




# BMJ Open Health policy analysis on barriers and facilitators for better oral health in German care homes: a qualitative study

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## ABSTRACT

**Objectives** To assess possible health policy interventions derived from the theoretical domains framework (TDF) by studying barriers and facilitators on the delivery of oral healthcare and oral hygiene in German care homes using a behavioural change framework.

**Design** Qualitative correlational study to evaluate a national intervention programme.

**Setting** Primary healthcare in two care homes in rural Germany.

**Participants** Eleven stakeholders participating in the delivery of oral healthcare (hygiene, treatment) to older people, including two care home managers, four section managers, two nurses/carers and three dentists.

**Interventions** Semistructured interviews conducted in person in the care homes or by phone. A questionnaire developed along the domains of the TDF and the Capabilities, Opportunities and Motivations influencing Behaviours model was used to guide the interviews. Interviews were transcribed and systematised using Mayring's content analysis along the TDF.

**Results** 860 statements were collected. We identified 19 barriers, facilitators and conflicting themes related to capabilities, 34 to opportunities and 24 to motivation. The lack of access to professional dental care was confirmed by all stakeholders as a major limitation hampering better oral health.

**Primary outcome** A range of interventions can be discussed with the methodology we utilised. In our interviews, lack of dentists willing to treat patients at these facilities was the most discussed barrier for improving oral health of nursing home residents.

**Secondary outcomes** Dentists highlighted the need for better incentives and facilities to deliver oral healthcare in these institutions. Differences with urban settings regarding access to healthcare were frequently discussed by our study participants.

**Conclusions** Within our sample, greater capacitation of care home staff, better financial incentives for dentists and increased cooperation between the two stakeholders should be considered when designing interventions to tackle oral health of care home residents in Germany.

## INTRODUCTION

The provision of oral healthcare to older people in care homes is challenging;

## Strengths and limitations of this study

- Frameworks grounded in theory allow for a systematic qualitative analysis of dental health policy questions.
- The selected qualitative methodology allowed for data saturation and in-depth analysis within this specific setting even within a limited number of participants.
- The analysis of qualitative data with our study methodology involves inherent subjectivity, calling for careful consideration of the context of our study and interpretation of our results.

achieving optimal masticatory function, aesthetics and phonetics while preventing pain and maintaining comfort requires effort and coordination among stakeholders both for providing regular oral hygiene as well as dental treatment.<sup>1</sup> Oral hygiene is different from other forms of body hygiene (cutting nails or hair) as it is sometimes difficult to execute for people with disabilities and when provided by a carer; the endpoint of good hygiene cannot immediately be measured by the carer or the patient (in contrast to other care delivery forms). The provision of dental treatment is a significant facilitator of good oral health among older individuals residing in care homes.<sup>2-3</sup> However, delivering dental treatment is challenging due to (1) specific needs among individuals of this population<sup>4-6</sup> grounded in individual limitations of mobility, cognitive capacities and cooperation, as well as (2) dentists and care staff requiring a specific set of capabilities, motivation and opportunities when caring for this vulnerable group, different to traditional settings.<sup>7-9</sup>

The association between poor oral health and a higher incidence of pneumonia has been registered in a nationwide population study in Korea,<sup>10</sup> which could partially contribute to explaining the 10-fold increase

in cases of pneumonia among care residents.<sup>11 12</sup> Some studies have suggested that professional oral healthcare for care home residents may be cost-effective by reducing the risk of pneumonia in this population,<sup>3 13</sup> however, large, well-designed, trials aimed to detect improvement of quantitative oral health indicators among care home residents receiving oral care programmes have for the most failed to detect significant benefits.<sup>8 14–16</sup> Although there is an abundant number of articles studying the clinical effectiveness of different health interventions and technologies among these patients, a recent scoping review suggested that most of the existing literature is focused on studying health technologies or interventions related to clinical effectiveness using surrogate endpoints such as biofilm removal.<sup>17</sup> Efforts for summarising existing quantitative evidence are complicated by the high heterogeneity and differences between settings.

Importantly, the needs for oral healthcare of care home residents are met through a complex network of actors increasing the difficulty to understand how demographic, cultural or geographic factors could alter oral health outcomes in this population.<sup>18 19</sup> Although more research seems necessary, existing evidence shows that increasing health literacy and facilitating behavioural change among carers and health workers could improve outcomes.<sup>20–22</sup>

Studying qualitatively different interventions by analysing existing barriers and facilitators for better oral healthcare among healthcare workers seems necessary for designing better oral health policies in light of the inconclusive existing evidence. The few available qualitative studies<sup>23 24</sup> in this field have the limitation of not having employed a systematic framework, which would allow for a comprehensive assessment of different barriers and facilitators which may provide a reproducible rationale to evaluate potential interventions. Ideally, efforts should focus on understanding how the delivery of oral healthcare can be affected by behaviour change in the network of actors responsible for dependent elderly people.<sup>25–27</sup>

Our study, therefore, aimed to explore existing barriers and facilitators for oral health policies, consisting of both oral hygiene and dental healthcare, among healthcare workers in charge of care home patients in rural Brandenburg (Germany). We conducted semistructured interviews with various stakeholders to understand changes in behaviour using the Capabilities, Opportunities and Motivations altering Behaviour model (COM-B). Our questionnaire was grounded on the theoretical domains framework (TDF)<sup>28 29</sup> and the behavioural change wheel (BCW), linking our results with an existing literature review that employed the same framework to study the same problem.<sup>29</sup> This allowed for a setting-specific, comprehensive and reproducible assessment of barriers and facilitators that could be analysed under a health policy perspective.

## MATERIALS AND METHODS

### Research team and reflexivity

#### Personal characteristics

JG-R and JS conducted the interviews. JG-R is a dentist with a Master of Science in health policy, working at the Charité—Universitätsmedizin Berlin. JS has a bachelor's degree in social sciences, is trained in qualitative methods, and has experience in the qualitative evaluation of public policies. JS acted as the main interviewer with JG-R taking mostly an observing role, guaranteeing clarity and uniformity in the interpretation of questions and answers of medical relevance. Calibration between both interviewers was secured by piloting interviews; moreover, the interviewers had in-depth discussions of relevant aspects, areas of interest, and tone after the interviews. All interviews were conducted in German. Following the interviewees' written consent, each interview was recorded. There was no relationship established with participants before the study commencement. The participants were informed that the researchers were studying how to improve oral healthcare in the population of interest, yet it was explicitly stated that no judgement of individual performance was within the scope of the study. The scientific credentials of the interviewers were reported to the interviewees, as well as information about the research project to secure comfortable participation.

