



UNIVERSITY OF LEEDS

This is a repository copy of *Maintaining and improving mouth care for care home residents: a participatory research project*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/174686/>

Version: Accepted Version

Article:

Griffiths, AW, Devi, R orcid.org/0000-0003-2834-8597, Cheetham, B et al. (8 more authors) (2021) Maintaining and improving mouth care for care home residents: a participatory research project. *International Journal of Older People Nursing*, 16 (5). e12394. ISSN 1748-3735

<https://doi.org/10.1111/opn.12394>

© 2021 John Wiley & Sons Ltd. This is the peer reviewed version of the following article: Griffiths, A. W., Devi, R., Cheetham, B., Heaton, L., Randle, A., Ellwood, A., Douglas, G. V. A., Csikar, J., Vinnall-Collier, K., Wright, J., & Spilsbury, K. (2021). Maintaining and improving mouth care for care home residents: A participatory research project. *International Journal of Older People Nursing*, 16, e12394, which has been published in final form at <https://doi.org/10.1111/opn.12394>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited. Documents deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Maintaining and improving mouth care for care home residents: a participatory research project

Alys Griffiths^{1,7}, Reena Devi^{2,7}, Biddy Cheetham^{3,7}, Lisa Heaton^{3,7}, Angela Randle^{4,7}, Alison Ellwood⁵, Gail VA Douglas⁶, Julia Csikar⁶, Karen Vinall-Collier⁶, Judy Wright², & Karen Spilsbury^{2,7}

¹Centre for Dementia Research, Leeds Beckett University, Leeds

²School of Healthcare, University of Leeds, Leeds

³Westward Healthcare, Leeds

⁴Springfield Healthcare, Leeds

⁵Centre for Applied Dementia Studies, University of Bradford, Bradford

⁶School of Dentistry, University of Leeds, Leeds

⁷NICHE-Leeds, University of Leeds and Leeds Care Association, Leeds

Word count = 4127 words

Corresponding author: Karen Spilsbury, School of Healthcare, University of Leeds, Leeds, LS2 9JT. Tel: +44 113 3431329 Email: k.spilsbury@leeds.ac.uk

Abstract

Many people residing in nursing or residential care homes (also called long-term care facilities) live with physical or cognitive difficulties. Staff working in these environments often help residents (particularly those with more advanced dementia) with their personal care needs, including maintaining mouth care and health. Poor oral health is associated with many difficulties, including increased risk of respiratory problems, pain and discomfort. Yet, concerns have been raised that staff may not have the knowledge and skills to effectively support residents with oral care and health. There is therefore an important gap between what is known about the importance of maintaining oral health (scientific evidence) and daily practice in long-term care environments. We conducted a participatory research project to address this important area of care. Four participatory research 'cycles' were conducted. Cycle one explored existing literature to develop accessible guidance on strategies that staff could use to support residents to maintain and improve oral care, particularly when a resident may resist such care. Cycle two built on this review to determine knowledge levels within the care team. This highlighted deficiencies in staff knowledge, skills and competence for providing mouth care and their need for training to address this. Cycle three identified evidence-based strategies to develop staff understanding and knowledge. Cycle four brought together experts from nursing, dentistry, behaviour change, systematic reviews, and care homes research to develop a grant application to progress this work further. This paper provides an example of the processes undertaken in a participatory research project, bringing together science and practice to improve an essential area of care. Using participatory research approaches in this setting can allow the effective translation of uncertainties in care and practice into questions that can be addressed by research, leading to meaningful outcomes for those living and working in care homes.

Introduction

Many people worldwide live in nursing or residential care homes (also called long-term care facilities), particularly in their later life. There are over 2 million people living in long-term care in the US (Harris-Kojetin et al., 2019) and 410,000 in the UK, with around 40% of these living with dementia (Laing Buisson, 2016). The care home population in England is projected to rise by 127% over the next 20 years (Kingston et al., 2018); an increase that is likely to be reflected worldwide. Many care home residents have complex needs including dementia, depression, functional dependency, multi-morbidity, and mobility or continence issues (Livesley & Crosby, 2011; Alzheimer's Society, 2013). Care home residents are often not able to carry out personal care (including mouth care) due to decreased physical or cognitive abilities and often depend on care staff to help them meet these needs (Skills for Care, 2017). This is particularly the case for people living with dementia, who are also vulnerable towards experiencing poor oral health, in addition to difficulties in reporting pain or discomfort in the mouth, and poorer access to healthcare professionals (Lauritano et al., 2019; Public Health England, 2018).

