Article:
Vinall-Collier, K., Csikar, J., Haunch, K. et al. (2026) Understanding how to promote oral care 'mouth minutes' in care homes: qualitative study with utilisation of the COM-B framework. BMC Oral Health. ISSN: 1472-6831

https://doi.org/10.1186/s12903-026-08888-1

BMC Oral Health

https://doi.org/10.1186/s12903-026-08888-1

Article in Press

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Received: 30 October 2025

Accepted: 5 June 2026

Published online: 20 June 2026

Cite this article as: Vinall-Collier K., Csikar J., Haunch K. *et al.* Understanding how to promote oral care 'mouth minutes' in care homes: qualitative study with utilisation of the COM-B framework. *BMC Oral Health* (2026). https://doi.org/10.1186/s12903-026-08888-1

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Understanding how to promote oral care ‘mouth minutes’ in care homes: Qualitative study with utilisation of the COM-B framework

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Abstract

Background: Older adults are vulnerable to poor oral health due to physiological and cognitive changes, multiple medications, and dependence on carers. Despite national guidance, oral care in UK care homes remains inconsistent, and many staff report lacking the personal skills, organisational support, and confidence to deliver consistent oral care despite highlighting their commitment to deliver effective "mouth minutes" as part of daily routines. This study aims to examine care home and dental stakeholders' views on supporting residents' oral health, using the COM-B model to identify factors shaping staff oral-health-related behaviours.

Methods: Focus groups were undertaken between June 2022 and November 2022 with the following 4 stakeholder groups to explore perspectives of supporting oral health maintenance in care home residents: (1) residents and relatives, (2) care home frontline workers, (3) care home managers and (4) external oral healthcare professionals (Oral HCPs) with care home experience. Framework analysis was undertaken at a semantic level and then matrices were mapped onto the COM-B model.

Results: Fifty participants from three care homes (residential and nursing homes), and external oral HCPs in Great Britain took part: 11 residents, 6 relatives, 25 care home staff (managers and frontline workers) and 8 external oral HCPs. Mapped against the COM-B framework; **Opportunity**, particularly **Physical Environment, Context, and Resources**, was the most frequently coded construct. There was

also alignment with **Capability**, especially **Behavioural Regulation and Skills**, and within **Motivation**, beliefs about **Consequences** and **Capabilities**.

Conclusions: Access to external oral healthcare professionals, tailored training, and organisational support were pivotal to improving oral health in care homes. The study confirms that micro-level interventions are insufficient, as structural barriers—including limited dental access, workload pressures, and inconsistent resources—continue to undermine practice. Care home staff emphasised condition-specific training and structured communication; relatives sought guidance to support loved ones; and external oral HCPs highlighted working and recognition of oral health as part of wellbeing. Aligning intervention design with the COM-B framework provides a pathway to address structural, motivational, and capability barriers as interacting influences on oral care behaviour in care homes. This study explains why existing interventions fail by illustrating how Capability, Opportunity, and Motivation intersect, advancing COM-B from a categorisation tool to an implementation-focused framework.

Keywords: Care home, oral health, COM-B

Background

Oral health care is an essential part of supporting older people to live full and healthy lives (1). As people get older, they experience physiological changes such as diminished bone density; potentially leading to tooth loss, weakened immune systems which can lead to oral infections and gum disease and chronic diseases (along with the medication taken for them), which can affect impaired saliva function, all of which adversely affect nutritional status (2-4). There are known links

between poor oral health and acquired pneumonia, heart disease, myocardial infarction, and thus preventable mortality (5). Maintaining good oral health is important for quality of life (6, 7) and helps people to speak clearly, and taste, chew, and swallow food (8). Oral health is also important for socialising, with people showing their feelings through facial expressions such as smiling. Getting oral health care right is therefore a key part of supporting older people's health, wellbeing, and dignity (4).

Oral health is mainly promoted through mechanical plaque control methods—such as toothbrushing, flossing, and interdental cleaning—and chemotherapeutic agents found in mouth rinses, toothpastes, and chewing gums (9). These measures, combined with regular professional care, can effectively prevent caries and periodontal diseases by controlling plaque and supporting fluoride protection (9). Physical and cognitive conditions associated with ageing such as arthritis, frailty, stroke, Parkinson's disease, and dementia can make it hard to hold and use a toothbrush, which means some older people may need help with maintaining their oral care (10, 11). This is particularly pertinent for those living in care homes. Care homes provide health and social care for what a recent estimate puts at nearly half a million people in the UK (441,479 carehome.co.uk). On average care home residents are living with six co-morbidities and taking up to eight different medicines that leave them susceptible to oral health problems (12). For example, most residents in care home settings live with cognitive impairment (70%) and/or frailty (60%) (13, 14). Over a quarter of this population (27%) are living with heart disease and 18% have experienced a stroke (15, 16).

Providing high quality care for this population requires a workforce that is capable, confident, motivated and supported. Care home staff report feeling unsupported

and unappreciated (17, 18). Whilst many care home staff are highly knowledgeable and skilled, the care home workforce in the UK is comprised mainly of care workers that receive limited training for their roles (18). Most care workers do not possess any formal qualifications for this role and because care homes are isolated from the healthcare system, do not routinely benefit from the equivalent continuing professional development their counterparts in primary and secondary health-care services receive (19). As a result, care home staff may not always have the skills, knowledge and understanding to provide adequate oral care, particularly when a resident resists such care (20-22). When staff do not understand how dental pain or a mouth infection can affect a resident's general health, well-being and reactions, oral health care may not get as much time as is needed. Recent findings from the TOPIC feasibility study highlight that chronic time pressure, high staff turnover, and competing care priorities (e.g., pressure ulcer prevention) further constrain staff capacity to deliver routine mouth care, with some managers noting that oral hygiene may be deprioritised when workloads are high (25). Stakeholders in the study also described staff discomfort or uncertainty when providing oral care, particularly for residents with cognitive impairment, reinforcing the need for stronger training and organisational support. It is therefore important to understand the experiences of staff and how this influences their oral care practice/behaviours.