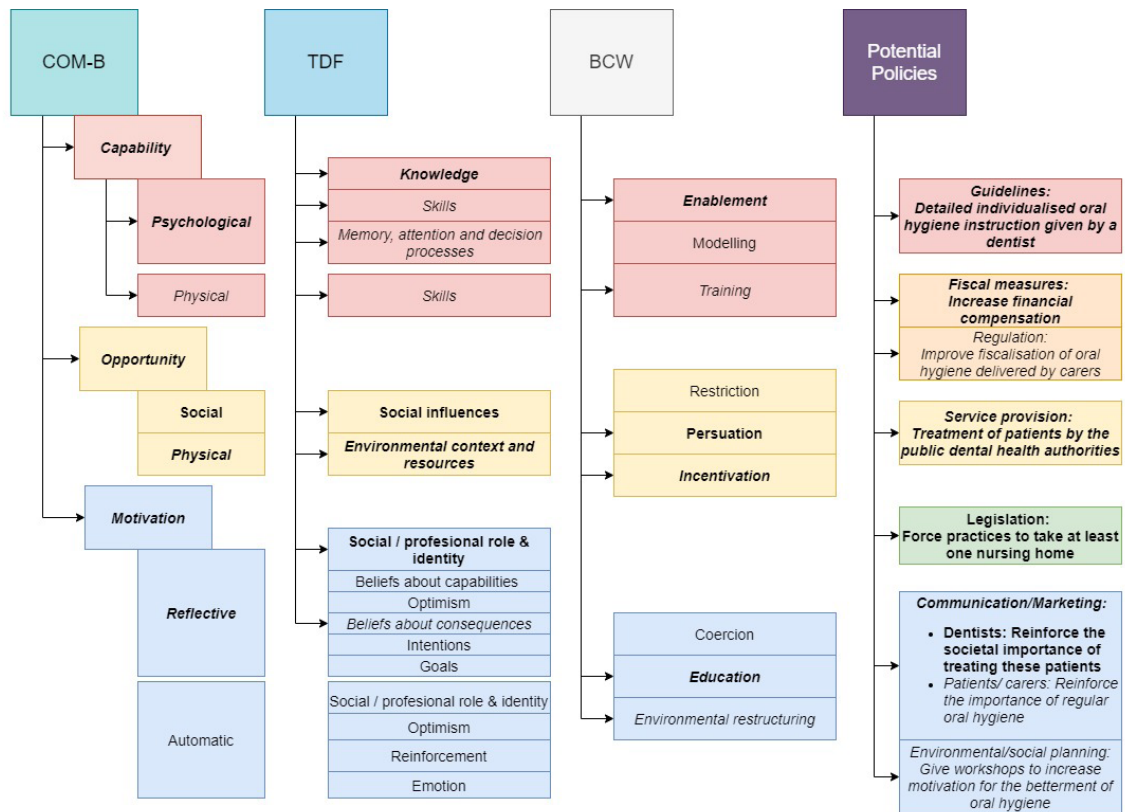
#### Study design

##### Methodological orientation and theory

The TDF and the BCW<sup>30</sup> are implementational frameworks for policy analysis validated by a growing number of studies in dentistry.<sup>31–33</sup> They constitute a paired analytical and implementational framework that allows linking capabilities, motivations and opportunities of each stakeholder with identified barriers and facilitators (figure 1). Provided that sufficiently representative data relative to a certain research question is available and that these data are of sufficient quality, the BCW allows for a transparent and reproducible generation of policy recommendations (figure 1). The TDF and BCW have been previously utilised to generate recommendations towards dental health policies.<sup>29 34</sup>

#### Participant selection

Purposive sampling was used within the two visited care homes to recruit study participants. No financial incentive for participation was provided to the interviewees. Eleven interviews were conducted with carers, section managers and staff managers of care homes ('staff employed at the facility'), in person at their workplace, and with dentists providing care to the patients in these care homes via telephone. The interviews were conducted in a semistructured manner to allow for new topics to emerge. No exclusion criteria were specified. Three carers refused to participate in our study due to lack of time. Staff was approached via the section manager or care home staff manager, who supported consecutive sampling of carers (nurses) who eventually volunteered (or not) to be interviewed during



	Who needs to do something different?	What barriers and enablers need to be addressed?	Which intervention components could help overcome the barriers and enhance facilitators?	How can behaviour change be measured and understood?
<b>Problem 1 - Access to professional dental healthcare is complex for nursing home residents</b>	<b>Dentists should deliver care to nursing home residents</b>	<b>Dentists interviewed</b> <ul style="list-style-type: none"> <li>Financial incentives</li> <li>Insufficient resources to treat</li> <li>Patients refusing care</li> </ul>	<b>Barriers: Insufficient financial compensation</b> <b>Facilitators: Social component, purpose, specialisation</b>	<ul style="list-style-type: none"> <li>Higher rates of patients receiving dental treatment the last year</li> <li>Higher professional and personal satisfaction rates for dentists working in nursing homes</li> </ul>
<b>Intervention design</b> →				
<i>Problem 2 - Oral hygiene in nursing home residents is insufficient and complicated to deliver and assess</i>	<i>Patients and carers should work together to achieve better levels of hygiene</i>	<i>Nursing home staff interviewed</i> <ul style="list-style-type: none"> <li>Patients refusing care</li> <li>Knowledge and skills</li> <li>Beliefs in the importance</li> <li>Communication between stakeholders</li> </ul>	<i>Barriers: Lack of skills and communication</i> <i>Facilitators: Cooperation with dentists</i>	<ul style="list-style-type: none"> <li>Higher rates of patients receiving dental treatment the last year</li> <li>A reduction of the burden of disease by nursing home residents</li> </ul>

**Figure 1** Overview of the analytical process and data flow, and display of identified key themes of barriers, enablers and possible associated intervention types. The figure displays how the domains of the COM-B model interlink with those of the TDF (theoretical domains framework) and the behaviour change wheel (BCW). The COM-B includes possible sources of behaviour that are susceptible to responding to interventions. The TDF helps to make explicit potential areas of intervention which then are reflected in the BCW. The BCW then allows to convert them to a subset of policy categories for developing interventions. In **BOLD**, the domains are shown (and examples given) that were discussed in our interviews when assessing how to increase the provision of and access to professional dental healthcare of care home residents. In *italic*, the domains that were discussed in our interviews when assessing how to improve oral hygiene in care homes are indicated. The flow of identified themes for a possible intervention development is shown at the bottom. For example, for the provision of and access to dental healthcare, a lack of dentists attending the care home was identified as the main barrier, while for improving oral hygiene, improved cooperation between carers and patients is necessary. From the flow of themes, possible interventions emerged. COM-B, Capabilities, Opportunities and Motivations influencing Behaviours.

their working hours and according to availability. Dentists included in our study had different contract modalities with the participant care homes (legally binding cooperation, not legally binding cooperation, employed at the care home).

### Setting

Stakeholders involved in the care process were interviewed face to face in their own facilities, in a quiet private room. All dentists were interviewed via telephone early in the morning before the beginning of their clinical duties.

Only the involved parties in the conversation were present in the room at the time of the interview. All participants were over 30 years of age and German citizens. We did not ask any participant in our study for further educational or demographic information to maximise anonymity and encourage unrestricted participation.

The towns where the care homes were located had 9000 and 25 000 inhabitants, respectively. They had an area of 113 and 45 km<sup>2</sup>, respectively, with a density of population ranging from 230 to 190 inhabitants per km<sup>2</sup>. Both towns were located in the German federal state of Brandenburg. This region suffers from an endemic lack of dental professionals,<sup>35</sup> the lowest proportion of patients-to-dentists in Germany,<sup>36</sup> as well as an over proportionally old population,<sup>37</sup> and a higher imbalance between genders in favour of men, who are less willing to work in the care industry.<sup>38 39</sup>

### Data collection

The questionnaires were generated by two dental experts in gerodontology (GG and FS), and reviewed by a dentist with a background in social sciences (JG-R) and an interviewer experienced in qualitative studies (JS). Necessary adjustments according to different stakeholders were taken in iterating modifications before being piloted in a controlled setting and agreed by consensus. No repeat interviews were carried out. The interviews were recorded using a voice recorder, and both interviewers took field notes during and after the interviews. The interviews averaged an hour per participant. No new topics emerged in the two final interviews; we hence assume saturation of themes. All interviews were eventually transcribed by a third party. No transcription was returned to the participants.

The developed interview guides covered the various domains of the TDF: (1) knowledge, (2) skills, (3) social influence, (4) social role, (5) environmental context and resources, (6) beliefs about capabilities, (7) beliefs about consequences, (8) reinforcement, (9) emotions, (10) memory attention and decision process, (11) optimism, (12) context and resources, (13) goals, (14) behavioural regulators, (15) perspectives, (16) social and professional identity. Each domain was addressed by a minimum of one question. Respondents were given freedom in their answers to explore topics directly or indirectly related to the question.

Our interviews focused on the following stakeholders involved in the oral care process:

1. Staff, specifically
  - a. Care home staff managers (n=2), responsible for all personnel-related decisions of the care home.
  - b. Section managers, who coordinate and supervise the clinical duties of other carers in a section of the care home (n=4).
  - c. Carers, for example, nurses, care assistants or care aides (n=2), with at least 5 years of experience.
2. Dentists (n=3) with at least 3 years of experience in the treatment of individuals in care homes. (Despite our

attempts we could not identify male candidates interested in participating in the study.)