Most care home residents have poor oral health (Moore & Davies, 2016), particularly those with dementia (Lauritano et al., 2019). Many medicines commonly prescribed for older people predispose individuals to oral health problems (Shay & Ship, 1995). There are links between residents' poor oral health and quality of life, such as pain and discomfort (Rebelo et al., 2016; Zenthöfer et al., 2014), which in turn has a negative impact on communication, both verbally and facially (Sheiham et al., 2001). There are also links between poor oral health and decreased nutritional intake (Sheiham et al., 2003), increased social isolation (Rodrigues et al., 2012), and increased risk of respiratory infections (Jablonski et al., 2018). Therefore, maintaining good oral health is an important concern for residents and staff and to mitigate other related health issues which can result from poor oral health (Young et al., 2008). However, this raises challenges for the care sector, and specifically care home staff, in meeting resident needs related to oral health and care.

It has long been recognised that support for care home residents with mouth care is sub-optimal (Macentee, 2000). Concerns have been raised that care home staff may not have the knowledge and skills to effectively support residents with mouth care and oral health. Although specific guidelines are available for care homes (e.g. Canada - University of Manitoba, 2018; England – Public Health England, 2018), a lack of awareness of these has been highlighted (Buisson, 2013). Recently within the UK, the regulatory body – the Care Quality Commission (CQC) - raised concerns about the quality of mouth care provision in care homes, demonstrating that policy and practice often do not meet best practice guidelines and that a general lack of access to dental care exists for residents (Care Quality Commission, 2019). The CQC identified that almost three quarters of residents (73%) had either no or inadequate oral health care plans and 52% of care homes did not have an oral health care policy (Buisson, 2013; Care Quality Commission, 2019). Additionally, almost half of care homes (47%) did not provide any form of oral health training for staff (Buisson, 2013). This is in line with research conducted in the UK that has demonstrated similarly poor levels of oral care training amongst nurses working in care homes (Young et al., 2008): with most participants stating that no training was available or this had not been covered in their

college/university based courses. This is consistent across countries such as Sweden (Paulsson et al., 1999) and Poland (Gaszynska et al., 2014).

Staff have also identified several challenges when delivering mouth care, including resistance from residents, fear of causing pain or injury, and a lack of appropriate supplies (Jablonski et al., 2009). All of these factors may negatively impact on the provision of oral care for residents (Jablonski et al., 2009), alongside concerns about insufficient time and staffing (Chalmers et al., 1998). The likelihood of resisting care is thought to affect over 60% of care home residents and increases with dementia severity (Jablonski et al., 2018). Where people with dementia living in care homes are not resistive to mouth care, they have poorer oral health than those without dementia (Daly et al., 2017; Zimmerman et al., 2018). This highlights the importance of providing effective mouth care and regular assessment of this, to residents living with dementia, as they may struggle to communicate any issues around pain or discomfort (Lauritano et al., 2019).

This paper presents an overview of a participatory research project focused on maintaining and improving mouth care for care home residents. This collaborative research is being undertaken as part of the Nurturing Innovation in Care Home Excellence in Leeds (NICHE-Leeds) partnership between academia and care organisations (Spilsbury et al., 2020). This is based on the Dutch Living Lab model (Verbeek et al., 2020). The aim of NICHE-Leeds is to undertake research to address questions that matter most to those living and working in care homes and that will promote quality of life, quality of care and quality of work. 'Link' researchers (funded by the care organisation) work with staff, residents, and relatives to identify areas of uncertainty (or questions) in caring practice. A care worker (equivalent to the Nursing Aide role in North America), working in a NICHE-Leeds partner care home, asked how she could help residents with mouth care, particularly when someone resisted such care. The compassion and curiosity of this care worker led to discussions across the partnership. It transpired that this is a significant area of concern for care home staff, residents and relatives more widely and so we agreed to work together to identify strategies to promote this area of care for residents and better support care staff, and to share the work more widely. This paper presents the work we have completed to date in our partnership to address this question and outlines our plans for future work to support this important aspect of care for care home residents.

Aim

The overall aim of this participatory research project is to work with care home staff to create a learning culture to address how to promote mouth care for residents, particularly when a resident resists support with this aspect of care. Further, we aimed to effect mouth care practice changes (if required) using participatory and inclusive research cycles. Each research cycle addressed a research question which is presented below.

Approach and methods

The partnership approach of NICHE-Leeds involves researchers and care home staff working together throughout the research stages to achieve equality and engagement. This ensures all partners input into the research focus (question), how the problem area will be

addressed (design and methods), reported (results) and translated for practice (impact). Participatory research methods are appropriate for this purpose as they are underpinned by four principles: (1) co-operation (working 'with' people); (2) participation (rather than separation and/or competition); (3) equality (mutual respect and valuing all contributions); and (4) co-production (working together and recognising different forms of knowledge) (Bergold & Thomas, 2012). Using this approach to address how staff can support residents with mouth care, we have worked through self-reflective cycles (Kemmis & McTaggart, 2000) consisting of: identifying a problem; planning for change (through gathering and interpreting data); acting on the evidence and evaluating the results; then replanning and repeating these steps in subsequent research cycles. Figure 1 provides an overview of this process.

