthy...' (NL U520)

'...nowadays we have a mobile dentist...we have an organization of dental hygienist who do home visits. I think that is really good...' (NL TS444)

B. Financial Access

In the UK, it was argued that the patient's NHS fees should be reduced in order to promote access to services:

'...can I also put under that heading affordability...because eye tests are free, hearing tests are free, why isn't the dental check up free if you're over 60...' (UK C163)

In the Netherlands, it was felt more important to include oral healthcare in basic health insurance policies for older people and reflects the different service models in the two countries. In the UK, many stated that there should be incentives in the remuneration system for dental professionals to provide care for dependent older people. However, both countries agreed that health care professionals should be able to charge an extra fee to off-set the time needed to see and manage dependent older people.

'...dentists need to be reachable... And I mean, you have to look at it holistically... yes accessible. And two, attitude, so in some way, he needs to be able to charge two consults, or whatever... but he needs to be able to take the time to comfort someone, to talk with someone and to show some interests...'(NL C472)

Code 3: Importance of prevention and maintenance in the future

Prevention was also considered to be key in both countries. It was mentioned that prevention in children should be key in order to prevent oral health problems in later life. Prevention was expressed as a broad term which including prevention provided by oral health care professionals and broader public health initiatives.

'...good diet, good brushing, attention from (informal) carers and home care for daily oral care. Good instructions how they can brush someone else...' (NL TS251)

Clinicians from the UK also stated that consideration should be made for training dental professionals to 'plan for failure' i.e. to think more carefully about the consequences of current care provision, working to the basic premise that all restorations will fail at some point. In the Netherlands,

participants argued for more innovation in dental technologies so that restorations (fillings) would last for longer periods of time.

'...I think restorative certainly in the last 10/15 years is about planning for failure...' (UK J475)

'...I think that they go out to primary care where people are taught to fill and drill, and treat the emergency, not think 10/15 years hence...' (UK J481)

Code 4: Raising awareness in both the population and amongst health professionals

Raising awareness about oral health and its' consequences was seen as another important element of prevention.

'...the first point I put was raising awareness, so that we reduce the idea that disease is inevitable...'(UK J905)

Participants felt that this was important amongst the general public and broader health professionals and information should be made available on the oral health needs of dependent older people.

' Yes, It's starts with adequate information provision and awareness.. If you invest in this.. That is the start.' (NL TS1533)

'...get onto public health to do this, it's not a dentist problem, it's public health...'(UK U866)

In the UK, participants also felt that more use could be made of existing community networks to provide preventive information, sign-posting of services and linking older people together.

'...try to go to any community to give the information like you mentioned how important, how prevent this kind of event to spread the words in the community to all the people...' (UK TS1743)

Code 5: Importance of screening

It was stressed that more screening and triage systems should be made available to monitor the oral health of older people in the community. In both countries, the use of oral health screening as the first-line of care was mentioned as a solution. Furthermore, screening was also seen as an important step in identifying problems early to prevent more (severe) oral health problems in the future and was argued to be more cost-effective.

'...how can we maintain a system of regular checks and advice? When people are unable to attend a clinic there should be a service to come to the home, possibly through the GP...' (UK C1234)

'...structural oral health care instead of only curing symptoms...so a regular screening...' (NL TS300)

Code 6: Making better use of allied health professionals

Many from the UK thought that the better use of allied dental professionals like dental hygienists could also offer a more affordable option. This type of approach utilizes different members of the dental team to provide oral health service provision.

'...if I was seeing a dentist every 12 months, then I'd be happy to see the hygienist in the six month period in-between...' (UK U1393)

'...I would also like to have myself a dental hygienist cleaning my mouth frequently, so not twice a year but frequently... Because they are able to judge my self-care...' (NL C249)

Code 7: Need for multi-disciplinary approach/co-operation/joined-up care

The idea that oral health care should be included as part of the system to maintain general health was also mentioned in both countries, given the perceived importance that oral health has on general health in this age group. The role of the general practitioner/general health care workers and practice managers to take a multidisciplinary approach was mentioned by most of the participants.