Despite extensive research in this area and the publication of formal guidance by the National Institute for Health and Care Excellence (NICE NG48) (11), awareness and implementation of these recommendations remain limited. The Care Quality Commission (CQC) has highlighted that many care homes lack oral health policies aligned with NICE guidance and that residents frequently encounter barriers to accessing dental services (23).To support implementation, a national toolkit was

developed to assist care homes and commissioners in applying NG48, providing practical resources for staff, residents, and families to promote oral health and reduce inequalities (24). However, findings from CQC inspection reports indicate that, while local initiatives and co-produced resources can improve awareness and practice, challenges persist in embedding oral care into routine provision. Recently published work , such as the TOPIC feasibility study (A feasibility study of the costs and consequences of improving the oral health of older people in care homes) (25) tested how complex interventions based on NG48 (11) combining staff training, oral health assessments, and daily assisted tooth brushing—can be effectively incorporated into everyday care.

To address these challenges, behaviour change theory offers a structured way to understand the experiences of residents, relatives and external oral healthcare professionals, and to influence oral care practices in care homes (26, 27). The COM-B model (Capability, Opportunity, Motivation – Behaviour) and the associated Theoretical Domains Framework (TDF) have been widely applied in health research to identify determinants of behaviour and inform intervention design (28). Applying COM-B to oral health enables a systematic exploration of what helps or hinders care staff in providing effective mouth care, moving beyond individual knowledge gaps to consider organisational and systemic factors (28, 29). This paper presents findings of a qualitative investigation which sought to understand how to support residents in care homes with maintaining and promoting oral health. Care home staff, residents, and relatives identified in previous work by the research team as a shared priority, yet many staff report lacking the personal skills, organisational support, and confidence to deliver consistent oral care (20). Our care home PPIE partners have suggested that initial efforts should focus on supporting staff

behaviours and commitment to deliver effective “mouth minutes” of care as part of daily routines

Aims

This study aims to explore the perspectives of care home and dental stakeholders towards supporting oral health maintenance in care home residents, including residents and their relatives, care home staff, and external oral healthcare professionals with care home experience in the UK. The COM-B model of behaviour change was applied to explore the facilitators/opportunities and barriers/challenges for embedding staff behaviours to promote oral health interventions.

Methods

Design

This qualitative study was part of a wider NIHR funded study entitled COMMIT (NIHR131506 Caring Optimally: promoting effective Mouth MInuTes in care homes). Prior to conducting this study, the research team carried out 2 evidence syntheses with the following aims:

> Through an overview of systematic reviews to identify the range and effectiveness of interventions or strategies in the care home setting which help care home staff to support residents with oral health maintenance (30)
>
> To identify and synthesise published research on the individual (micro), organisational (meso) and wider social and political (macro) factors that influence oral care provision for older people in long-term residential care (31)

These two reviews were used to inform the development of topic guides for discussions within focus groups and interviews with key stakeholders involved in the oral health maintenance of residents in care homes.

Topic guide development

We developed 4 separate topics guides for discussions within the following stakeholder groups informed by the previous evidence synthesis (31) which found that barriers and enablers for oral care differed by group: (1) residents and relatives, (2) care home frontline workers, (3) care home managers and (4) external oral healthcare professionals (Oral HCPs) with care home experience.

The topic guides were developed in several steps.

1. **Analysis of evidence gaps and areas of uncertainty in the published research.** This process was guided using the COM-B model of behaviour (32). For each COM-B domain (Capability, Opportunity and Motivation), we used the findings of the overview of systematic reviews to identify gaps, uncertainties and conflicting findings in the published literature on approaches to improving oral health care in the care home setting. Information from the scoping review which identified barriers and enablers to oral health maintenance in care homes at micro, meso and macro levels was frequently used as a starting point within the focus groups and interviews.

2. **Preparation of topic guides in lay language.** At this stage, the topic guides were rewritten in lay language by two researchers experienced in topic guide development and reorganised to address what the research group felt were the most important topics first, and to combine similar questions under common topics and prompts.

3. **PPIE consultation**. The final and crucial step utilised the first-hand experience of two of our research team's Participant, Patient Involvement and Engagement (PPIE) representatives. These individuals were very valuable in providing advice on the language used and pointing out which concepts needed to be defined at the start of the meeting (for example, distinguishing between routine mouth care from mouth care at the end of life. Their input also informed and refined the order of importance of the topics for discussion. The topic guides were then used in the focus groups; reordering and rephrasing as necessary to keep a natural conversation flow in the group. Each focus group was used to inform subsequent groups, for example to compare and contrast different perspectives on the same topic and constantly revised and updated in line with the iterative process of qualitative enquiry (33).

Sampling strategy

Within the identified groups of the sample population (residents and relatives, care home frontline workers, care home managers and external oral healthcare professionals) recruitment followed a convenience approach in terms of individual participant characteristics, and we prioritised diversity in geographical location throughout the UK (with representation sought from the devolved countries in all groups), and type of care home.

Recruitment of Care Home Stakeholders: Recruitment from the care homes (incorporating 3 of the participant groups; residents and relatives, care home frontline staff and care home managers) was facilitated and undertaken by author RD who has an established relationship with the care homes through the Nurturing Innovation in Care home Excellence in Leeds (NICHE-Leeds) partnership between

academia and care organisations (34). The study was advertised via email through existing University of Leeds research team networks, to care homes which are part of the NICHE-Leeds partnership. The advertisement was disseminated through these networks to participants via a combination of face-to-face information delivery and emails. RD then approached the care home managers with whom a collaborative research relationship was already established, and they were asked to disseminate the recruitment information further to the residents and relatives and care home frontline workers.

Recruitment of dental stakeholders: Recruitment of external oral healthcare professionals was designed to include participants from England, Scotland and Wales in order to capture contrasting commissioning, service delivery and implementation contexts within the UK, allowing analytic comparison of how structural Opportunity varies across devolved systems.GD/JC approached external oral healthcare professionals through their UK based professional networks with recruitment information via email.