The NICHE-Leeds approach is well positioned to engage in participatory research as the initial stage of engagement and 'opening up the communicative space' (Wicks & Reason, 2009) is embedded within the partnership model. Regular meetings are held with staff, relatives, and residents, which allow individuals to speak openly about uncertainties in a setting that is free from criticism. The identified uncertainty focused on how to promote mouth care for residents. This has been explored through four self-reflective cycles and these are detailed below.

Ethics approval

The partnership approach of NICHE-Leeds is classed as service evaluation and development rather than research (James Lind Alliance, 2020; UK Research and Innovation, 2020) when researchers and practice partners focus on identifying questions and uncertainties that matter most for the people living or working in care homes. During these discussions, partners adhere to the principles of ethical conduct and mutual respect. Cycle 1 and 3 did not require scrutiny by an ethics committee. However, cycle 2 of this participatory research project which used a survey administered to care home staff did require consideration by an ethics committee. The School of Healthcare Research Ethics Committee at the University of Leeds approved this study in 2019. Cycle 4 (if funded) will require an ethics submission.

INSERT FIGURE 1

Cycle 1: Identifying the 'problem' and translating into a researchable question

The first cycle was concerned with developing an initial research question and exploring whether existing evidence was available to address the question. When developing research questions within the NICHE-Leeds model, several stages are conducted:

1. work with care home partners (residents, relatives and/or staff) to identify areas of uncertainty within practice
2. from these areas, establish through partnership consensus one specific area of focus (or priority)
3. clarify the nature of the issue, and generate research questions to address the priority

4. share research question with academic partners for development and refinement (may need to repeat to iteratively refine the research questions)
5. agree research question with care home partners

A meeting in September 2018, with eight care home staff (including registered nurses and care workers), the care home manager, and the link researcher identified mouth care as an important area of uncertainty. A member of care staff raised the question 'how can I help residents with their mouth care, particularly when they resist this care?' This was confirmed to be a priority by other members of care staff. This was then refined by the research team into a research question:

"What strategies are effective for promoting oral health among residents who resist mouth care?"

This question was suited to a review of the literature. Initially we conducted a scoping search for relevant systematic reviews to help answer this question. We searched Ovid Medline, using Medical Subject Heading (MeSH) terms, search terms and synonyms for 'mouth care', 'care homes' and 'systematic reviews'. We also searched the Cochrane Library. We identified a range of systematic reviews relevant to this topic area (Weening-Verbree et al., 2013; Albrecht et al., 2016; Hoben et al., 2017; Manchery et al., 2020). Examples of the diverse interventions reported in the reviews included: managing resistance to mouth care; oral care in the prevention of pneumonia; denture disinfection; influencing staff or resident behaviours; and educational interventions. One systematic review (Hoben et al., 2017) was considered most relevant to address the posed question. The systematic review evaluated the effectiveness of strategies that nursing home staff can apply to either prevent or overcome residents' responsive behaviours to oral care, or to enable or motivate residents to perform their own oral care.

We translated the findings of this review into a user friendly and accessible format, for care home staff. This document provided (i) a short (one page) overview of evidence for care staff that they could use to improve or reflect on their own practices; (ii) some best practice tips; and (iii) further detail from the systematic review for care home staff that wanted to understand the evidence-base for the summary, with a link to the full review article. The document is one of a series we have developed to support care home practice. Care home staff named these "*NICHE Know-How*" (<https://bit.ly/3e6uEVS>).

A further meeting was then held between link researchers and care staff to reflect on progress and discuss next steps. This identified that the NICHE Know-How was a valuable resource for the care home, with all staff being asked to use this resource in their daily practice. The group recommended that the NICHE Know-How should be used for induction of all new staff, demonstrating immediate impact of the work. In addition, care staff reported a sense of pride and satisfaction because they had been integral to the development of the NICHE Know-How and felt valued and listened to as partners in this endeavour to improve care practices. A member of care staff then raised uncertainties about the level of knowledge and understanding that their colleagues had about mouth care. These reflections led to the development of Cycle 2, which involved conducting a small

scale study to establish the baseline of care home staff knowledge, beliefs and attitudes towards mouth care.

Cycle 2: Exploring the knowledge, beliefs and behaviours for mouth care among care home staff

There are reports of vast differences in staff training availability, understanding of, and attitudes towards providing mouth care for residents living in care homes, particularly those who may resist this care (Buisson, 2013). Within the partner care homes, the current level of knowledge, beliefs and behaviours for mouth care among staff was not known. During informal discussions, staff reported variability of opportunities to access any training and support with this aspect of care. This led to our second research question:

“What are the current levels of staff knowledge, beliefs and attitudes towards oral care in care homes?”

Therefore, to improve understanding of these issues, a small-scale survey was conducted with care home staff. Taking this step to understand staff knowledge, beliefs and attitudes was important to inform any subsequent work we may consider in our partnership to address how to support care home staff to maintain and improve mouth care for residents.