'...I would like to have that more disciplines pay attention for the mouth, not only the dental professional. I also would like my doctor to know that the medicines will cause a dry mouth, so we need to pay extra attention...'(NL TS136)

The need for joined-up care and involvement of non-dental professionals, like caregivers and nurses in detecting oral health problems was also emphasized by many participants. Many frail community dwelling older

people were seen as being beyond the reach and focus of dental professionals, in contrast to district nurses and practice nurses.

'...if there is a geriatric center... if there is also a dentist part of it... then you can also have a look on how effective multidisciplinary is...' (NL TS557)

'...in one of the early ones they were saying it'd be nice to have the dentist at the doctors... So it's all in one roof. Like you said, you're not going to the hospital in the morning then the GP in the afternoon. It's all in one isn't it...' (UK S1283)

Code 8: Need to improve knowledge/education/training of oral health care professionals

Questions were raised as to whether oral health professionals had sufficient knowledge to care for older people, particularly those that were becoming increasingly dependent.

'...people who are going through dentistry college, university, do they spend like a placement with people with complex needs...' (UK S1058)

Some participants, especially participants in the specialists group had the feeling that little attention was being given in the dental curriculum on how to manage the needs in this population group. In the Netherlands it was also mentioned that only a few students in dental schools have any affinity with managing and treating the dependent older person.

'The focus on elderly is nearly present among students in dental schools... And when they graduate they see that 80 percent of their clients are elderly... And than they scare... So that is the problem... even if they get

a course in their education, the awareness that the focus needs to be on that is lacking...' (NL TS226)

Besides the need for more knowledge among oral health professionals about the problems in older people, it was also stated that there was a need for specialists in this field. Education in gerodontology for graduated dentists is already being offered in the Netherlands but as highlighted above, only a small number of dentists appear to have any affinity in providing care for this group. Moreover, since 2015 there is also a differentiation for dental hygienists in the field of gerodontology. Equally, the UK offers no specialism for graduated dentists in this field, with the work generally undertaken by those specialists on prosthodontic or restorative specialist lists.

'...some sort of specialism needs to be developed, because I just think dentists don't really want to deal with people...' (UK C162)

Code 9: Need to improve knowledge/education/training of other health care professionals

All participants from the UK and the Netherlands recognize that a lot of non-dental health care professionals lack knowledge in oral health and oral healthcare.

'...some carers in a hospital don't know the first thing about giving good care or helping somebody to maintain their own oral healthcare...' (UK S547)

This need for improvement of knowledge was linked with the ability of other health care professionals, like nurses and general practitioners to screen for oral health problems. For example, in case of general practitioners, having more awareness and knowledge of poor oral health would enable them to be recognize, screen and refer to dental specialists.

'...the staff are trained and developed to a certain extent, not obviously in any great dentistry depths. But it could be a care assistant that picks up on a pain or an abscess or something else going on in the mouth that's not related to the teeth. So it's vast...' (UK S294)

Education and training for non-dental health care professionals, like nurses was also raised as being important. In the Netherlands, this was linked to the need to improve knowledge in geriatric medicine of oral healthcare and the potential links between oral and systemic diseases.

'...there has to come indeed an education program or training for, for all kind of caregivers...' (NL U754)

DISCUSSION

The aim of this study was to compare and contrast the views on the priorities for oral health care service provision for older people from a multi-stakeholder perspective in the UK and the Netherlands. The main findings in this study are similar to the priorities identified by Jones et al. in 2000, where major themes included the need to diagnose oral disease, provide preventive and restorative care and preserve older peoples' nutritional status ²⁸. In addition, maintaining comfort (including the control of pain) and training and education were key priorities ²⁸.

In the Netherlands, oral healthcare is not part of the basic health insurance for community dwelling elderly. Dental treatment is only covered when individuals have additional dental insurance or when they are cared for in LTC. Despite full public coverage of dental care by dental care professionals when institutionalized in LTC facilities, high figures of dental complications are present and the developed guideline for LTC (OGOLI) have been poorly implemented ¹⁶. In contrast, basic NHS healthcare

provision in the UK requires all adults (including older people) to pay a substantive contribution for any treatment they receive (with the State paying approximately 20% of the total costs). In both countries, there are no financial incentives for providers of services to adapt their approach in order to meet the needs of older people (e.g. home visits, longer appointment times). Moreover, specific quality criteria for service provision in both countries is lacking, meaning that there remains significant room for improvement. To further discuss the results we have used Maxwell's framework that describes the key domains of quality in health service provision ²⁷.