Data collection

Table 1: Participant numbers by data collection method and participant group (to be inserted here)

Table 1. Participant numbers by data collection method and participant group

Group \ Method	Online focus groups (n=4 sessions)	Face-to-face focus groups (n=2 sessions)	Online interviews (n=1)	Total
Residents	0	11	0	**11**
Relatives	3	2	1	**6**

Care home staff (managers + frontline)	7	18		**25**
External oral HCPs	8			**8**
Total participants				**50**

Participants were interviewed only once and interviews and focus groups lasted between 30mins – 90 mins. The online interview and focus groups were conducted via Teams meeting by authors KVC, JC, SE, MJ & KS (all female academics with experience of undertaking qualitative research who were not previously known to the participants). The face-to-face focus groups was conducted in a private room in the care home where the residents live, and the staff worked. The interviews and focus groups were audio-recorded and transcribed for subsequent data analysis. Written informed consent was obtained from all the participants. We did not use "data saturation" as an evaluative criterion because the study aimed to capture variation across multiple stakeholder groups (care home workers, managers, relatives, and external oral healthcare professionals), making the traditional expectation of thematic exhaustion neither feasible nor conceptually appropriate. Instead, we assessed data adequacy using established qualitative markers of analytic sufficiency, including: (i) breadth of representation across stakeholder groups; (ii) information power, evaluating the relevance and richness of the data in relation to the study aims; (iii) conceptual depth and recurrence of key behavioural mechanisms across cases; and (iv) cross-case corroboration of themes within the COM-B framework. This approach aligns with contemporary guidance for heterogeneous qualitative samples, where the analytic goal is to illuminate diverse perspectives rather than achieve saturation of views. (35)

Analysis

The analysis was undertaken at a semantic level based on a framework approach (36) and following Gale et al 's recommendations (37). Transcription was performed by a university approved external transcription service, with stages 2 to 5

(identifying a thematic framework, indexing, charting and mapping and interpretation) worked in collaboration between the authors JC & KVC and 2 data coders handled by a university approved external analysis company. Matrices were created in Microsoft Excel for each participant group based on the topic guide per transcript and were refined by two members of the analysis company, starting with residents and relatives and then adapted for other groups. Minor edits were made during charting. For quality assurance, 20% of charting from one transcript per group was checked by a senior analyst. All matrices were reviewed for consistency and accuracy by the senior analyst, ensuring data was correctly placed and coded appropriately.

Once matrices were returned to the research team, they were mapped onto a coding guideline, which provided explicit statements indicating TDF domains where change could facilitate behaviour modification, followed by the COM-B model (38).

Triangulation of participant opinions aimed to explore differing perspectives and understandings from care home residents, staff, and external oral healthcare professionals, addressing challenges and opportunities for oral healthcare provision from a system-wide perspective.

The synthesis of COM-B codes across groups sought to answer the research aim: understanding what matters for individuals in care homes, identifying effective strategies, and exploring opportunities and challenges for embedding staff behaviours to promote oral health interventions.

Results

Participant Characteristics

Fifty participants from three care homes (residential and nursing homes), and external oral healthcare professionals in England, Scotland and Wales took part between June 2022 and November 2022. The purposive sample was of the following populations, represented by 11 residents, 6 relatives, 25 care home staff (managers and frontline workers) and 8 external oral HCPs.

Residents' ages ranged from 71 years to 100 years old. Their relatives' ages ranged between 56 and 70 years. The majority were female (n=14), were in Yorkshire and lived in or visited in the care home between 6 months and 7 years.

Twenty-two care home staff in various roles participated (junior through to senior care staff and care home managers). Their ages ranged between 21 and 61 years old. The sample was mainly comprised of white (n=15), females (n=18), which is reflective of the current care home workforce. Care homes were spread across Yorkshire, Cumbria and the South of England. Staff had worked in their role between 1 month and 11 years.

External oral health care professionals included an oral care educator, senior dental officers (n=3), speciality dental resident (n=2), senior dental officer, dental therapist and educator and an oral care improvement team leader. Ages ranged between 28 and 61 years old. They were all white ethnicity and had worked in their role between 6 months and 24 years. Including professionals working across different national systems enabled exploration of how variations in commissioning, integration and service availability shape the practical delivery of oral healthcare to care home residents.

Table 2: Participant characteristics (to be inserted here)

Findings:

Analysis of the data, mapped against the COM-B framework, revealed that **Opportunity**, particularly within the domain of the **Physical Environment, Context, and Resources**, was the most frequently coded construct. There was also alignment with **Capability**, especially **Behavioural Regulation and Skills**, and within **Motivation**, notably beliefs about **Consequences** and **Capabilities**. These findings reflect the complex ecosystem of factors influencing oral health care delivery in care home settings, drawing attention to wider structural (macro) factors, interpersonal (meso) factors and the individual (micro) psychological enablers and barriers. Beyond this descriptive mapping, our analysis revealed cross-domain tensions and overlaps that shape whether mouth care is enacted: (i) a tension between resident autonomy and staff duty of care (Motivation ↔ Opportunity); (ii) a contradiction between checklist-based regulation and relational practice (Capability ↔ Motivation); and (iii) a trade-off between digital systems and embodied/experiential knowledge (Opportunity ↔ Capability). These dynamics indicate that COM-B domains do not operate in isolation; they co-produce behaviour in ways that can either work with or against the intended effects of single-domain interventions. Importantly, the analysis shows that COM-B domains do not operate independently in care homes; instead, they interact dynamically, with constraints or reinforcements in one domain reshaping how the others function at the point of care.

Opportunity: Physical Environment, Context, and Resources

Access to External Dental Professionals

Access to external oral health care professionals was important across all participant groups. For care home frontline workers and managers, systemic barriers such as logistical constraints, lack of domiciliary dental services, and challenges in coordinating appointments for residents – particularly those with dementia or mobility issues – were recurrently highlighted. These barriers resulted in significant inequities in delivery of external oral health care by professionals, often leaving vulnerable residents with unmet needs. Analytically, these accounts show Opportunity (service availability, transport, remuneration) acting as a ceiling on both Capability (staff skill use) and Motivation (staff intention to act): when access is uncertain or delayed, staff re-prioritise tasks and residents forego care, even when clinicians and carers are motivated to intervene.

> *"One of the biggest challenges is identifying a dentist when you need a dentist... and then how do we support that person to receive the dental care?... they can't go to a dental surgery, sit in a dental chair... especially for those residents with dementia." (Care Home Manager 024)*

External oral healthcare professionals (HCPs) echoed these concerns and called for deeper integration of external oral healthcare professionals within care home teams. Their plea for a shift away from viewing oral health services as an “external” or peripheral component of care underscores the current disjointedness of care delivery models. This highlights an **Opportunity–Motivation** contradiction: oral health is valued, yet organisational arrangements keep it peripheral, impacting upon motivation of mouth care within daily routines.