### Data analysis, findings, reporting

The interview transcripts were coded using MAXQDA (VERBI, Berlin, Germany). The coding tree was derived from categories according to the TDF domains, constructs, and the barriers and facilitators explored by previous systematic literature reviews utilising the same theoretical grounding.<sup>29</sup> To increase intercoder and intracoder reliability, the process of classification was independently performed by one coder and then reviewed by another (JS, JG-R) a total of three times until consensus was achieved in all quotes selected for inclusion. Disagreements were solved by consulting a third coder (FS). An inductive and deductive content analysis was conducted using Mayring's principles.<sup>30</sup> Identified themes were classified as barriers, facilitators or conflicting themes to (1) improve oral hygiene and (2) provide dental health-care in care homes. After the classification of all themes, the developed classification was double-checked by two researchers (FS and GG). No feedback was provided by participants towards themes and classifications. Themes and quotes were translated to English for publication and double-checked by back translation once more. We classified all participants' quotes as well as derived themes and classes, subdivided along with capabilities, motivation and opportunities as well as the TDF domains. In order to analyse potential interventions using the BCW, we built on existing work in implementational science<sup>32</sup> using a four-question approach; first: 'Who needs to do what, differently?'; second: 'Which barriers and enablers need to be addressed?'; third: 'Which intervention components could overcome the modifiable barriers and enhance the enablers?'; and fourth: 'How can behaviour change be measured and understood?'

Reporting of the results follow Consolidated Criteria for Reporting Qualitative Research checklist.<sup>40</sup>

### Patient and public involvement

Six in-depth interviews were conducted with care home residents to explore their perceived needs on dental healthcare and hygiene. Statements were collected and compared with our proposed interview structure to secure that all relevant topics in our study reflected the best interest of care home residents. The residents participating volunteered to share their experiences. All of them were female, had different levels of disability according to the German disability grading system, and lived on average 4 years in a care facility.

## RESULTS

### Overview

We collected 860 statements from the interviewees. Out of those, 685 (79.8%) were considered for inclusion and successfully coded within our framework of analysis. An overview of the themes identified in our study, organised

along with the COM-B model, is provided in [table 1](#). A selection of quotes illustrating each category can be found in online supplemental appendix 1 and further down below. A more detailed breakdown of identified themes and possible derived interventions can be found in [figure 1](#).

Within the 685 statements analysed, 189 (27.5%) were yielded from interviews with dentists, 190 (27.6%) from carers, 176 (25.5%) from section managers and 130 (18.2%) from staff managers of care homes. We identified 19 barriers, facilitators and conflicting themes relating to capabilities, 34 to opportunities and 24 to motivation. All stakeholders in the care homes confirmed the lack of access to professional dental care as a major limitation to improve oral health. All interviewees frequently mentioned differences with urban settings. The dentists explained the lack of cooperation with care homes with missing intrinsic motivation on the dentists' side, mainly due to the lack of financial incentives and high opportunity costs when working in care homes. Also, the shortcomings of equipment (subsumed under 'opportunity' in our framework) were mentioned.

Topics related to the cooperation between dentists and care homes were the most frequently mentioned by all interviewees, with 38 statements related to it. Statements related to economic incentives were mentioned 15 times, with ambiguous findings: Seven statements from workers in the care home were against financial incentives in their activity, while the other eight statements from dentists agreed on the importance of better incentivising professional oral healthcare with sufficient economic incentives to improve the cooperation. In the following sections, we present the facilitators, barriers and conflicting themes, subdivided into stakeholders' COM.

### Facilitators

Several facilitators were identified. The following was subsumed under the category of 'Capabilities':

#### 1. Knowledge about the importance of oral healthcare

An important facilitator to obtain higher levels of health is health literacy.<sup>41</sup> Our interviewees reported the following when enquired about the relevance of oral healthcare:

Yes, all are important to me. The holistic care actually /, because oral care is not decisive for the well-being of my residents, or their health /, is a partial aspect that is just as important as the other aspects of personal care such as decubitus prophylaxis, thrombosis prophylaxis /, we have such a broad spectrum of care/, they are all important for me /, and as I said, it is very important that the staff stays healthy because they should do that afterwards. Section manager2

It's not one of the most important tasks we have. The tasks are all important. Everything concerning the human being is important. Carer2

Some of our interviewees struggled to identify the causal relationship between poor oral hygiene and health, while

frequently comparing it to other forms of body hygiene such as getting a haircut or nail clipping.

However, they frequently acknowledged their limitations and showed a favourable disposition to behavioural change:

A further training course on oral hygiene would also make sense for me here (as in the nursing home). If a professional were to come and ... really demonstrate this, I don't know, such a one-day seminar, one could make use of it. N1

This frequently referred to the necessity for a closer interaction with dentists as one main facilitator to improve oral health (in our analysis under the category of 'Opportunities'):

#### 2. Cooperation with a dentist

Yes, it's not that a dentist is coming to the care home regularly or anything, yes. Unfortunately, we don't have that. There is one who comes, yes, well, because it is difficult to get appointments. We also have a dentist in the house, who is relatively close by, where we do occasionally go, but that's really when there are problems, yes. So, such a regular control is not carried out here either. Staff manager2

However, depending on the specific setting, this facilitator presents rather differently:

In theory everything is beautiful, and everything is possible, but in practice, the implementation, sometimes... it's not only up to us, because there aren't enough doctors, or there are enough doctors, but they just don't come. There's nothing we can do. Carer1

We haven't found one [dentist] yet who is willing to cooperate in something like this [an agreement of cooperation] because I'd say it's a huge effort, yes. That means he has to make sure he's co-supervising the bedbound residents. Section manager2

Our interviewees unanimously strengthened the difficulty to find dentists and general practitioners available to undertake an active role in these facilities. When asked in this regard, the dentists referred mainly to issues related to transport, equipment, special protocols and lack of economic incentives.

When I visit a patient in the care home, I am at least one hour away from the practice, depending on how far I have to drive, sometimes that is ten kilometres... I have an hourly rate in the practice, let's say 'X', which I do not get back one hundred per cent with the visit of a patient.

I: Mhm. (affirmative)(...)

R: So, in my opinion, the work is underpaid and therefore it is certainly difficult to get dentists to do something like this. Dentist2

**Table 1** Identified main facilitators, conflicting themes and barriers to providing oral healthcare and improve oral hygiene to care home residents

	Dentists			Carers/nurses			Care home staff manager			Section manager			
Facilitators	Capability	▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	▲ Knowledge of condition/ consequences ▲ Oral healthcare training ▲ Skills gained through experience	
	Opportunity	▲ Social pressure ▲ Social norms ▲ Recognition or award for providing oral healthcare (for nurses)	▲ Social norms ▲ Dentist in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers	▲ Dentist available in the care home ▲ Communication between carers
	Motivation	▲ Positive emotions towards care homes (sense of purpose) ▲ Resources for oral healthcare in the care home	▲ Professionalism when delivering oral hygiene ▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare	▲ Resources for oral healthcare in the care home ▲ Belief in capacity and control of oral healthcare
Conflicting	Capability		▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	▲ Belief in the importance of oral healthcare	
	Opportunity	▲ Patients' relatives	▲ Patients' relatives' involvement ▲ Standardised manual etc. ▲ Belief in the importance of relatives	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	▲ Patients' relatives' involvement ▲ Standardised manual etc.	
Barriers	Motivation	▲ Professional identity											
	Capability		▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	▲ Skills: Level of education ▲ Knowledge/skills not sufficient ▲ Knowledge/skills: ability	
	Opportunity	▲ Patients refusing care ▲ Insufficient resources for dentists in the care home ▲ No of carers ▲ Financial incentives	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Individuality of patients ▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists	▲ Time restrictions ▲ Patients refusing care ▲ No of carers ▲ Organisation of cooperation between care home and dentists
Motivation	▲ Fear of getting hurt by patients ▲ Negative emotions towards care home (sadness) ▲ Frustration about nurses/carers	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Lack of attention, memory, keeping track ▲ Frustration about coworkers ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Negative emotions towards oral healthcare ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Negative emotions towards oral healthcare ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Negative emotions towards oral healthcare ▲ Level of disability	▲ Fear of getting hurt by patients ▲ Fear of causing damage/injury ▲ Negative emotions towards oral healthcare ▲ Level of disability	

Further details are provided in the main text and the appendix.