Be relevant, responsive to need and socially acceptable

The importance of improving the oral health of older people has been recognized for some time ²⁹. Given the significant unmet dental treatment need amongst LTC residents ^{30,31} and poor service provision ^{19,32}, there is a need to determine the key issues for older people and develop quality criteria and standards. This concurs with earlier research, which found that

oral service provision for older people have the lowest number of quality measures (28%)³³. A lack of quality criteria and quality outcome measures can hamper the evaluation of oral health service provision, the development of effective interventions and the creation of good models of clinical practice³³. Findings from this study highlight the need to focus on ensuring older people are pain free, able to function, whilst maintaining their dignity, self-respect and ability to communicate across their social networks. These findings are supported by Tsakos et al (2013)³⁴.

Be accessible and effective

Older adults are disadvantaged with respect to access to care³⁵ and many health care systems are unprepared to meet the future needs of older people³⁶. Utilization rates for oral health service provision in this group remains lower than for younger adults. Among older people, identified barriers to care include fear, lack of perceived need, costs and inadequate transportation, particularly amongst low-income groups³⁷. Within LTC, numerous problems mitigate against routine service provision, including:

lack of perception of a problems by residents ³⁸, residents' inability to articulate need ³⁹, lack of prioritization, limitations of care home staff and lack of interest from dental professionals ⁴⁰. In the Netherlands, research highlights the inadequate implementation of the OGOLI ¹⁶. Changes in the dental contract in 2006 in the UK have dis-incentivized domiciliary provision in residential care. Income-related inequality in oral health and oral health service utilization is also common ^{34,41,42}.

The greater role of the general practitioner and the need for a more holistic approach to care has been advocated before ^{43,44} and was articulated again in this study. In addition, a more flexible approach to the provision of care was suggested, where all members of the oral healthcare team are involved in the provision of both, active prevention (including screening) and treatment. However, best practices in prevention and oral healthcare provision in care dependent older people seems to be unequivocal.

A lack of evidence in the oral health prevention and treatments of older people is an issue which causes an enormous variation in service provision for older people; professionals lack evidence based interventions in order to provide effective care for dependent older people ⁴⁵. Therefore, extrapolating costs and effects is difficult. The participants in this study also stressed the importance of improving knowledge among health care professional. This is included in OGOLI; it is argued that when care-givers receive practical and theoretical information about oral healthcare, this will improve the oral health in those that they care for ^{15,46-48}. In a six month study, examining the impact of implementing OGOLI in Belgium, the supervised implementation of an oral healthcare protocol significantly increased the knowledge of nurses and nurses' aides ⁴⁹. In the Netherlands, OGOLI was shown to be effective at reducing mean plaque scores at 6 months, although the multilevel mixed-model analysis could not exclusively explain the reduction of mean dental plaque scores by the intervention. Komulainen et al. (2005) found no statistically significant difference between intervention and control groups in a randomized two-

year long study examining the effectiveness of an oral health care intervention, consisting of individual tailored instructions for oral hygiene, relief of dry mouth symptoms, decrease of sugar-use frequency, use of fluoride, xylitol or antimicrobial products, and professional tooth cleaning⁵⁰. Although, in a LTC setting, mucosal–plaque scores after one year was found to have been reduced by a care support workers educational program⁵¹. Given this heterogeneity, the need for well conducted trials and systematic reviews of both individual preventive interventions and the organization of care are warranted.

One available systematic review showed that it was not possible to unequivocally recommend strategies or combinations of strategies for improving oral health care in the older people residing in LTC⁵². When choosing strategies to improve oral health care in LTC, care professionals should thoroughly examine the setting and target group, identify barriers to change and tailor their implementation strategies to these barriers for oral health care.