> *"We need to be more integrated into the care setting team... not seen as just the person coming in to do the teeth or as a bit of an inconvenience." (External Oral HCP 041)*

Notably, while relative's responses infrequently considered ‘Opportunity’ overall, they too expressed uncertainty about how to navigate access to dental care, suggesting a need for clearer communication pathways and accessible referral systems. This underscores how micro-level **Motivation** (relatives’ concern) is thwarted by meso-/macro-level **Opportunity** gaps (referral pathways).

> *“I asked if my dad could be referred to the community dental service and they said no, we’ll need to speak to the GP, which shouldn’t be the case, and they’ve still not done it*.” (Relative 044)

Products and Resources

Limited access to oral hygiene products and the inconsistencies around who is responsible for their provision emerged as significant challenges. Some care homes relied on families to supply these items, but this arrangement was inconsistent, particularly for residents without regular visitors. In response, some proactive staff created internal systems – such as emergency “mini shops” – to mitigate these gaps.

> *"I have like a checklist for everybody... I’ll contact the families... we have like a little mini shop... if anybody... doesn’t have family close by, then I’ll go and do a shop weekly." (Care Home Manager 028)*

The lack of standardised protocols on oral care product provision may contribute to inconsistent care quality. Our findings suggest this inconsistency also muddies

accountability of product provision which can weaken **Motivation** such as beliefs about consequences.

Processes Supporting Oral Health Activities

Participants in all groups reported that embedded processes for staff within the care home – such as handovers, care planning, and issue-flagging mechanisms – played a crucial role in enabling the consistent delivery of oral care, ensuring oral care wasn't missed or overlooked. Care Home Managers placed emphasis on care plans and audit trails, highlighting their utility in promoting continuity across staff shifts and during transitions. However, care home staff, residents and relatives also reported inconsistencies in where and how oral health information was stored and accessed.

> *"It used to all be in there [information on oral health care performed], but I think they've added it to the computer." (Relative 002)*

> *Any care that someone received is all on the electronic, on the cloud-based document, so they would all go on there. But you know we do team handover and if someone was worried about someone that is that's the time it will flare up someone will say ohh her teeth are really bad yesterday or go. Have you seen the state of those dentures they're really you know they're really loose or so so need some fixodent because their teeth are are loose. So I think yeah. So that's sort of times there verbalised is is when we're having those discussions about how we're gonna or someone will say ohh he's not eating really well. And I said well it's good he's teeth in." (Care Home Manager 026)*

This confusion suggests a digital divide and lack of training or system design that supports user-friendly access to electronic care records. Aides-mémoires and

technology which were seen as tools to improve efficiency by care home managers and some care home frontline workers. However, for some care home frontline workers these electronic tools were conversely seen to get in the way of communicating clear messages about oral health care, creating more formulaic interactions not based on resident's needs. We interpret this as a digital–embodied contradiction: electronic prompts can strengthen **Capability** (behavioural regulation) and **Opportunity** (information availability), yet they risk displacing embodied knowledge gained through relational assessment (Motivation → beliefs about consequences, professional identity).

> *"....recognizes the trickiness to get balance right between patient's preferences regarding routine versus something that is implementable and ensures things don't get forgotten" (External Oral HCP 041)*

Barriers to Oral Health

Multiple barriers to care delivery were identified, including structural issues exacerbated by COVID-19 (e.g., mask-wearing limiting visibility of oral problems as well as limiting communication and visual cues to those with communication difficulties), hospital admissions leading to declines in oral health through lack of oral hygiene for prolonged periods or deterioration/loss of weight due to illness affecting denture fit. Care home managers highlighted difficulties with denture maintenance as an ongoing challenge. The challenge of staff turnover was mentioned as another structural issue especially when there was a sole reliance on an "oral health champion", their departure often left gaps in knowledge, care continuity and quality. This illustrates a **Capability–Opportunity** dependency:

when expertise is concentrated in a single champion, capability loss cascades into organisational **Opportunity** deficits (no one to coordinate, mentor, or audit).

> *"The trouble is with honestly with the through put of staff as well, it's sometimes falls off, you're suddenly lose your your oral health champion and it it will be on your radar that you've actually lost that person." (Care Home Manager 025)*

Time pressures for care home frontline workers were concerning. Oral care was often the first task to be missed in the face of competing priorities, especially when routines were disrupted. We conceptualise this as an **Opportunity-**saturation effect: when routines are crowded, mouth care—though valued—gets systematically postponed, eroding **Motivation** (perceived importance) over time.

> *"But it's it's the balance, isn't it? Because it's if it doesn't get done, then chances are by the time they finish their breakfast and then they move on to whatever they're doing and get a cup of tea, then you know it it....It's just going to get missed and get missed and get missed. And unless it happens at that time". (Care Home Manager 026)*

These insights point to the critical importance of embedding oral health more firmly into daily routines and care priorities, alongside systemic resourcing to address staffing shortfalls.

Motivation: Beliefs About Capabilities

Balancing Resident Autonomy and Acceptance of Care

Care home frontline workers described complex negotiations between respecting resident autonomy and ensuring essential care was delivered. Resistance to care –

particularly among residents with dementia or past trauma – was a recurring issue, often requiring patience, creativity in delivery, and compassion. Here, **Motivation** (respect for autonomy, empathy) collides with **Opportunity** (time, staffing, consent policies), creating ethical discomfort that can reduce the likelihood of re-attempting mouth care.

> *"They don't want somebody prodding about in their mouth... they're just like, what's the point?" (Care Worker 030)*

Staff demonstrated sensitivity to resident dignity, choice, and autonomy, often using techniques such as mirroring or gradual encouragement to gain cooperation. Yet, the burden on staff to make these fine judgements, often under time pressure, was evident.

> *"You might get the odd ones that say, oh don't bother brushing them today, but we encourage it....but we don't force it...Because it's their choice. I tend to find that some of the residents that don't want to brush their teeth, if I offer to help them, they will let me help them, the majority of the time. Yeah, if they haven't got that grip, or they can't get their elbow up or, you know. (Care Home Worker 018)*

Role-reversal exercises during training (e.g., having carers experience being on the receiving end of toothbrushing) were reported as transformative in enhancing empathy and understanding of how invasive oral care can feel. This points to training as a dual-domain mechanism: it builds **Capability** (skills, behavioural regulation) and strengthens **Motivation** (professional identity, empathy).

“in the nursing home that I used to work in, we used to, like, do things where we'd do role reversal.