Dentists also frequently mentioned the difficulties to work under these conditions due to the resources available:

They are not sufficient. We also have a possibility to polish teeth, because I still have a cordless handpiece there, but otherwise, you can't really do any fillings or anything. But impressions, and some other things yes, you just need to have everything with you. Dentist1

Under the category of 'Motivation', a third relevant facilitator was identified:

### 3. Social role and professional identity

The dentists we interviewed seemed to have a high degree of engagement with their communities. Although the importance of working in a care home for the dentists, even by those that did sign an agreement of cooperation with a care home, remains unclear and seemed in some cases conflicting:

I: would you say that treating these patients in care homes is one of your most important tasks professionally?

R: No. Dentist1

## Barriers

Our study revealed two main barriers related to 'Capabilities' linked to a deficit in knowledge and skills:

### 1. Lack of knowledge and information exchange

We found that lacking knowledge on oral healthcare provision is a barrier, while communication difficulties could possibly play an important role in this regard:

Because the resident himself (.), did not let us know, or respectively did not let us know in time, or he could not express himself properly so the colleague could not interpret it correctly. Carer2

Furthermore, the lack of flow of knowledge to adapt treatments to the specific needs of this population in cooperation with dentists seems another important barrier. This also seems grounded in the additional burden of adjusting protocols in care homes:

About guidelines to treat these patients, I can't tell you anything. There are [guidelines] of all types. I'm doing what I've been doing for many years, yes. Dentist2

### 2. Lack of skills/experience/instruction:

Our interviews confirmed that the level of skills and experience of carers can influence the delivery of oral hygiene to care home residents.

I'll just say, a full prosthesis, if it doesn't have a full... bottle of adhesive cream on it, you can get it out pretty easily. The problem is if they still have partial dentures. Where they get hooked up. Because when I try to take it out myself, I just manipulate it differently. If I come from behind, I can't just take it out easily. And that's the problem. Yes. I think sometimes, even with some tips or something, you will not necessarily do it

better. You would have to make other prostheses or something that makes it easy for the nurse to remove the dentures well. If they fit really well, sometimes you have to fight a little. If necessary, we will just not take the prosthesis out, yes. I can't just pull the tooth out. Carer1

This barrier in the processes of delivering care is perceived also by managers:

But it certainly also happens that the prostheses are forgotten and not taken out. Yes, that they are still in the next day. Section manager 2

In the category of 'Opportunity', we identified two barriers related to the lack of cooperativeness of some patients and the lack of structural capacities to deliver treatment within these facilities.

### 3. Patients refusing care

Refusing oral hygiene and treatment was a problem frequently discussed in our study.

Some bite, some try to punch you, or I don't know what. You need time, so I can't just get in there, ask them to open their mouth quickly, close their mouth and that is it. So, we take little presents, little boxes with us or little toothpaste /, one wants it, the other comes with a doll. You have to be prepared for that. Dentist3

There is also the resistance that some residents offer. Then we'll just have to try it later /, individually /, as we mentioned before. And if it doesn't work out at all one day, then that's just the way it is. We also have to accept it. This is a resident with dementia who doesn't let you brush his teeth. Carer2

### 4. Barriers related to the provision of oral/dental care

When consulted about the current equipment and resources to deliver treatment to care home residents, our interviewees reported:

Yes, a treatment room is always nice when in a care home. In the big care home where I work, it is necessary. At least a chair and a lamp would be much better. Dentist3

When invited to suggest potential solutions, the same dentist interviewed noted that:

In my opinion, a simple solution would be to simply add money for a chair, in every care home, for a regular prophylaxis assistant who does her work there regularly. Dentist3

### 5. Unclear responsibility:

'Unclear responsibility' has been recorded in the literature as a barrier in the provision of care. It has been discussed that the cooperation of one 'oral health nurse' with a dental professional could be effective to improve the provision of oral care to elderly people (42). We did not find evidence of this barrier in our study, as responsibilities seemed well delimited and formalised in standard

operating procedures in the care homes. Furthermore, during the discussion of this alternative with managers of the care homes interviewed, they reported:

I: Would you say that it makes sense to have a nurse responsible for oral hygiene?

R1: A specially trained nurse for oral hygiene. (...) Well, in principle I don't think that it makes sense at first.

R2: Yes, they may be able to give tips and tricks to help the other nurses overcome technical difficulties. Ideally, a specialised course would be good, but it is difficult to do that for 35 people (...). Section manager1

### Conflicting themes

Several themes came up which could not necessarily be classified as facilitator or barrier, namely 'frustration about co-workers/nurses/relatives' (motivation), 'organisation of cooperation between care homes and dentists' (opportunities) and 'discussions about the level of patient disability' (capabilities). Based on the interviews, the latter point seems specifically relevant:

'Some of them also have an intermediate care level because they have just moved in, but they are really suffering from dementia and no longer understand what I want from them, and of course they don't understand why they should open their mouths now. Yes, we have them, too. They could still do it themselves physically, but they can't do it anymore. That's difficult, too. Carer1

'There are of course also some who have a high degree of disability / who can and do just about that, yes, of course, I have something like that, too. For example, if I have a resident where I know he has a level of disability of four / but still does it himself. Yes, but with most of them, the higher the level of care, the more we have to provide support.' Staff manager2

I: How do you think we could simplify the oral care measures for patients in need of care at the highest level of disability?

R: Ha, if I knew that, I would have done it already. (5) Well, technically it is not possible. It's just not. One is always dependent on the cooperation of the resident. I and she [nurse] does not influence that. How's that supposed to work? I think it's difficult. I think there's no way. Section manager1

### DISCUSSION

Gaining a systematic understanding of barriers and enablers to improve oral hygiene and provide access to dental care for care home residents is relevant to derive context-specific interventions.<sup>42</sup> In our study sample, providing dental care by dentists directly in nursing homes, and increasing the competences of carers seemed two promising interventions capable of improving oral health outcomes. Dentists working in this

setting expressed internal motivation and identification with their job as facilitators for undertaking a challenging task. Resources seem to be limited in this setting, and financial constraints were frequently mentioned as barriers for a more widespread cooperation between dentists and carers. Interviewees seemed very willing to expand their knowledge on oral healthcare and would like to be instructed on the topic, although introducing new guidelines for dentists could be conflicting and deserving of further study. Expanding carer's oral healthcare knowledge and the acquisition of skills related to it was reported as a viable intervention to provide nursing home residents with better oral care. In our study, patient's refusal, dementia, and differences in the disability spectrum as well as unclear responsibilities on care delivery on oral healthcare delivery seemed like significant barriers requiring more study and attention when designing interventions.

Previous studies related this lack of dentists cooperating with care homes to an absence of opportunities for dentists, for example, lack of transportation, economic incentives and adequate dental equipment at these facilities.<sup>43</sup> Our interviews confirmed these findings while verifying the stakeholders' perception that poor oral health and lack of access to dentistry are strongly linked with one another.<sup>35 36</sup> The implementational frameworks for policy analysis we selected suggest that these difficulties can be overcome with greater capacitation of the healthcare workforce, increased cooperation and better financial incentives.