Be efficient and equitable

The availability of oral health services, their organization and price subsidy have all been identified as important factors influencing access to oral healthcare amongst older people in different European countries³⁶. This was again underlined by the participants in this study. However, very few studies have examined the efficiency of oral health care service provision²¹, let alone service provision for older people. In one of the few studies published, Linna et al. (2003) found substantial variation in the efficiency of Finnish Health Centers and capacity that could be used for improving the oral health services for older people, although the theoretical savings models were too small to guarantee full coverage for all age groups⁵³. Clear and consistent inequalities by income in service utilization exist amongst older adults in Europe^{41,42}. Higher income groups have higher levels of access to oral health care in national samples in 14 European countries. The need to take a “meta-view” of current service provision is now well over-due to ensure the “the right number of people with the right skills are in the right place at the right time to provide the right services to

the right people”⁵⁰. Research should concentrate on exploring the tensions between professionally defined needs, perceived needs, expressed demand and ‘realistic need’^{36,54}, the level of service and type of health technology that is appropriate for older people and how the productivity of the health workforce can deliver this service and technology most efficiently.

Limitations and strengths

To our knowledge, this is the first study that has provided insight into the perceived needs for oral health service provision across two European countries from a multi-stakeholder perspective. Since many stakeholders participated in the study, saturation was reached on multiple levels in the healthcare system (micro-, meso-, macro-level).

Although the teams were unable to recruit dependent older people to the study, one of the groups included was caregivers of users of services. Whilst this was a practical solution, it does mean that the views of dependent older people were inferred. More in-depth information on the perspective of dependent older people in the Netherlands was captured in an extended study conducted by Everaars et al. (2015).

We followed the same research methods in the UK as in the Netherlands, however because different researchers were involved the research project, slight differences in focus group facilitation may also have

occurred. To learn from each other, both research teams visited each other during the first and last focus group sessions. To increase reliability of the results, both authors (BE and PB), individually coded and analyzed the data. Thereafter, consensus was reached about the presented coding frame.

Conclusion

Overall, the results of the focus group sessions in both countries expressed similarities in the perceived needs of service provision. A lack of evidence based interventions and quality criteria for older people hamper the ability to make explicit recommendations. More research on different facets of quality in service provision is advocated, based on the premise that maintenance of good oral health is important for older people. However, there remains a lack of evidence on the effects and costs of prevention. Lessons learned from the development and implementation of the OGOLI in the Netherlands could be useful for commissioners or services in the UK. Introduction of a multi-disciplinary

approach and improving the awareness and knowledge of dental and other health care professionals would be essential in optimizing the oral health of older people in both countries. Because oral health is related to general health, physicians could have an important role in maintaining adequate oral health too. However, many physicians are not aware of the negative impact of poor oral health on general health. Oral health for older people should gain a more important place in the education of both, oral health and general health care professionals.

Policy makers should be made aware of the threats to good oral health and the impact this can have for general health and wellbeing of older people, such as malnutrition. The remuneration system should be better aligned to ensure services meet older people's needs: allowing longer appointment times, home visits and regular professional cleaning of the mouth. In the Netherlands, the oral health care of all dependent older people should be provided within the public sector and covered by the basic health insurance.

Acknowledgements

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REFERENCES

1. Age (UK). Age UK. <http://www.ageuk.org.uk>. Accessed 2/14, 2014.
2. CBS. Prognose bevolking kerncijfers, 2012-2060. <http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=81593NED&D1=a&D2=0&D3=0-1,3,8,13,18,23,28,33,38,43,l&HD=130605-0940&HDR=G1,G2&STB=T>. Updated 2014. Accessed 6-1, 2016.
3. The Gerontological Society of America. **WHAT'S HOT** Oral health: An essential element of healthy aging. GSA. 2017:1-17.
4. Steele J, Treasure E, Fuller L., Morgan M. 4: Complexity and maintenance - a report from the adult dental health survey 2009. . 2011;1.
5. hscic. Adult dental health survey 2009 - summary report and thematic series [NS]. <http://www.hscic.gov.uk/pubs/dentalsurveyfullreport09>. Updated 2011. Accessed 4/4, 2014.
6. National Institute for Health Research. ENRICH - enabling research in care homes. <http://www.enrich.nihr.ac.uk/>. Updated 2015. Accessed 2/14, 2014.
7. Nationaal Ouderen fonds. Feiten en cijfers. <https://www.ouderenfonds.nl/onze-organisatie/feiten-en-cijfers/>. Updated 20152014.