..... But we'd also brush each other's teeth. Which I had no problems brushing people's teeth,

until someone tried to brush mine. And it was very strange, and it just made me more conscious

that, how sort of like, intimidating, sometimes, it can be.” (Care Home Worker 034)

Team-Based Approach to Care

There was strong consensus that oral care delivery should be a collective responsibility across all participant groups from care home staff to residents and relatives. For Care Home Staff, a team approach was seen as essential and emphasised the importance of shared accountability, proactive reporting, and responsiveness among teams. Care Home Managers spoke of difficulties in managing care home worker resource with limited availability of frontline workers (both in numbers and in time) to help support oral care delivery. Analytically, cohesive team norms (social **Opportunity**) appear to buffer against individual **Capability** gaps and sustain **Motivation** under pressure; however, variability across homes indicates that team culture is itself contingent on structural resourcing and leadership (Opportunity).

"If someone’s not eating really well... someone will say, 'Well, has he got his teeth in?'" (Care Home Manager 024)

Moreover, risk assessment and escalating concerns to management were embedded in team processes, reflecting a positive culture of vigilance. However, variability in how consistently this was applied across homes was noted.

Training and Confidence Building

A strong desire for hands-on, practical training was expressed across all groups. Participants favoured face-to-face learning over remote (e-learning) or theoretical formats, with a clear preference for training grounded in real-world scenarios and resident-specific challenges. This further illustrates overlap: training influences both **Capability** (procedural skill) and **Motivation** (confidence, perceived self-efficacy).

> *"They tend to pick it up more if it's being observed... they switch off otherwise." (Care Home Manager 024)*

Care Home Staff expressed a need for training to build confidence in supporting residents with their oral care, particularly in tasks such as denture care and identifying oral health problems. Care Home Managers noted that many care home frontline workers had a limited understanding of the consequences of poor oral hygiene, both for systemic health and residents' overall well-being.

> *[oral healthcare routines] “narrows down a little bit when someone's in care, it's just a case of maybe cleaning your dentures, and so on. So, there's kind of that practical training of cleaning teeth, dentures, and so on. But, for me, looking at the bigger picture, and I say this because my father actually had oral cancer, well he had throat and tongue cancer….. So, I think it's recognising the mouth environment itself, and what looks healthy, and what doesn't. And knowing what to do, and how to escalate it. (Care Home Worker 038)*

External oral healthcare professionals who had been involved in delivering oral healthcare training within care homes highlighted that boosting the confidence of care home frontline workers is essential to empowering. They emphasized the importance of praising frontline workers and acknowledging their efforts, noting that overly high expectations of staff development can discourage engagement in training and improvement activities. They also suggested their view that it was of limited impact to “throwing legislation at carers” (External Oral HCP 042).

Relatives were concerned about residents impaired physical and mental capacities to maintain their oral health, emphasising the need for psychological and physical skills training to assist their loved ones. For some this occurred via ‘checking’ or observing whether oral healthcare had taken place.

> *"There have been times when I'm 99.9 per cent sure that my mother hasn’t been assisted to brush her teeth, because she can't, she doesn't always remember now, the last couple of months, things have changed. And her toothbrush has been dry, which I think is a bit of a tell-tale. And I have raised it with the staff, and I know they’ve acted on it, and I think it's probably better, now." (Relative 046)*

Capability: Behavioural Regulation and Skills

Routine, Regulation, and Assistive Structures

Care home staff emphasised the importance of embedded routines and systems, such as care plans, checklists, and digital prompts, to help ensure oral care was consistently delivered to residents in the care home. Where effective, these systems functioned as behavioural nudges, alerting staff when tasks were missed.

"It's flashing up {[electronic record] telling you it's not being done." (Care Home Manager 033)

However, staff also warned of "checklist fatigue" – where administrative tasks can become counterproductive, especially when time pressures are high, acknowledging that there were many areas of care to be implemented daily.

> *"By implementing a checklist, you're actually taking more time away from them."* (Care Home Manager 026)

Assistive technology was seen as potentially beneficial, but only if embedded within user-friendly and responsive systems that supported rather than burdened staff. We term this the proceduralisation paradox: the same **Capability** tools (checklists, prompts) that secure coverage can erode **Motivation** (sense of professional judgement, relational connection) when poorly aligned with workflow or when performance is audited primarily via documentation.

Enhanced Training

The need for enhanced, resident-specific training was a recurring theme. HCPs advocated for developing care home frontline workers' understanding of how oral health relates to broader systemic conditions, such as pneumonia or diabetes.

> *"They've got to see it... understand it as well – why am I doing this? What will happen if I don't do this?" (Care Home Manager 024)*

Carers were recognised by professionals as "experts on the ground," and there was mutual respect between HCPs and care staff. Relatives sought training to develop the skills necessary to assist with oral health care, particularly for residents with impaired physical or mental capacities. They highlighted the importance of

understanding how to support residents who find care traumatic. External Dental Care Professional -led (a person qualified to practise certain aspects of dental care) workshops were seen as effective, particularly when acknowledging the day-to-day realities of care provision.

Motivation: Beliefs About Consequences

Importance of oral health impact on health, not just tick boxes

This domain was particularly strongly coded for managers and relatives, reflecting their emphasis on the *why* of oral care. Rather than seeing it as a “tick-box” task, many participants underscored the broader consequences of poor oral hygiene – including systemic illness, psychological distress, and loss of dignity. However, increasing **Motivation** (through consequence-framed messages) without addressing **Opportunity** constraints (time, access, supplies) risks moral distress and disengagement.

> *"It’s not just about keeping their mouth clean… you’ve got to observe… they might have gum sores or bleeding."* (Care Home Worker 023)

Relatives worried about the inability of residents to verbalise oral discomfort, highlighting the importance of care home frontline workers being able to interpret behavioural or physical cues accurately.

> *"They might not see the importance of dental visits 'coz of age'… harder with family who don’t visit."* (Care Home Worker 049)

Others emphasised the psychological effects of poor oral hygiene – such as diminished confidence and identity – particularly in residents with pre-existing

anxiety about dental care which has often meant that they haven't visited a dentist or received dental professional care for a long time.