Within this cycle, the research team invited colleagues from the University of Leeds School of Dentistry to engage with this work to ensure that the relevant clinical expertise was included in our team make-up. We developed a questionnaire, which was clearly linked to existing evidence and presented in a format that care home staff were likely to be receptive to. This was possible because of relevant dental and care home research expertise in the team.

Participant recruitment

Participants were staff responsible for supporting residents with everyday aspects of care and daily living, working in two partner care homes in the North of England. Posters were placed in the care homes (including staff rooms and corridors) to inform staff about the study, giving times when researchers would be in the care home. Researchers visited the care home regularly between November 2019 and March 2020 to collect data. Researchers approached individuals to determine their interest and completed questionnaires with staff if this was their preference. Researchers visited during afternoons and evenings on different days of the week to ensure both day and night care staff were able to participate, and to maximise opportunities to engage with part-time staff. Staff could choose to complete the questionnaire themselves and place in a sealed box in the care home for collection by the researcher. Staff were reminded (by the care home manager) about the survey. Care home managers did this during staff handover or through other communications (such as staff briefings or staff newsletters). Completion of the questionnaire (by an individual or with the researcher) implied consent, written consent was not obtained. Only participants who worked in a direct caring role were eligible to participate.

Survey instrument

A survey was developed based on previous work by Young et al. (2008) to assess knowledge, confidence, skills, beliefs, responsibilities and training needs. Knowledge of how to provide oral care was assessed via a 'knowledge checklist', which mapped participant knowledge to current best practice guidance from the NHS 'protocol for daily oral care' (NHS Quality Improvement Scotland, 2005). Participants were asked how they would care for someone with a specific situation e.g. dry lips, or specific need, e.g. dentures. Their responses were then compared to best practice guidance, to establish what percentage of core components they had included within their response. We also included questions about beliefs previously used in similar studies (Jablonski et al., 2009; Pyle et al., 1999). The survey is available in Appendix 1. Data were analysed using descriptive statistics within SPSS 24.

Results

A total of 52 participants (care home staff) completed the questionnaire. Most participants were female (3 males), with ages ranging from 18 to 51, working in varied roles including Care Assistant (equivalent of a Caregiver), Senior Care Assistant (equivalent of a Certified Nursing Assistant) and Registered Nurse (equivalent of a Licensed Practical Nurse). Participants had been employed for between 2 weeks and 31 years.

All participants stated that supporting residents with mouth care was either highest priority (n = 48, 92%) or high priority (n = 4, 8%). Eleven participants (21%) had received specific training in mouth care. Over half of participants (n = 28, 54%) said they would benefit from additional training, highlighting specific training needs such as supporting residents who are resistive to mouth care and providing mouth care for residents at the end of their life.

Generally, participants held appropriate beliefs about the importance of mouth care (see Table 1), although these were lower than previous evidence (Jablonski et al., 2009). Higher numbers were associated with agreement (100 – strongly agree), lower numbers with disagreement (0 – strongly disagree). Generally, participants believed that brushing and flossing prevented gum disease, that oral health was linked to overall health, and that dentures should be removed at night. Their views regarding tooth loss and aging were more polarised.

INSERT TABLE 1

Knowledge of mouth care practices amongst staff was variable (see Table 2), measured using items from Young and colleagues (2008). The majority of participants were aware of the basic care requirements for residents with dentures but lacked the additional knowledge to ensure that individualised care was being provided. They were able to provide examples of personalised care that they delivered to residents with specific needs. For residents with natural teeth, many participants focused on ensuring a person-centred approach to mouth care was being provided, with permission sought before carrying out any tasks. Most participants were aware of basic ways to provide care for residents' soft tissue within their mouths but failed to highlight how they would identify or report any concerns. Finally, when caring for a resident with a dry mouth, most participants were aware of the importance of hydration, but lacked knowledge of the importance of high fluoride toothpaste.

INSERT TABLE 2

Brought together, these results demonstrated mixed knowledge, beliefs and attitudes among care home staff of how to provide mouth care for residents. Few staff members were able to provide detailed answers about how they would support residents with specific areas of mouth care, these were lower than previous research (e.g. Young et al., 2008). This indicates that many care staff in these homes required further support to develop their awareness of best practice in mouth care

Cycle 3: Actions to improve care home staff knowledge, beliefs and behaviours

Our collaborative partners (research and care home) discussed what needed to happen next to address the apparent gaps in staff knowledge and to develop evidence-based care and practice. Two specific actions were considered important and constitute Cycle 3. Further plans to develop the work were also identified, which formed Cycle 4.

The first actions were to develop simple and clear information on how to provide effective mouth care, in a visually appealing way for care home staff. The NICHE Know-How developed in Cycle 1 partly addressed this need in the practical strategies section. However, we also developed a poster to display in the care home. The poster covered areas contained in the survey questions. We considered the poster an effective way to engage staff with developing their knowledge and understanding in a positive way, rather than reporting their knowledge deficits in a report of the survey findings (see Appendix 2).