8. Pretty IA. The life course, care pathways and elements of vulnerability. A picture of health needs in a vulnerable population. *Gerodontology*. 2014;31 Suppl 1:1-8. doi: 10.1111/ger.12092 [doi].
9. Viljakainen S, Nykanen I, Ahonen R, et al. Xerostomia among older home care clients. *Community Dent Oral Epidemiol*. 2016. doi: 10.1111/cdoe.12210 [doi].
10. Putten van der GJ, Visschere LMJd, Maarel-Wierink van der C, Vanobbergen J, Schols J. The importance of oral health in (frail) older people. A review. *European Geriatric Medicine*. 2013;4:339-344.
11. Hoeksema AR, Vissink A, Raghoobar GM, et al. Mondgezondheid van kwetsbare ouderen: Een inventarisatie in een verpleeghuis in noord-nederland. *Ned Tijdschr Tandheelkd*. 2014;121:627-633.
12. Visschere LMJd, Putten GJvd, Baat Cd, Schols JMGA, Vanobbergen JNO. De richtlijn mondzorg voo ouderen in zorginstellingen. imlementatie in nederland en vlaanderen. *Ned Tijdschr Tandheelkd*. 2009(116):23-27.
13. Kalsbeek H, Baat CD, Kivit MM, Kleijn, DE. Vrankrijker, M.W. DE. Mondgezondheid van thuiswonende ouderen 2. het subjectieve aspect van mondgezondheid. *Ned Tijdschr Tandheelkd*. 20-1(108):16-20.

14. de Baat C, Bruins H, van Rossum G, Kalk W. Oral health care for nursing home residents in the netherlands--a national survey. *Community Dent Oral Epidemiol.* 1993;21(4):240-242.
15. Nederlandse Vereniging van Verpleeghuisartsen. Richtlijn mondzorg voor zorgafhankelijke cliënten in verpleeghuizen. . 2007.
16. The Healthcare Inspectorate - Ministry of Health, Welfare and Sport. Kwaliteit mondzorg in verpleeghuizen onvoldoende, een inventariserend onderzoek in 29 verpleeghuizen. . 2014:3-28.
17. De Visschere L, de Baat C, De Meyer L, et al. The integration of oral health care into day-to-day care in nursing homes: A qualitative study. *Gerodontology.* 2015;32(2):115-122. doi: 10.1111/ger.12062 [doi].
18. Everaars B, Jerkovic-Cosic K, Putten van der GJ, Heijden van der GJMG. Probing problems and priorities in oral health (care) among community dwelling elderly in the netherlands- A mixed method study. *Int J Health Sci Res.* 2015;5(9):415-429.
19. Public Health England. Dental public health intelligence programme. north west oral health survey of services for dependent older people. . 2012-2013:1-16.
20. National Institute for Health Research. James lind alliance guidebookRedo (Ctrl+Y). <http://www.jla.nihr.ac.uk/>. Updated 2016. Accessed 8/12, 2014.

21. Brocklehurst PR, Mackay L, Goldthorpe J, Pretty IA. Older people and oral health: Setting a patient-centred research agenda. *Gerodontology*. 2015;32(3):222-228. doi: 10.1111/ger.12199 [doi].
22. Foth T, Efstathiou N, Vanderspank-Wright B, et al. The use of delphi and nominal group technique in nursing education: A review. *Int J Nurs Stud*. 2016;60:112-120. doi: 10.1016/j.ijnurstu.2016.04.015 [doi].
23. James Lind Alliance.
The james lind alliance guidebook
version 6. <http://www.jla.nihr.ac.uk/jla-guidebook/>. Updated 2016. Accessed 06/16, 2017.
24. Viergever RF, Olifson S, Ghaffar A, Terry RF. A checklist for health research priority setting: Nine common themes of good practice. *Health Res Policy Syst*. 2010;8:36-4505-8-36. doi: 10.1186/1478-4505-8-36 [doi].
25. McMillan SS, Kelly F, Sav A, et al. Using the nominal group technique: How to analyse across multiple groups. *Health Serv Outcomes Res*. 2014;14(3):92-108. <http://dx.doi.org/10.1007/s10742-014-0121-1>. doi: 10.1007/s10742-014-0121-1.
26. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3:77-101.