> *"Some haven't seen a dentist in 50 years because they're petrified... it's quite an invasive and scary procedure."* (Care Home Manager 028)

Discussion

Across all participant groups, access to external oral healthcare professionals, tailored training, and organisational support emerged as pivotal to improving oral health in care homes. Care home frontline workers and care home managers emphasised practical, condition-specific training and structured communication; relatives sought guidance to assist their loved ones; and HCPs highlighted the need for integrated working and recognition of oral health as part of overall wellbeing. These findings align with recent TOPIC feasibility work showing that limited access to dental services, workforce pressures, and documentation variability remain persistent barriers to equitable oral healthcare (25).This study reinforces and extends previous reviews (30) (31), showing that sustainable oral-care improvements depends on interrelated opportunity, capability, and motivation. System-level constraints (at the meso and macro levels) including restricted access to external dental professionals, insufficient training, high staff turnover, and inconsistent resource continue to undermine the delivery of effective oral care. As TOPIC also demonstrated, staff turnover, time pressure, and organisational inconsistency present substantive challenges to embedding oral-care routines. As such, micro-level interventions alone cannot address the complexity of everyday practice, and attributing poor oral care solely to frontline staff is inappropriate. Although staff shortages, workload pressures, and limited training affect care

quality, the time and attention staff can devote to oral health must be understood within this broader systemic context.

Participants' emphasis on regular dental input, structured routines, and adequate supplies highlights that environmental and organisational factors critically shape implementation. Similarly, practical, hands-on training and embedded routines were viewed as essential for building confidence and consistency—an observation consistent with earlier evidence showing the effectiveness of experiential education tailored to residents' cognitive and physical needs. These findings underscore the value of managerial and multidisciplinary collaboration in sustaining oral-care practices.

More broadly, the study contributes three advances to qualitative and implementation research in this area. First, its multi-stakeholder design enabled triangulation across residents, relatives, frontline staff, managers, and external professionals, demonstrating that COM-B determinants are experienced differently across groups. This moves beyond descriptive accounts to show how behavioural influences interact—and at times conflict—in daily practice, producing tensions such as autonomy versus duty of care, relational practice versus procedural requirements, and digital documentation versus embodied knowledge. Rather than treating Capability, Opportunity and Motivation as static categories, the study conceptualises them as relational processes that are continuously negotiated within organisational routines, ethical judgments and material constraints. Second, by identifying these cross-domain tensions, the study refines the application of COM-B for complex relational care settings, emphasising dynamic, rather than static, interactions among capability, opportunity, and motivation. Third, the findings challenge deficit-based explanations focusing narrowly on staff skills, showing

instead how structural opportunity constraints, emotional labour, and divergent interpretations of roles collectively shape oral-care behaviours. These insights provide a more nuanced behavioural diagnosis and a foundation for designing multi-level, context-sensitive interventions that address the limitations of traditional education-focused approaches.

Including theory in the design of behaviour change

If an intervention is attempting to change a behaviour, then it is advocated that the intervention should be underpinned by behaviour change theory. Interventions grounded in behavioural theory have consistently been shown to be more effective and sustainable than those developed without a theoretical underpinning (39-41). Over the last decade, the integration of multiple behavioural theories has culminated in the development of the COM-B model This model conceptualises behaviour as the product of an individual's Capability, Opportunity, and Motivation (COM-B) (41). This framework provides a structured lens for understanding the psychological, environmental, and contextual factors that influence health-related behaviours and has increasingly informed the design of interventions across healthcare settings, including oral health promotion (28).

To strengthen triangulation across stakeholder groups, we conducted an explicit comparison of how residents and relatives, care home frontline workers, care home managers, and external oral healthcare professionals understood key COM-B domains. This analysis revealed important convergences and divergences. Convergences were most evident around Opportunity, with all groups emphasising barriers such as limited access to external dental professionals, uneven product availability, and staffing capacity constraints. These shared concerns indicate a

cross-stakeholder recognition that structural conditions strongly shape whether oral care can be delivered consistently. All groups also valued practical, hands-on training for enhancing Capability, and acknowledged the significant consequences of poor oral health for residents' comfort, dignity, and wellbeing (Motivation). Divergences emerged in how groups interpreted and prioritised these domains. Frontline workers emphasised workflow pressures, resident resistance, and the emotional labour of mouth care, while managers focused on documentation, audit trails, and regulatory compliance. Relatives interpreted oral health primarily through communication gaps and visible omissions, framing their concerns around advocacy. External oral healthcare professionals highlighted structural commissioning barriers and the lack of integrated service models. These differences shaped how each COM-B domain was understood: Opportunity was viewed by relatives as access to dental services, whereas frontline staff saw it as staffing and workflow. Capability for staff centred on confidence and practical skills; for managers, it centred on procedural and regulatory compliance. Motivation varied across groups, with relatives emphasising health and dignity consequences, managers emphasising organisational responsibility, and staff highlighting self-efficacy and the need for positive reinforcement. These triangulated insights underscore that effective intervention design must accommodate differing stakeholder priorities and interpretations of oral care. Tailoring intervention components to stakeholder roles, aligning expectations around responsibility, and addressing system-level barriers alongside individual-level behaviour change are essential for successful implementation. Without this alignment, initiatives such as enhanced documentation or family guidance risk being mis-matched to the pressures or needs of other groups. A triangulated, multi-stakeholder understanding

therefore strengthens the behavioural diagnosis and supports intervention strategies that are both context-sensitive and feasible within real-world care home environments. These divergences have direct implementation consequences. Interventions designed primarily from a managerial or regulatory perspective, such as enhanced documentation requirements, risk increasing cognitive and time burdens on frontline staff, thereby reducing Motivation under conditions of opportunity constraint. Conversely, interventions focused narrowly on staff skills or motivation may fail if they overlook wider organisational pressures, referral bottlenecks or commissioning arrangements highlighted by managers and external professionals. Similarly, family-facing initiatives that improve awareness without clear operational pathways can generate frustration rather than improvement. These findings indicate that interventions are most likely to fail when they are designed around a single stakeholder logic while neglecting the competing pressures, priorities or resources of others.

The findings reinforce Aurlene *et al.*'s (42) conclusion that most oral health promotion interventions in residential aged care rely heavily on educational and demonstration-based techniques aimed at individual behaviour yet seldom address the structural determinants necessary to implement and sustain change. The TOPIC study strengthens these observations by demonstrating that organisational pressures—including staff capacity, documentation practices, and external dental service availability—directly shape opportunities for behaviour change, often limiting the feasibility of sustained oral health routines (25). Aurlene *et al.* further demonstrated that interventions employing broader behaviour change techniques—such as "monitoring and feedback," "social support (practical)," and "restructuring

the environment”—yielded more durable outcomes than those centred solely on information provision or skill demonstration (42).