Second, our partnership identified a training need for the care home staff, to support them to deliver effective mouth care for residents. Evidence suggests that face-to-face training with an experienced facilitator is the optimal approach within the social care sector to develop knowledge and understanding, as well as to support application of learning in practice (Surr et al., 2017). It was agreed that a colleague from the School of Dentistry would be invited into the care home to deliver a training session for staff. Due to the ongoing COVID-19 pandemic and visitor restrictions in care homes, this training has been delayed but will be put in place as soon as it is safe and acceptable to do so.

Cycle 4: Developing a grant application

The first two Cycles demonstrated that there was concern amongst care staff about the quality of mouth care provided for residents, and a lack of knowledge and understanding amongst staff about this aspect of care. These cycles provided the opportunity for staff to question existing routines to improve care and highlighting their desire to acquire additional skills. Cycle 3 developed actions to address these areas and working across our partnership, we identified a broader need to develop evidence for practice. Specifically, how to positively influence staff behaviours to promote mouth care for residents.

For this purpose, we configured a team - comprised of NICHE-Leeds partners (research, care home staff and relatives) and also colleagues with relevant expertise (including dentistry, behaviour change, and systematic reviews) – to develop a research grant application for research funding to develop this work. The overall aim of this proposed research, in

partnership with care homes, is to determine how best to keep residents' mouths healthy by supporting care home staff to promote, in their day-to-day work, effective 'mouth minutes' for care home residents. We plan to co-produce theory- and research-informed guidance for care homes to promote staff behaviours to improve oral health for care home residents.

While our original question originated from the NICHE-Leeds partnership, we recognise that promoting mouth care for care home residents is an international concern. Securing funding for this work would, we believe, allow us to make an important contribution to knowledge and practice, and importantly the everyday care of people living in care homes.

Discussion

This paper has provided an overview of the participatory research process taken within the NICHE-Leeds model, demonstrating the development of a research programme around maintaining and improving mouth care within care homes. This was initially sparked by a question posed by a member of care staff. This question focuses on how to promote person-centred care. The person-centred framework (McCormack and McCance, 2006) is useful for considering our work to date and the ongoing work as planned. The person-centred framework comprises four constructs – *prerequisites* (the attributes of the nurse or carer), *care environment* (the context in which care is delivered), *person-centred processes* (care delivery) and *expected outcomes* (the results of effective person-centred care). Our completed and proposed work pays attention to these constructs. We have: explored the knowledge, skills and attitudes of staff, including how to address any knowledge gaps or behaviours; considered the resident population and environment where care is delivered; and highlighted strategies to promote behaviours that enhance mouth care. Our planned future work specifically focuses on promoting effective mouth minutes for care home residents. Again, this will be a collaborative project and we will use the Theoretical Domains Framework (Michie et al., 2005) to provide a theoretical lens through which to view the cognitive, affective, social and environmental influences on behaviour within the care home context.

Participatory research methods have been used in other care home studies (Shura et al., 2011; Van Malderen et al. 2016; Dahl et al., 2018; Dewar et al., 2019). Our work contributes to this growing body of research which promotes co-operation, participation, equality and co-production between science and practice. Involving care home staff with question formulation, design and methods, reporting and translation of finding for impact offers promise for the field of care home research. It also ensures that the questions being addressed by research are those that matter most to people living or working in care homes. Future research should examine and evaluate this process from multiple perspectives, including residents, relatives, staff and scientists. This would help inform research teams about how to support research translation and implementation with the sector. However, the power dynamics involved in participatory research processes, particularly in long-term care settings, need to be acknowledged and appropriately managed to recognise these benefits (Woelders & Abma, 2019).

There are strengths and limitations that should be acknowledged within this work. The care home organisations, as a result of the NICHE-Leeds partnership, were keen to engage and work with the research team. This level of engagement may not be replicated in other care home organisations. In NICHE-Leeds care homes, senior management were willing for staff to be involved in all aspects of the research, including meetings, completing questionnaires, and working alongside researchers to develop the grant application. It is vital to set realistic expectations for the partnership from the outset, to avoid any issues regarding timelines or impact. The small-scale nature of this work does not negate its importance. Indeed, as this work has developed, resulting in an application for competitive research funds, the scale of this challenge for care homes (nationally and internationally) was realised. The work therefore has broader relevance and transferability. The cycles of work presented here developed over a period of time, and at the time of writing this paper, the outcome of the grant application is unknown. If that is unsuccessful, alternative routes to developing the work further will need to be sought, which has implications for the impact and associated timeline expectations currently held across the partnership.