27. Maxwell RJ. Perspectives in NHS management. quality assessment in health. *BMJ*. 1984;288(6428):1470-1472.
28. Jones JA, Brown EJ, Volicer L. Target outcomes for long-term oral health care in dementia: A delphi approach. *J Public Health Dent*. 2000;60(4):330-334.
29. Petersen PE, Yamamoto T. Improving the oral health of older people: The approach of the WHO global oral health programme. *Community Dent Oral Epidemiol*. 2005;33(2):81-92. doi: COM219 [pii].
30. Johnson IG, Morgan MZ, Monaghan NP, Karki AJ. Does dental disease presence equate to treatment need among care home residents? *J Dent*. 2014;42(8):929-937. doi: 10.1016/j.jdent.2014.05.010 [doi].
31. Karki AJ, Monaghan N, Morgan M. Oral health status of older people living in care homes in wales. *Br Dent J*. 2015;219(7):331-334. doi: 10.1038/sj.bdj.2015.756 [doi].
32. The Health and Social Care Information Centre. 4: Complexity and maintenance - a report from the adult dental health survey 2009. . 2011;1.0.
33. Watt RG, Harnett R, Daly B, et al. Evaluating oral health promotion: Need for quality outcome measures. *Community Dent Oral Epidemiol*. 2006;34(1):11-17. doi: COM257 [pii].

34. Tsakos G, Sabbah W, Chandola T, et al. Social relationships and oral health among adults aged 60 years or older. *Psychosom Med.* 2013;75(2):178-186. doi: 10.1097/PSY.0b013e31827d221b [doi].
35. Leake JL, Birch S. Public policy and the market for dental services. *Community Dent Oral Epidemiol.* 2008;36(4):287-295. doi: 10.1111/j.1600-0528.2008.00438.x [doi].
36. Holm-Pedersen P, Vigild M, Nitschke I, Berkey DB. Dental care for aging populations in denmark, sweden, norway, united kingdom, and germany. *J Dent Educ.* 2005;69(9):987-997. doi: 69/9/987 [pii].
37. Dolan TA, Atchison KA. Implications of access, utilization and need for oral health care by the non-institutionalized and institutionalized elderly on the dental delivery system. *J Dent Educ.* 1993;57(12):876-887.
38. Lester V, Ashley FP, Gibbons DE. Reported dental attendance and perceived barriers to care in frail and functionally dependent older adults. *Br Dent J.* 1998;184(6):285-289.
39. Fiske J, Gelbier S, Watson RM. Barriers to dental care in an elderly population resident in an inner city area. *J Dent.* 1990;18(5):236-242. doi: 0300-5712(90)90020-F [pii].

40. Stiefel DJ, Truelove EL, Jolly DE. The preparedness of dental professionals to treat persons with disabling conditions in long-term care facility and community settings. *Spec Care Dentist*. 1987;7(3):108-113.
41. Listl S. Income-related inequalities in dental service utilization by europeans aged 50+. *J Dent Res*. 2011;90(6):717-723. doi: 10.1177/0022034511399907 [doi].
42. Tsakos G. Inequalities in oral health of the elderly: Rising to the public health challenge? *J Dent Res*. 2011;90(6):689-690. doi: 10.1177/0022034511407072 [doi].
43. Drum MA, Chen DW, Duffy RE. Filling the gap: Equity and access to oral health services for minorities and the underserved. *Fam Med*. 1998;30(3):206-209.
44. Rubinstein HG. Access to oral health care for elders: Mere words or action? *J Dent Educ*. 2005;69(9):1051-1057. doi: 69/9/1051 [pii].
45. McGrath C, Zhang W, Lo EC. A review of the effectiveness of oral health promotion activities among elderly people. *Gerodontology*. 2009;26(2):85-96. doi: 10.1111/j.1741-2358.2008.00232.x [doi].