All interviewees regularly pointed at patients refusing to cooperate as well as the lack of practising dentists as the main drivers for poor oral health outcomes. Some early trials on the effectiveness of protocols to manage refusal of oral hygiene by patients with dementia<sup>44</sup> allow us to expect a reasonable improvement in this regard provided that better capacitation and guidelines are offered. The absence of dentists at care homes is more complex to overcome and requires developing generalised policies or legislation (eg, forcing practices to cooperate with a care home) because of a negative relationship between increasingly specialised health services and their availability outside metropolitan areas.<sup>45</sup>

The following point of analysis seems of importance: The interviewed dentists were aware of the economic trade-offs in the delivery of health services to care home residents. They rightly identified the necessity of adapting their usual treatment concepts to the special needs of this population. Less invasive and costly treatments with a focus on arresting disease activity and increasing patients' quality of life are preferred over bigger rehabilitations and privately liquidated services. Given that the average dental clinic in Germany generates around 50% of revenue via such highly priced and privately paid services,<sup>46</sup> there is a large incoherence between these typical practice setups and the approaches and concepts needed for care home patients. As a result, under current conditions, most clinics seem poorly suited to meet the expected care delivery in care homes. The associated financial barrier consequently reduces the access of care home residents to professional dental healthcare. Overcoming this may require encouraging dentists to cooperate with several



care homes so that they can specialise in the treatment of this population and achieve economies of scale. Practices specialised in treating care home residents would possibly reallocate their investments from real estate, chair and laboratory to additional efforts in the operational logistics associated with care home care. Alternatively, and emanating from employing the BCW to identify possible interventions to improve dental care in this setting, service provision by public health authorities instead of private dentists could be considered.

Future studies could use the same framework to guide interviews that explore barriers and facilitators in care homes in other settings such as urban areas. Results could be then used to inform setting-specific policy interventions to increase dental care depending on travel distances or the number of practising dentists in a specific area. Studies in rural settings located in different countries could be used to comparatively assess the impact of different economic incentives for care delivery in residential homes. Future quantitative analysis of public insurance databases in Germany could assess differences for patients in care homes to access professional oral healthcare. Studies relating clinical outcomes with the number of carers, education and incentives provided to carers could help to inform alternative policies.

### Strengths and limitations

First, and as a strength, we employed validated frameworks grounded in theory to analyse our problem comprehensively and systematically.

Second, and as a limitation, we interviewed only a limited number of participants, further broken down into stakeholder groups derived from a specific setting (this multistakeholder view, however, is a clear advantage as it allows more holistically identifying and understanding barriers and enablers), although we data saturation was achieved.

Third, we acknowledge possible subjectivity in our results and data interpretation inherent to the study design and methodologies selected.

### CONCLUSION

Within our study, we can conclude that the presence of dentists in the care homes seems central to capacitate care home staff for delivering better oral hygiene and care to residents. Greater capacitation of care home staff, better financial incentives for dentists and increased cooperation between the two stakeholders are necessary. Policy-makers could incentivise dentists visiting rural care homes and support integrated interdisciplinary oral healthcare to the vulnerable group of the elderly.

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Appendix 1. Selected quotes from each barrier/facilitator/conflicting dimension that entered the study. Abbreviations: I: Interviewer, R: Respondent, N: Nurse, D: Staff manager, SM: Section Manager.

	Dentists	Carers/Nurses	Section manager	Nursing home staff manager
Facilitators	<ul style="list-style-type: none"> <li>Knowledge/skills gained through experience “I treat patients in the nursing home the same way I would treat patients in the office, just under local conditions.” Dentist2</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of condition/consequences “Several diseases can develop. secondary diseases, which are actually not good for the resident, who (...) / whom could be harmed by it, and we don't want that.” N2</li> <li>Oral healthcare training “A continuing education in oral hygiene... would make sense to me here. If a professional would really come and ... who would really show, I don't know, a one-day seminar. You could make that work.” N1</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of condition/consequences “About the oral flora, to maintain it, of course everything goes through our experts. Standard, catering management in the care that is already involved / a good balance of fluids/, everything runs normally, that the oral flora, the oral mucosa remains intact, anyway. Visually, we also check daily if everything is in order. In case of pain, we also have the standards set by our experts, which we then implement accordingly. No matter which localization, we</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of condition/consequences “Of course. Yes, it is all related to it. The entire nutritional status is attached to it, I'd say. There are times where if I dentures no longer fit and the resident eats less or not at all more and yes /, can sometimes just be, as I said, the missing or improper dentures and then perhaps with food supplements, liquid food or, or, yes. The state of health decreases, the inhabitant loses weight, well, and it all depends on it.” SM1</li> </ul>