Existing research has highlighted that managing expectations of care home partners, in terms of immediacy of results and their impacts, can be challenging (Verbeek et al., 2020). There are also difficulties in encouraging care staff to prioritise this type of research within their existing work schedules and associated work pressures (Woelders & Abma, 2019). Within the present work, combining both immediate and longer-term impact for the care organisations, and specifically the staff working in these organisations, was important. Immediate impacts were available for the care homes through contributing primary data through the surveys, design and launch of the NICHE Know-How and poster, with specific training planned. Longer-term we have developed the grant application in close collaboration and to ensure the research addresses a concern that has been developed with care home staff, residents and relatives. This has supported the management of expectations between all research partners and ensuring outputs have meaning for the sector. We have been able to produce materials for immediate use by care home staff from this work, whilst preparing the grant application for undertaking funded research and which will take more time.

Identifying an area of research that was felt to be important to staff has been imperative in providing foundations for future work and leading to change as the partnership continues to progress. This allowed staff to see a clear pathway between their ideas and the research conducted. The question raised was initially a small area, which has grown into a much larger piece of research. It is thought that initially developing small pieces of work can enhance the success of such projects and increase confidence in the science and practice partnership model (Verbeek et al., 2020). This is vital to develop a mutually beneficial and trusting relationship between all partners.

The present study demonstrates the breadth of research components that can be embedded within participatory research approaches. In the present study, approaches included a combination of data extraction from systematic reviews and primary research which we were able to translate through partnership to generate accessible and meaningful resources for care home staff, such as the NICHE Know-How, poster and tailored training. It also supported the co-development of a grant application which will focus on supporting

staff behaviours to promote 'mouth minutes' as part of everyday practice. The flexibility presented by this approach allows partnerships to be guided by the questions asked, incorporating different methods and bringing in additional expertise (through interdisciplinary collaboration) where necessary. This is beneficial for all members of the partnership, allowing people to develop expertise and apply methods to a new setting, as well as benefit the care environment with engagement of these broader partners.

Conclusion

In conclusion, this paper provides research teams with an example of the process taken in by partnership between science and practice, bringing together research and practice to improve an important area of practice within social care and to promote person-centred cultures of care. Further research should evaluate such partnerships from inception through to implementation and impact, to provide teams with guidance on the optimal processes that support engagement, participation and outcomes that benefit the sector.

References

Albrecht, M., Kupfer, R., Reissmann, D. R., Mühlhauser, I., & Köpke, S. (2016). Oral health educational interventions for nursing home staff and residents. *Cochrane Database of Systematic Reviews*, 9.

Bergold, J., & Thomas, S. (2012). Participatory research methods: a methodological approach in motion. *Historical Social Research*, 37(4), 191-222.

Buisson L. (2012) *Care of elderly people: UK market survey 2013*. London: Laing & Buisson.

Care Quality Commission. (2019). *Smiling matters. Oral health care in care homes*. London.

Chalmers, J. M., Levy, S. M., Buckwalter, K. C., Ettinger, R. L., & Kambhu, P. P. (1996) Factors influencing nurses' aides provision of oral care for nursing facility residents. *Special Care Dentistry*, 16, 71-79.

Dahl, H., Dewing, J., Mekki, T.E., Håland, A., & Øye, C. (2018) Facilitation of a workplace learning intervention in a fluctuating context: an ethnographic, participatory research project in a nursing home in Norway. *International Practice Development Journal*, 8(2): 1–17 <https://doi.org/10.19043/ipdj.82.004>

Daly, B., Thompsell, A., Sharpling, J., Rooney, Y.M., Hillman, L., Wanyonyi, K.L., White, S., & Gallagher, J.E. (2017). Evidence summary: the relationship between oral health and dementia. *British Dental Journal*, 223(11), 846-853.

Dewar, J.D., Barrie, K., Sharp, C. & Meyer, J. (2019) Implementation of a Complex Intervention to Support Leadership Development in Nursing Homes: A Multimethod Participatory Study. *Journal of Applied Gerontology*, 38(7): 931-958

Gaszynska, E., Szatko, F., Godala, M., & Gaszynski, T. (2014). Oral health status, dental treatment needs, and barriers to dental care of elderly care home residents in Lodz, Poland. *Clinical Interventions in Aging*, 9, 1637.

Hancock, G. A., Woods, B., Challis, D., & Orrell, M. (2006). The needs of older people with dementia in residential care. *International Journal of Geriatric Psychiatry*, 21(1), 43–9.

Harris-Kojetin L, Sengupta M, Lendon JP, Rome V, Valverde R, Caffrey C. (2019) Long-term care providers and services users in the United States, 2015- 2016. National Center for Health Statistics. *Vital Health Statistics*, 3, 1–78.

Hoben M., Kent A., Kobagi N., Tu Huynh K., Clark A. & Yoon M.N. (2017) Effective strategies to motivate nursing home residents in oral care and to prevent or reduce responsive behaviors to oral care: A systematic review. PLOS ONE:

Jablonski, R. A., Munro, C. L., Grap, M. J., Schubert, C. M., Ligon, M., & Spigelmyer, P. (2009). Mouth care in nursing homes: knowledge, beliefs, and practices of nursing assistants. *Geriatric Nursing*, 30, 99-107.