Our analysis contributes three theoretical insights for applying COM-B in residential care:

(1) Cross-domain tensions are constitutive, not incidental: autonomy–duty, procedural–relational, and digital–embodied contradictions actively shape behaviour at the point of care (Motivation ↔ Opportunity; Capability ↔ Motivation; Opportunity ↔ Capability), explaining why single-domain fixes frequently underperform.

(2) Dual-domain levers: training functions simultaneously on Capability and Motivation; documentation affects Capability (regulation) and Motivation (identity/ownership), implying interventions and evaluations should be specified across multiple domains.

(3) Opportunity-saturation effect: under chronic workload and access constraints, oral care becomes systematically deprioritised despite high Motivation, underscoring the need for structural protections (e.g., safeguarded “mouth-minutes”) and integrated external dental support (26).

Taken together, these insights extend COM-B from a static determinant model to a dynamic, relational account in which domains interact—sometimes synergistically, sometimes antagonistically—thereby clarifying why previous micro-level interventions struggled to embed and what multi-level configurations are required for sustained change.

Limitations of this study

Focus groups were initially selected as a familiar and resource-efficient method for engaging multiple stakeholder groups and were intended to support peer-supported discussion among residents. However, during fieldwork it became evident that this method was poorly suited to many care home residents, particularly those with cognitive, sensory or communication impairments. Group dynamics, fatigue and difficulties sustaining shared discussion limited residents' opportunity to contribute meaningful or representative accounts. As a result, residents contributed very little to the discussions, and the limited comments obtained lacked the depth or clarity required for meaningful analysis. We judged that presenting isolated or incomplete excerpts would risk misrepresenting residents' perspectives and therefore elected not to include these in the findings. This experience highlights the importance of method flexibility in research with vulnerable populations, and demonstrates that approaches commonly suitable for staff and relatives may inadvertently exclude residents themselves. Future studies should prioritise adapted one-to-one methods, supported communication techniques or observational approaches to ensure residents' voices are ethically and substantively represented.

A second limitation concerns the imbalance in the richness of data generated across participant groups. Although the study included residents, relatives, staff and external oral healthcare professionals, most substantive data came from care home staff and external oral healthcare professionals, who formed the largest participant groups and were more able to contribute fully within a focus group format. This resulted in a skew towards these perspectives within the final themes.

Recommendations for practice and policy

To enhance practical applicability, Table 3 synthesises the key COM-B barriers identified in this study with corresponding, feasible implementation responses. This study demonstrates that improving oral health in care homes requires both system-level commitment and practical, immediately implementable actions. At a policy level, oral health should be embedded more explicitly within care quality standards, commissioning frameworks, and multidisciplinary care pathways to ensure residents receive equitable and consistent support. Integration with external dental professionals, clearer referral routes, and recognition of oral health as fundamental to dignity, wellbeing and healthy ageing are essential priorities for long-term reform.

Within current constraints, however, several realistic and high-impact actions can be taken now. These include:

- incorporating **brief, hands-on oral-care training** into staff induction and supervision.
- strengthening **simple, low-burden processes** such as clear escalation pathways, routine handover prompts, and consistent documentation.
- protecting time for **daily “mouth minutes”** to ensure oral care is not displaced by competing tasks.
- providing **practical, accessible resources** that build confidence without requiring structural overhaul.

Together, these recommendations offer a pragmatic roadmap for improving oral care delivery while also signalling the wider system changes needed to achieve lasting, equitable standards across the care home sector.

Table 3: Takeaway messages for further research and intervention design (to be inserted here)

Conclusions

This study demonstrates that improving oral health in care homes requires understanding how Capability, Opportunity and Motivation dynamically interact to shape everyday practice, rather than treating these domains as isolated targets for intervention. Applying the COM-B framework across multiple stakeholder groups provided a more integrated understanding of how capability, opportunity, and motivation interact in real-world care environments, revealing both shared priorities and critical tensions that influence the delivery of mouth care.

The findings highlight the need for practical, immediately implementable actions—such as hands-on training, simple process prompts, protected “mouth minutes,” and clear escalation pathways—alongside longer-term structural changes that improve access to dental services and embed oral health within commissioning and regulatory expectations. Collectively, this work positions oral health as a core element of high-quality, person-centred care and offers a behaviourally informed roadmap for strengthening consistent, confident and compassionate oral-care practices across the care-home sector. Although grounded in oral care, the identified COM-B dynamics—particularly opportunity saturation and procedural–relational tension—are likely transferable to other intimate care practices in institutional settings, suggesting broader implications for behaviour change intervention design in health and social care.

Declarations

List of abbreviations

WHO – World Health Organisation

NICE – National Institute for Health and Care Excellence

CQC – Care Quality Commission

UK – United Kingdom

TOPIC - Improving the oral healTh of Older People In Care homes: a feasibility study

COM-B –Capability, Opportunity, Motivation, and Behaviour.

Oral HCPs – Oral Healthcare Professionals

TDF – Theoretical Domains Framework

NIHR – National Institute for Health and Care Research

COMMIT - Caring Optimally: promoting effective Mouth MInuTes in care homes

PPIE – Patient and Public Involvement and Engagement

NICHE Leeds - the Nurturing Innovation in Care home Excellence in Leeds

Ethics approval and consent to participate

This study has ethical approval, approved by University of Leeds, Leeds, United Kingdom, School of Healthcare Research Ethics Committee in October 2021 (HREC 21-004). This study was performed in accordance with this ethical approval and with the Declaration of Helsinki. Informed consent was obtained from all the participants. Data was collected and held in accordance with the Data Protection Act (2018) and the University of Leeds Information Protection Policy and Research Data Management Policy. For care home residents, capacity to consent was assessed in consultation with care home staff in line with usual care procedures and ethical guidance. Residents were provided with information in an accessible format, participation was voluntary, and consent was treated as an ongoing process, with withdrawal supported at any point. No proxy consent was used for this study, and additional safeguards—including familiar settings and staff availability—were in place to minimise distress.

Clinical trial number: not applicable

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

Funding

This research was undertaken as part of the Caring Optimally: promoting effective Mouth MInuTes in care homes (COMMIT Study). The COMMIT project has received funding from the National Institute for Health Research (NIHR), HSDR Oral and

Dental Health Call: NIHR131506. The funding body had no role in the design, collection, analysis, interpretation or writing of the manuscript.