	<ul style="list-style-type: none"> <li>• Knowledge/skills through experience “Because the resident himself then (.), did not let us know, or he could not express himself properly and his colleague could not interpret it correctly” N2</li> </ul>	<p>would of course take our measures accordingly. Yes.” Staff manager1</p> <ul style="list-style-type: none"> <li>• Oral hygiene training: informal reminder “otherwise the people must be pointed out just regularly also always that the dental care just also is carried out /, properly carried out. As I said, such small things, maybe in the team consultation something like this there are such points where it is said again “Listen, remember, clean the dentures, clean the teeth properly.” Staff manager2</li> <li>• Oral hygiene capacitation “Surely an external training course or something like that</li> </ul>	<ul style="list-style-type: none"> <li>• Oral hygiene capacitation: informal reminder “that every employee takes it very seriously, knows the processes, knows the duties, knows the utensils that are in stock in the house, knows the laws and also has the goal of making proper consultation with relatives / because that is also very important, that the relatives are advised why they should get ‘that’ or ‘the other’, yes /, that is of course my goal / that every employee can go to the relatives properly / whether it is a nurse or a helper, or a nursing auxiliary / and say ‘we need this now because this or that.’” SM2</li> </ul>
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		<p>/, maybe something taught by a dentist might not be that bad.” Staff manager2</p> <ul style="list-style-type: none"><li>• Belief in importance of oral healthcare</li></ul> <p>“Well-being, no inflammation or disease, no secondary diseases, that he can eat properly reasonable, yes, that the prosthesis fits or that there are no problems or anything, and no pain of course. [...] if the residents eat well, are satisfied and have no problems in the long term.” Staff manager2</p>	
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<ul style="list-style-type: none"> <li>• Social pressure “Of course, the personal level / is the really big (..)/. That is the why I work in a nursing home. If I am contacted here directly in the practice.” Dentist2</li> <li>• Social norms “I have a daughter who works in the care sector /, think so /, I think so, we think that's important and my staff of course, yes.” Dentist2</li> <li>• Material incentives “I am, when I visit a patient in the nursing home /, I am at least, depending on how far I have to drive /, sometimes that is ten kilometres. I am at least one hour away from the practice. I have an hourly rate in the practice, let's say</li> </ul>	<ul style="list-style-type: none"> <li>• Social norms “You just have to smart your way in and we also have to get to know the residents first. When they move in. I can't rush in and out of everyone's room, so I have to knock carefully and say ‘Here I am, I'd like to see you brush your teeth.’”N2</li> <li>• Dentist in NH “In theory everything is beautiful and everything is possible, but in practice, the implementation, sometimes... which is not only up to us, but also because there are too few doctors, or there are already enough doctors, but they just don't come. There's nothing we can do.” N1</li> </ul>	<ul style="list-style-type: none"> <li>• Getting dentist to nursing homes “Yeah, it's not like there's a dentist at the home regularly or anything, yeah. Unfortunately, we don't have that. There is one who comes to the house, yes, well /, because it is difficult to get appointments. We also have a dentist in the house, who is relatively close by, where we do go, but that is really when there are problems, yes. So, such a regular control is not carried out there either.” Staff manager2</li> <li>• Communication between carers “Of course, it's all written down, but most of the time</li> </ul>	<ul style="list-style-type: none"> <li>• Getting dentists to nursing homes “We haven't found [a dentist] yet who would be willing to cooperate in something like this / because I'd say it's a huge effort, yes. That means he has to make sure he's co-supervising the bedbound residents.” SM2</li> <li>• Communication between carers “Because it's a difficult matter, yeah, well. Yeah, and let's face it, oral hygiene isn't exactly what you see first. Let's say: Combed hair, I can see that right away. If he doesn't have, I say: ‘You go back in’. With oral geriatric care, how do I prove it. I do believe that this is basically</li> </ul>
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<p>so and so much, which I do not get one hundred percent with the visit of a patient. [...] So in my opinion the work is underpaid and therefore it is certainly difficult to get dentists to do something like this.” Dentist2</p> <ul style="list-style-type: none"> <li>• Recognition or award for providing oral hygiene (for Nurses) “If everyone gets a small certification, and then perhaps additional courses are taught. No question.” Dentist1</li> </ul>	<ul style="list-style-type: none"> <li>• Communication between carers “Bureaucracy? If you arrange it correctly, let me put it this way /, I have my special arrangement for it anyway /, is this computer story, if everything is entered correctly, with all the measures /, I need half an hour at the most.” N2</li> <li>• Material incentives “This is a complete package. At the nursing home, it's a complete package. The relatives bring grandma, grandpa, mom, dad here. And... when you turn around, you know they're well taken care of here. There is... everything in there! That is,</li> </ul>	<p>it's communicated in the handover of services or in such a way that the others / who haven't been with the resident yet, get the most important information. And dental care is also part of this. Mostly, when they say 'we just need to treat', then everybody knows about it.” Staff manager2</p>	<p>an unpleasant thing. I think it's almost more unpleasant than intimate care, for example when someone has defecated or something. I almost believe that oral care is more unpleasant for the nursing staff, and I also think that some of the staff will certainly do it, so there are some who don't like to do it or who suppress it. Or even do it very superficially. Would I now assume, mhm. Because there's nothing provable. You can't see it.” SM1</p>
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	<p>that's a complete package, it's not special that they pay 50 euros extra a month for oral hygiene or something. That's all there is, it's done!"</p> <p>N1</p>		
<ul style="list-style-type: none"> <li>• Postive emotions towards nursing homes (sense of purpose) "... but I always look forward to going because they're happy to see us." Dentist3</li> <li>• Resources for professional oral healthcare in nursing homes "A simple solution would be for me to simply add money for a chair, even in such an old people's home, for a regular prophylaxis assistant who does her work there regularly." Dentist3</li> </ul>	<ul style="list-style-type: none"> <li>• Profesionalism when delivering oral hygiene "It is a necessary thing. So is personal hygiene. I don't see that as frustrating. It's a must." N2</li> <li>• Resources for oral hygiene in nursing homes "If we have everything there (.), toothbrush, tooth cup, all the gadgets and toothpastes. We have /, some people don't even want this mouthwash. Then he rinses his mouth out just like that, if he doesn't want</li> </ul>	<ul style="list-style-type: none"> <li>• Resources for oral healthcare in nursing homes "Glandosan mouth spray we still have it available so to speak to this clientele, what it is cognitively simply can no longer be implemented, this tooth cleaning process, even that one must rinse out, whatever. That way we compensate a little bit with that." Staff manager1</li> <li>• Belief in competence and control of oral hygiene "I can still leave room for manoeuvre if the person is in</li> </ul>	<ul style="list-style-type: none"> <li>• Resources for oral healthcare in nursing homes "So, we have oral care sets /, that is, for residents who either fall ill for a short time /, lie in bed. Well then /, no more /, we have all sorts. You have to have your dentist put together a range of products. No, I think there we are, and let me tell you what this gives you in terms of care and nursing, starting with interdental-sticks, which you can use for a short period of time. And if it's for a long time, we work with teas</li> </ul>

	<p>to, I don't have to put it (.) in his mouth." N2</p> <p>"Difficult at times, but you can always find a way to get to the resident." N2</p>	<p>a state where you can communicate with them. Now especially with the dementia patients that at a later point in time the situation is simply more favourable and can then be carried out. But problems, that somebody was not cared for /, there's no such thing." Staff manager1</p>	<p>or with swabs and tweezers and stuff like that. But apart from that I think there's enough already, only the applicability is always the question. Because they have to open the mouth first." SM1</p>
<p><b>Conflicting</b></p>	<ul style="list-style-type: none"> <li>• Belief in importance of oral hygiene</li> </ul> <p>"It is not one of the most important. The tasks are all important. Everything we do with the human being /, regarding the human being is important." N2</p>		<ul style="list-style-type: none"> <li>• Oral hygiene training</li> </ul> <p>"We have a training plan, which has all these topics all in it /, from the care standards /, and then we give in the individual team meetings /, we also have a plan every year /, which specialist topics are also trained again in which month." SM2</p>

<ul style="list-style-type: none"> <li>• Patients' relatives "For example, I already get annoyed when relatives in the nursing home get very angry about the fact that, for example, let's say that daddy or mummy is not properly combed, or that the dentures are not clean or whatever, or that they are lying in the cup or whatever. I don't think it's so bad I have to say /, maybe to take someone by the hand and to clean the brush or to take the comb in the hand. So, there I experienced very different (...) behaviours and then of course also relatives who do not care about their relatives at all /, about their</li> </ul>	<ul style="list-style-type: none"> <li>• Patients' relatives "We stay in contact with the carers / if, for example, the dental prosthesis is now defective, the carers or relatives are informed immediately, because they have to sign for all the things, and whether they are ready for the patients to possibly get a new prosthesis / is also a certain question of cost /, and if all this does not work out that way and they devalue these things, we have to accept that as well." N2</li> <li>• Protocols and guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Protocols and guidelines "We have our standard of care, so to speak, for oral hygiene. As a rough guideline that can be checked by anyone, if we one is completely ignorant /, also for pupils, or also for relatives, who always would like to know which range of services could be offered in this sense. Otherwise, the care is individually designed and always adapted to the resident, to their needs, resources, problems, so to speak, which are there, and accordingly they are ultimately developed. This is</li> </ul>	<p>"we have the standard oral hygiene one team meeting a year." SM2</p> <ul style="list-style-type: none"> <li>• Patients' relatives "Yes, so even if they have lived one or two towns away, there are still relatives who can drive with them to the old dentist. That's not the problem right now." SM2</li> <li>• Protocols and guidelines "If he can specify how he conducts his normal oral hygiene, the patient will do it. That will always be the case in the first few days, when the resident moves in /, will it be like that /, will be included in this master planning means that /, will it be fixed, and if now really, yes, I say, symptoms have already</li> </ul>
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<p>parents in need of care or something like that. That also exists. Abandoned in the NH and that's it." Dentist2</p>	<p>"I: Is there any improvement in working methods that could somehow facilitate your work? N: Let me say: Definitely. But, uh, you also inhale. And as I said, it's individual how patient A is, how patient B is, what I do with patient C I cannot apply to patient D." N1</p>	<p>recorded in relation to the resident. I: that means that there is actually a plan for every resident. R2: Yes. (hesitantly) R1: So to speak. I: Yes, yes, and is it always followed? R2: As long as the resident allows it, it will be adhered to." Staff manager1</p>	<p>progressed so far, there will be a short look, if he comes from home now, the spouse, can the /, the outpatient service /, can the son perhaps say: how was it so far, yes. Some people say: 'Don't brush my teeth, just rinse them.' Then it should stay that way." SM1</p>
<ul style="list-style-type: none"> <li>Professional identity</li> </ul> <p>"I: would you say that the treatment of these patients in the nursing home is one of your most important tasks? R: No. Hmm, hmm." Dentist1</p>		<ul style="list-style-type: none"> <li>Professional identity</li> </ul> <p>"Our job, of course, is to make sure that there are doctors' visits, yes / that we also do an escort / that we organize it too / but we will never be forced to do it /, or we can't do it at all /, to make sure that everybody has a dentist / because if there's no</p>	