James Lind Alliance. JLA Guidebook: Gathering Uncertainties (Consent and Ethics). <http://www.jla.nihr.ac.uk/jla-guidebook/chapter-5/consent-and-ethics.htm> (accessed 29-04-2021)

Kingston, A., Comas-Herrera, A., & Jagger, C. (2018). Forecasting the care needs of the older population in England over the next 20 years: estimates from the Population Ageing and Care Simulation (PACSim) modelling study. *The Lancet Public Health*, 3, e447-e455

Laing Bussion (2016). *Care of older people UK market report*. London: Laing and Bussion

Lauritano, D., Moreo, G., Della Vella, F., Di Stasio, D., Carinci, F., Lucchese, A., & Petrucci, M. (2019). Oral health status and need for oral care in an aging population: a systematic review. *International Journal of Environmental Research and Public Health*, 16, 4558.

Lievesley, N., & Crosby, G. (2011). *The changing role of care homes*. London: Bupa and Centre for Policy on Ageing.

MacEntee, M. I. (2000) Oral care for successful aging in long-term care. *Journal of Public Health and Dentistry*, 60, 326-329.

Manchery, N., Subbiah, G. K., Nagappan, N., & Premnath, P. (2020). Are oral health education for carers effective in the oral hygiene management of elderly with dementia? A systematic review. *Dental Research Journal*, 17, 1.

McCormack, B., & McCance, T.V. (2016) Development of a framework for person-centred nursing. *Journal of Advanced Nursing*, 56(5): 472-9

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., Walker A. (2005) Making psychological theory useful for implementing evidence-based practice: a consensus approach. *BMJ Quality Safety*, 14(1): 26-33

Moore, D., & Davies, G. M. (2016). A summary of knowledge about the oral health of older people in England and Wales. *Community Dental Health*, 33(4), 262-266.

NHS Quality Improvement Scotland. (2005). Working with dependent older people to achieve good oral health. *Edinburgh: NHS Quality Improvement Scotland*.

Paulsson, G., Söderfeldt, B., Fridlund, B., & Nederfors, T. (2001). Recall of oral health education programme by nursing personnel in special housing facilities for the elderly. *Gerodontology*, 18, 7-14.

Public Health England (2018). *Commissioning better oral health for vulnerable older people*. London.

Pyle, M. A., Nelson, S., & Sawyer, D. R. (1999) Nursing assistants' opinions of oral health care provision. *Special Care in Dentistry*, 19, 112-7.

Rebelo, M. A. B., Cardoso, E. M., Robinson, P. G., & Vettore, M. V. (2016). Demographics, social position, dental status and oral health-related quality of life in community-dwelling older adults. *Quality of Life Research*, 25, 1735-1742.

Shay, K., & Ship, J. A. (1995). The importance of oral health in the older patient. *Journal of the American Geriatric Society*, 43, 16.

Sheiham, A., Steele, J. G., Marcenes, W., Tsakos, G., Finch, S., & Walls, A. W. (2001). Prevalence of impacts of dental and oral disorders and their effects on eating among older people; a national survey in Great Britain. *Community Dentistry and Oral Epidemiology*, 29(3), 195-203.

Shura, R., Siders, R. A., & Dannefer, D. (2011). Culture change in long-term care: Participatory action research and the role of the resident. *The Gerontologist*, 51, 212-225.

Skills for Care. (2017). *The state of the adult social care sector and workforce in England*. London.

UK Research and Innovation (2020) Is my study research? www.hra-decisiontools.org.uk/research/about.html (accessed 30-4-21) University of Manitoba: Rady Faculty of Health Science. (2018). *Mouthcare resources for caregivers: Fact sheets and video clips*. Retrieved from http://umanitoba.ca/faculties/health_sciences/dentistry/ccoh/longterm-care-facts.html

Van Malderen, L., De Vriendt, P., Mets, T., & Gorus, E. (2016) Active ageing in the nursing home: Could participatory action research provide the answer? *Action Research*, 15(3): 239-257

Weening-Verbree, L., Huisman-de Waal, G., van Dusseldorp, L., van Achterberg, T., & Schoonhoven, L. (2013). Oral health care in older people in long term care facilities: a systematic review of implementation strategies. *International Journal of Nursing Studies*, 50(4), 569-582.

Wicks, P. G. & Reason, P. (2009). Initiating action research: Challenges and paradoxes of opening communicative space. *Action Research*, 7(3), 243–262.

Woelders, S., & Abma, T. (2019). Participatory action research to enhance the collective involvement of residents in elderly care: About power, dialogue and understanding. *Action Research*, 17(4), 528-548.

Young, B. C., Murray, C. A., & Thomson, J. (2008). Care home staff knowledge of oral care compared to best practice: a West of Scotland pilot study. *British Dental Journal*, 205(8), E15-E15.