46. Frenkel H, Harvey I, Newcombe RG. Improving oral health in institutionalised elderly people by educating caregivers: A randomised controlled trial. *Community Dent Oral Epidemiol.* 2001;29(4):289-297.
47. Nicol R, Petrina Sweeney M, McHugh S, Bagg J. Effectiveness of health care worker training on the oral health of elderly residents of nursing homes. *Community Dent Oral Epidemiol.* 2005;33(2):115-124. doi: COM212 [pii].
48. Kaiser CM, Williams KB, Mayberry W, Braun J, Pozek KD. Effect of an oral health training program on knowledge and behavior of state agency long-term-care surveyors. *Spec Care Dentist.* 2000;20(2):66-71.
49. Janssens B, De Visschere L, van der Putten GJ, de Lugt-Lustig K, Schols JM, Vanobbergen J. Effect of an oral healthcare protocol in nursing homes on care staffs' knowledge and attitude towards oral health care: A cluster-randomised controlled trial. *Gerodontology.* 2014;doi: 10.1111(ger.12164):1-11. doi: 10.1111/ger.12164 [doi].
50. Komulainen K, Ylostalo P, Syrjala AM, et al. Oral health intervention among community-dwelling older people: A randomised 2-year intervention study. *Gerodontology.* 2015;32(1):62-72. doi: 10.1111/ger.12067 [doi].
51. Portella FF, Rocha AW, Haddad DC, et al. Oral hygiene caregivers' educational programme improves oral health conditions in institutionalised

independent and functional elderly. *Gerodontology*. 2015;32(1):28-34. doi: 10.1111/ger.12049 [doi].

52. Weening-Verbree L, Huisman-de Waal G, van Dusseldorp L, van Achterberg T, Schoonhoven L. Oral health care in older people in long term care facilities: A systematic review of implementation strategies. *Int J Nurs Stud*. 2013;50(4):569-582. doi: <http://dx.doi.org/10.1016/j.ijnurstu.2012.12.004>.

53. Linna M, Nordblad A, Koivu M. Technical and cost efficiency of oral health care provision in finnish health centres. *Soc Sci Med*. 2003;56(2):343-353. doi: S0277953602000321 [pii].

54. Vigild M. Benefit related assessment of treatment need among institutionalised elderly people. *Gerodontology*. 1993;10(1):10-15.

Table 1. Overview of participants in the five focus groups in UK and the Netherlands

COUNTRY	USERS	CARERS	THIRD SECTOR	SPECIALISTS	JOINED FOCUS GROUP
UK	11 participants (7 female, 4 man): - 9 ≥ aged 65 years or older - 2 between 60 and 65 years of age.	6 participants: - All cared for spouses aged ≥ 65 of age	5 Representatives from: - Age UK - the Stroke Association (92), - the Alzheimer's Society - A residential nursing home.	6 participants: - A Geriatrician with special responsibility for community care, - A Consultant in Dental Public Health, - A Consultant in Restorative Dentistry with a special interest in Gerodontics, - A Dental Commissioner, the Chair of the Local Professional Net- work - Two academics interested in Health Services Research for older people	8 participants

NL	<p>8 participants (5 women, 3 man):</p> <p>65-98 Years old</p>	<p>6 participants:</p> <ul style="list-style-type: none"> - Carers (3) - Informal carers (3) 	<p>8 participants:</p> <ul style="list-style-type: none"> - from Care organizations (1) - from different trade unions (2) related to insurance companies (1) - National insurance body (1) - related to the professional network (3) 	<p>10 participants:</p> <ul style="list-style-type: none"> - Gerodontologists (3) - Geriatrician (2) - Dentists (2) - Dental hygienists (2) - General practitioner 	<p>9 participants:</p> <ul style="list-style-type: none"> - Elderly (2) - Informal carers (2) - Representative related to insurance company (1) - Representative care organization (1) - Representative trade union (1) - Gerodontologist (1) - Dental hygienist (1)
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Table 2: Theme 1: 'Individual well-being'

UK and the Netherlands
Pain free and functioning (including keeping teeth)
Importance of appearance and aesthetics
Dignity and self-respect
Importance of taking care of your own teeth
Quality of life
Link between oral and general health
Importance of nutrition (maintaining a balanced diet)

Table 3: Theme 2: 'Principles of service provision'

Code	
1	Determine key issues and the development of quality criteria
2	Improve access to services
	A. Physical Access (provision of domically care)
	B. Financial access (reduce cost of services)
3	Importance of prevention and maintenance in the future
4	Raising awareness in both the population and amongst health professionals
5	Importance of screening
6	Making better use of allied health professionals
7	Need for multi-disciplinary approach/co-operation/joined-up care
8	Need to improve knowledge/education/training of oral health care professionals
9	Need to improve knowledge/education/training of other health care professionals

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