## Barriers

			capacity there and a dentist says 'I'm not admitting any more', then we're simply powerless to enforce it." SM2
	<ul style="list-style-type: none"> <li>• Skills: Level of education "I didn't have any advanced training [in oral hygiene] now. I just have it inside, in the - um, that is, the nurse training is different, at the moment still ... a little bit from the geriatric care training. We also had, from the specialist some lessons who gave us some tips." N1</li> <li>• Knowledge/skills not sufficient "Because the resident himself then (.), did not let us know, or respectively did not let us know in time, or he could not express himself</li> </ul>	<ul style="list-style-type: none"> <li>• Skills: Level of education "we also have a lot of unskilled workers /, that is always difficult / that they know that they have to take out the prosthesis in the evening. This is often downright /, is also often forgotten /, and that you clean them in the same way" Staff manager2</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge/skills not sufficient "but with the shortage of workers in nursing homes we are forced to take certain people as well. There must also be people in the second row, we always say. Who are not always present and can do everything." SM2</li> </ul>

properly and his colleague could not interpret this correctly.” N2

- Knowledge/skills: ability  
“I'll say, a full prosthesis, if I don't have a full... bottle of adhesive cream on it, you can get it out pretty good. The problem is, if they still have partial teeth. Where they get hooked up like that. Because when I take it out myself, I touch them differently. If I come from the other side, I can't touch like that. And that's the problem. Yes. I think times, even with tricks or something, you will not necessarily n different result. If you had to make other prostheses or something so that the nurse

	could get the same result. If they fit really well, because sometimes you have to fight a little. If necessary, we leave them in, yes. I can't just pull the teeth out." N1		
<ul style="list-style-type: none"> <li>• Patients refusing care "Some bite, some hit, or I don't know what. It's yes /, and you need time, so I can't just open my mouth quickly, close my mouth and that's it. So we take little presents, little boxes or toothpaste /, one wants it, the other comes with a doll. You have to be prepared for to engage with them" Dentist3</li> <li>• Insufficient resources for dentists in NH "Yes, a consultation room is always nice when in a well-</li> </ul>	<ul style="list-style-type: none"> <li>• Time restrictions "You would need more time because you do individual dental care and not time management related. I might only need ten minutes or five minutes for brushing my teeth and the dementia might take twenty minutes, but for this patient I've been assigned a time management of three minutes." N2</li> <li>• Patients refusing care "There is also the resistance. Then we'll just have to try it</li> </ul>	<ul style="list-style-type: none"> <li>• Individuality of patients "But I think how everyone organizes their everyday life, with their hygiene, I think everyone has to sort that out for themselves." Staff manager1</li> <li>• Time restrictions "There is enough time, but it forces you to work very intensively." Staff manager1</li> <li>• Patients refusing care "So to speak, you have to leave adequate space when the situation is filled with</li> </ul>	<ul style="list-style-type: none"> <li>• Time restrictions "We only have time factor X, and what we do with that /, whether we wash their feet longer or care for their mouth longer, is something that we can do. So, actually there should be more time for the whole care. And let me say, just oral care, yes, what we said in the beginning /, a very intimate area. And you can't just go in and out and up and, it has to be ready in two and a half minutes, yes. As I said, I would have to, or would wish that the staff also</li> </ul>

<p>equipped nursing home, just in such a big nursing home where I work. At least a chair and a lamp /, and that would be nice. That would be better.“ Dentist3</p>	<p>later, individually, if it is possible. And if it doesn't work out at all for one day, then that's the way it is. We also have to accept it. This is a resident with dementia who doesn't let you brush his teeth.” N2</p> <ul style="list-style-type: none"> <li>• Number of carers “Well I say at the moment you don't know what will happen with the nursing crisis, and in which direction it is going /. At the moment, I can say, is that we still manage with the number of careers we have.” N2</li> </ul>	<p>aggression on the part of the resident, distance must be kept. And then we have to try it later. That's why the time aspect is so important for this clientele, for these residents. Mm.“ Staff manager1</p> <ul style="list-style-type: none"> <li>• Number of carers “If the ward is normally occupied, then the care is also done in this way / I think, if there are really sometimes problem cases /, the problem is sometimes that one of them fails early in the morning / that one of them has to do more patients or residents than usual. That's difficult and I think that dental care is the one that suffers a bit from it.” Staff manager2</li> </ul>	<p>have time to try a second or third time.” SM1</p> <ul style="list-style-type: none"> <li>• Patients refusing care “I am now a bit advanced in age, and I say: before, there was a dentist in the home, yes. Well, I mean, of course everyone can find another dentist, yes, but there was a dentist who had a very high presence in the house. He took care of all the residents.“ SM1</li> <li>• Number of carers “It would run with more staff /, what everyone says also in the media is of course different. If I have more staff / who are they? Currently our team put their heart and soul</li> </ul>
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into it /, you have to say that. So, they don't do it because they get money here now / because it's such a payment, it's not that they come here for the money, yes. Of course, if you have more personnel, or if you have more people available, then they have more time /, then they put a different value on it /, because they really get involved with the resident. That is absolutely clear. But in the situation that we have now, it's clear that you treat justly every resident. What else can be done now / I have no idea. So, there we are again in that area /, we need more staff and better pay / but better pay doesn't make that / because better

			pay doesn't just bring more of the right people." SM2
<ul style="list-style-type: none"> <li>• Fear of getting hurt by patients "Some people can also become violent. We had that with one of them, because he was taken by surprise. But if I have the company of or are (...) constantly surrounded by the nursing staff, where they also know the patient and know his reactions, this no longer happens." Dentist1</li> <li>• Negative emotions towards NH (sadness) "That's actually both sad and frustrating, yes. For us too, with communication, because... (sighs), many</li> </ul>	<ul style="list-style-type: none"> <li>• Fear of getting hurt by patients "I really have to look all the time, can I really brush his teeth now /, can I brush them at all/, will he refuse care? Can I maybe get to brush his teeth the next moment? Because that can happen too. Does he perhaps react negatively, or does he spit something in my face? So, it's always depending on the day with the residents." N2</li> <li>• Fear of causing damage/injury "For example, we have a patient down here with Korsakov. Um... He's</li> </ul>		<ul style="list-style-type: none"> <li>• Fear of getting hurt by patients "A resident with dementia would be more likely to bite. Instead of staying relaxed and having them taken out, yes. Although this is certainly relatively often accompanied by verbal or physical aggression. Yes, that's just the way it is. Residents no longer understand. You can explain it /, still don't understand what is happening. Yes, and it's the same with oral hygiene or for example dental hygiene with a toothbrush. In rare occasions they relax their teeth and mouth, but bite on</li> </ul>

people no longer understand what to do with a handshake, sometimes with a laugh, but really there is a lot to do and explain now.” Dentist1

cooperating with us anymore. "Nothing. "Or the opposite of what you're trying to accomplish. Yeah? If I say to him: 'Open your mouth' – he'll let you. Nothing happens. Or he opens his mouth and when I come in with my toothbrush, he closes it. Then I can't reach it either. And of course, the teeth look like that. I know that, too, but what can I do? I can't force him, it's assault. And that's the big problem we have. We also have another resident who has full dentures on both upper and lower jaw. We'll get them out just fine. We can barely get them back in. She'll start... ..really choking. When we come

them. Breaking a toothbrush with their teeth. Yes, it happens.” SM1

- Fear of causing damage/injury  
“When he has brushed his teeth, and I know one hundred percent that his oral hygiene was not satisfactory, it's not my place to say 'Give me your toothbrush, I'll do it again', because I tell him A, 'you won't make it on your own' /, the resident is demotivated /, some become depressed, because they are repeatedly told 'you won't make it anyway, let me take over'. So, we have to differentiate strongly (...) /, can we expect the resident to let me take over again? [...]

back with the prosthesis, when we clean it out and try to put it back in, right down to the point of vomiting. If she sees it, it's over. Yeah, but it's still got to happen. Hmm.“