Zenthöfer, A., Rammelsberg, P., Cabrera, T., Schröder, J., & Hassel, A. J. (2014). Determinants of oral health-related quality of life of the institutionalized elderly. *Psychogeriatrics*, 14(4), 247-254.

Zimmerman, S., Austin, S., Cohen, L., Reed, D., Poole, P., Ward, K., & Sloane, P. D. (2017). Readily identifiable risk factors of nursing home residents' oral hygiene: dementia, hospice, and length of stay. *Journal of the American Geriatrics Society*, *65*(11), 2516-2521.

Acknowledgements: We would like to thank people living, visiting, or working in care homes who contribute to the NICHE-Leeds partnership. We thank the care home staff for engaging with cycles of this work and for completing the survey (Cycle 2). Importantly we acknowledge Dawn, a carer, who through her curiosity and desire to provide best care and support for residents asked the original question which led to this programme of research and activity.

Funding: This ongoing work is funded by the Leeds Care Association and the University of Leeds. KS is part funded by the NIHR Applied Research Collaboration (Yorkshire and Humber).

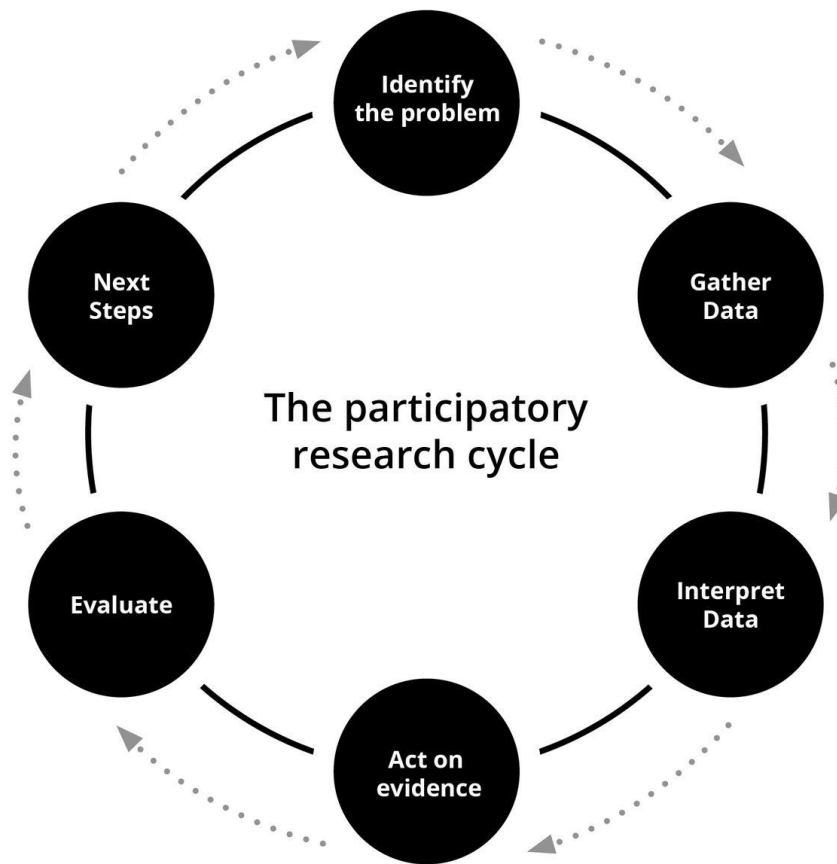


Figure 1: The participatory research cycle

Table 1: Overview of participant beliefs about mouth care

Belief	M	Range
“Brushing and flossing daily prevent gum disease”	73.34	0-100
“Health of mouth is related to health of body”	69.82	50-100
“As people age they naturally lose their teeth”	56.07	0-100
“Dentures should be removed at night”	76.08	25-100

Table 2 Knowledge of mouth care compared to NHSQIS 'protocol for daily oral care'.

A: Care of dentures	N (%)
Denture marking	2 (3.9)
Dentures removed at night	35 (68.6)
Dentures placed into solution	26 (50.9)
Clean using individual brush & running water	38 (74.5)
Rinsed after meals	0 (0)
Fixative if required	7 (13.7)
Fixative cleaned off if required	0 (0)
Knowledge of difference between types of dentures	0 (0)
Unsure/No answer given	3 (5.8)
B: Care of natural teeth	N (%)
Cleaned twice daily and after meals	50 (98)
Fluoride toothpaste	4 (7.8)
Soft toothbrush	4 (7.8)
Mouthwash if required	8 (15.6)
Powered toothbrush if preferred	0 (0)
Unsure/No answer given	1 (1.9)
C: Care of soft tissue (e.g. gums, inside of cheeks)	N (%)
Inspect in good light	6 (11.8)
Report any concerns	2 (3.9)
Clean	40 (78.4)
Unsure/No answer given	11 (21.6)
D: Care of dry mouth	N (%)
Sips of water	47 (92.2)
High fluoride toothpaste	0 (0)
Unsure/No answer given	4 (7.8)