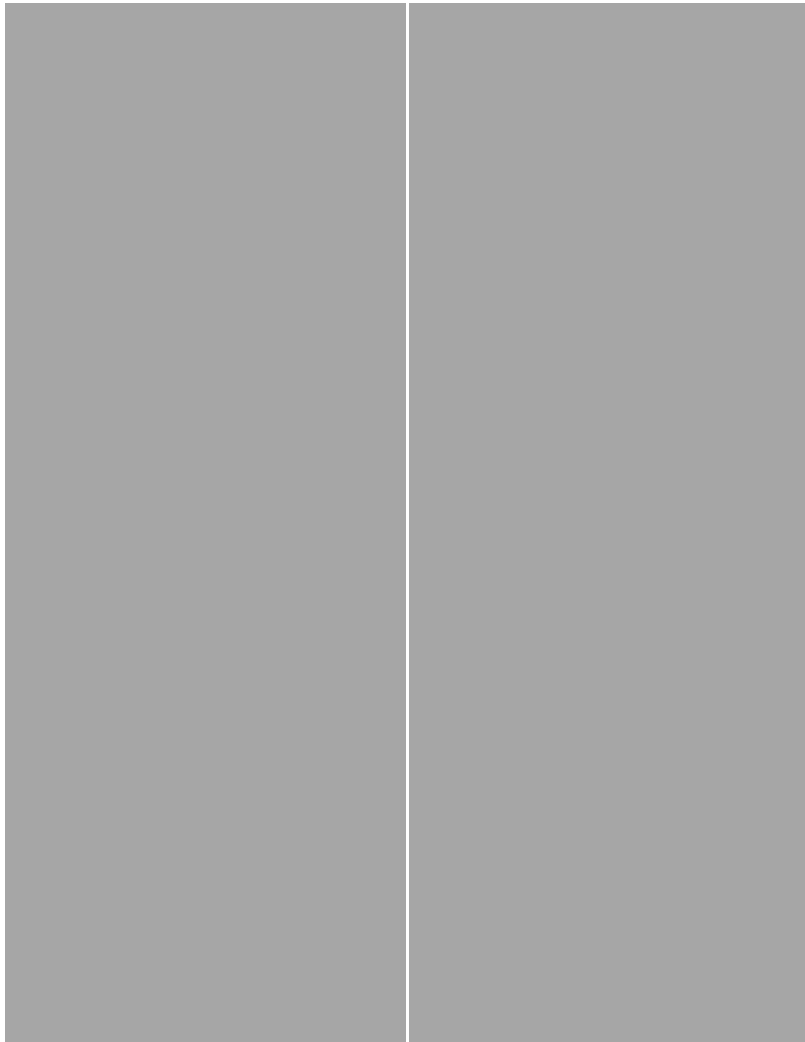
N1

- Lack of attention, memory, keeping track  
“I always put the residents first and then the paperwork last.” N2

And how important is the psyche of the resident /, we simply want them to be valued, that we stabilize him psychologically and not destabilize him /, in the moment when we suggest to him ‘Well, not well done, we'll do it again’ /, that seems a more balanced approach.”

SM2

- Negative emotions towards OHC  
“Because it's a difficult matter, yes, well. Yeah, and let's just say oral hygiene isn't necessarily what you see first. Let's say: Hair combed; I can see that right away. If the carer has not done properly, I can say: ‘You go back inside and do it



correctly this time'. Geriatric oral care /, how do I prove it. I do believe that this is basically an unpleasant thing. I think it's almost more unpleasant than intimate care, for example when someone has defecated or something. I almost believe that oral care is more unpleasant for the nursing staff, and I also think that some of the staff will certainly do it, so there are some who don't like to do it or who suppress it. Or even do it very superficially. Would I now assume, Mhm. Because there's nothing provable. You can't see it.“  
SM1

Additional

<ul style="list-style-type: none"> <li>• Belief in the importance of relatives “Some things are really too expensive for them /, they then say: ‘Why do we have to pay for this? That is far too expensive. Why do we have to pay for a new prosthesis now?’. Then we explain it to them. Some accept it and respect it, and then say: ‘It’s ok, let’s have it done again’ and some say: ‘No, my mother doesn’t need teeth anymore. She can eat mashed potatoes.’“ N2</li> <li>• Frustration about relatives “The work will be done exactly as before, but... hmm.... You know very well, you can’t really please them.</li> </ul>	<ul style="list-style-type: none"> <li>• Organisation of cooperation between nursing home and dentists “Yes, with the dentists /, the appointments /, mostly when a resident needs something, or the relatives come /, we arrange them. The carers call the dentist, make the appointments and it always works out.” Staff manager2</li> </ul>	<ul style="list-style-type: none"> <li>• Organisation of cooperation between nursing home and dentists “Yes, we have this CarePlus system here via the (Medical insurance), together with a general practitioner. He comes every Wednesday /, he is here in the house all morning. So, there is a general contact person. And he also has allocated time. Yes, and if you have something urgent, I don’t know if you’ve heard about it yet. With this telemedicine and back and forth, that it might go in that direction sometime, should not only go via the family doctor or the general practitioner, but it should go in the direction of</li> </ul>
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It doesn't matter if I do it, how well I do it, if I do it three times more than usual ... It will still not be good enough. But... Well, that's how people are right?" N1

- Organisation of cooperation between NH and dentists  
"We... make the dentist appointments. We'll see if any of the relatives can drive first, of course. Yes? Because it's just easier for us. And the staff isn't always there. But if there are no relatives at all, or they live in Buxtehude and can't because they have to work... Oops. Then we make it possible that either an intern, a student, a supervisor, even if it's not so keen on it, but..."

a specialist. That there is perhaps a dentist /, yes perhaps, at least closer to the resident. But that might be different, I think that is, in this age we are moving with big steps, that there might be a little bit of relief of the clinical duties for them." SM1

	we'll take them to the dentist. Yes." N1		
<ul style="list-style-type: none"> <li>Frustration about nurses/carers "The training of the nursing staff, should also make them able to (...) how shall I put it, that a little bit of awareness is raised a little bit about the oral status of the residents, that teeth and dentures have to be removed regularly, that is, they have to be cared for practically. I believe that it is relatively often lost in the care. These are areas that are not visible. If the patient hasn't combed or washed his</li> </ul>	<ul style="list-style-type: none"> <li>Frustration about co-workers "If the [dental and oral] care has not been provided, I am a little sad that it has not been possible." N1</li> <li>Level of disability "Some of them also have a degree of disability of two or three because they have just moved in, but they are really demented and don't understand what I want from them anymore, of course they don't understand why they should open their mouths now. Yes, we have</li> </ul>	<ul style="list-style-type: none"> <li>Frustration about co-workers "Yes, that is then sometimes also / there are always someone who forget that in principle. That is then difficult, yes." Staff manager<sup>2</sup></li> <li>Level of disability "There are of course also some who have a high degree of care / who can and do just about that, yes, of course I have something like that too. For example, if I have a resident where I know he has a level of care of four</li> </ul>	<ul style="list-style-type: none"> <li>Level of disability "I: is there a connection with the level of care? So, would you say, for example, mouthwash is not possible with level four care? R: Yes. Or if the residents are lying in bed and already have a lot of contractures, are very stiff, and they can hardly get their head up /, even the bed is put up for eating /, for food administration so high that practically the whole body /, nevertheless they stay lying like that. And when they lie</li> </ul>



<p>teeth, you might see that more often, but if the mouth looks horrible, tartar etc. you don't see that at first glance, no." Dentist2</p>	<p>them, too. They could still do it themselves physically, but they can't do it anymore. That's difficult then." N1</p>	<p>/ but still does it himself. Yes, but with most of them, the higher the level of care, the more we have to provide support." Staff manager2</p>	<p>like this, how do they want to rinse, how do they want to spit? And spitting out is not really part of the resident's everyday life, right. It's a strange thing for them." SM1</p>
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Abbreviations: I: Interviewer, R: Respondent, N: Nurse, D: Staff manager, SM: Section Manager