Authors' contributions

KVC and JC undertook the analysis of the data set and mapping to the COM-B. KS, GD, AWG & RD made substantial contributions to the design of the work, data acquisition and interpretation of the data. MJ and SE made substantial contributions to the design, acquisition of data and interpretation of data. All authors have made substantial contributions to the drafting and substantive revisions of the work.

Acknowledgements

Not applicable

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Table 2: Participant characteristics

Participant type and ID	**Age**	**Gender**	**Ethnicity**	**Length of time living, visiting or working in**	**Location**	**Type of service**	**Method of participation**

				the care home			
Resident (001)	100	Female	White	6 months	Yorkshire	Residential	Face-to-face
Relative (002)	67	Female	White	6 months	Yorkshire	Residential	Face-to-face
Resident (003)	86	Female	White	7 years	Yorkshire	Residential	Face-to-face
Resident (004)	71	Female	White	2 years	Yorkshire	Residential	Face-to-face
Resident (005)	81	Female	White	missing	Yorkshire	Residential	Face-to-face
Resident (006)	97	Female	White	3 years	Yorkshire	Residential	Face-to-face
Relative (007)	58	Male	White	3 years	Yorkshire	Residential	Face-to-face
Resident (008)	94	Female	White	missing	Yorkshire	Residential	Face-to-face
Resident (009)	96	Female	White	18 years	Yorkshire	Residential	Face-to-face
Resident (010)	97	Male	White	18 month	Yorkshire	Residential	Face-to-face
Resident (011)	missing	Female	White	missing	Yorkshire	Residential	Face-to-face

Resident (012)	missing	Female	White	missing	Yorkshire	Residential	Face-to-face
Resident (013)	missing	Female	White	missing	Yorkshire	Residential	Face-to-face
Care Worker (014)	21	Female	Asian	4 months	Yorkshire	Residential	Face-to-face
Care Worker (015)	41	Female	White	More than 10 years	Yorkshire	Residential	Face-to-face
Care Worker (016)	23	Male	Asian	1 month	Yorkshire	Residential	Face-to-face
Care Worker (017)	20	Female	White	2 years	Yorkshire	Residential	Face-to-face
Care Worker (018)	46	Female	Asian	More than 6 years	Yorkshire	Residential	Face-to-face
Care Worker (019)	24	Female	White	4 years	Yorkshire	Residential	Face-to-face
Care Worker (020)	61	Female	White	14 years	Yorkshire	Residential	Face-to-face

Care Worker (021)	29	Male	Asian	1 month	Yorkshire	Residential	Face-to-face
Senior carer (022)	40	Male	Black	7 weeks	Yorkshire	Residential	Face-to-face
Senior carer (023)	55	Female	missing	4 months	Yorkshire	Residential	Face-to-face
Manager (024)	40	Female	White	14 years	South England	Residential & nursing	Online
Deputy Manager (025)	42	Male	White	2 years	South England	Residential & nursing	Online
Manager (026)	54	Female	White	10 years	Yorkshire	Residential	Online
Activities coordinator (027)	31	Female	Indian	2 years	Yorkshire	Residential	Face-to-face
Manager (028)	46	Female	White	11 years	Yorkshire	Residential	Face-to-face
Care Worker (029)	52	Female	White	11 years	Yorkshire	Residential	Face-to-face
Care Worker (030)	59	Female	White	1 week	Yorkshire	Residential	Face-to-face

Senior carer (031)	52	Female	White	7 months	Yorkshire	Residential	Face-to-face
Senior carer (032)	46	Male	White	4 weeks	Yorkshire	Residential	Face-to-face
Manager (033)	30	Female	Black	1 year	Yorkshire	Residential	Face-to-face
Care Worker (034)	58	Female	White	8 years	Yorkshire	Residential	Face-to-face
Relative (035)	70	Female	White	2 years	Yorkshire	Residential	Online
External Oral Healthcare Professional (036)	52	Female	White	15 years	Scotland	N/A	Online
External Oral Healthcare Professional (037)	43	Female	White	6 months	Scotland	N/A	Online
External Oral Healthcare	28	Female	White	3 months	Scotland	N/A	Online

Professional (038)							
External Oral Healthcare Professional (039)	53	Female	White	24 years	Wales	N/A	Online
External Oral Healthcare Professional (040)	40	Female	White	6 years	Scotland	N/A	Online
External Oral Healthcare Professional (041)	61	Female	White	6 year	Scotland	N/A	Online
External Oral Healthcare Professional (042)	Missing	Missing	Missing	Missing	Scotland	N/A	Online
External Oral Healthcare	Missing	Missing	Missing	Missing	Scotland	N/A	Online

Professional (043)							
Relative (044)	56	Female	White	17 months	Midlands	Missing	Online
Relative (045)	66	Male	White	4 years	Yorkshire	Missing	Online
Relative (046)	60	Female	White	Missing	Yorkshire	Missing	Online
Care Worker (047)	Missing	Missing	Missing	Missing	Cumbria	Missing	Online
Senior Assistant Practitioner (048)	31	Female	White	4 years	Cumbria	Residential & Nursing	Online
Care Worker (049)	Missing	Missing	Missing	Missing	Cumbria	Residential & Nursing	Online
Senior registered nurse (50)	31	Female	White	7 years	Cumbria	Residential & Nursing	Online

Table 3: Linking key COM-B behavioural barriers to practical implementation responses for oral care in care homes

COM-B domain	What the scoping review found	What the consultation added	Design takeaway
Opportunity	Field concentrates on **environment/resources** & **social influences**; access to external dental support is pivotal.	Key issues included access to external dental professionals, product/supply chains, workable handovers, care plans, audits, and the need for integration	Build **in reach**, supplies, and **process prompts**; formalise collaboration. • Implement simple, low-burden processes (clear escalation pathways, consistent documentation, handover prompts). • Allocate protected “mouth minutes” within daily schedules to safeguard oral care even under workload pressures.
Capability	Training/mentorship/champions widely enabling; on-site/“on the job” preferred.	Condition specific, **hands-on** training; **behavioural regulation** via plans, refusal documentation, digital aids.	Pair **skill** development with **regulatory scaffolds** and supportive technology. • Embed brief, hands-on oral-care training within staff induction and ongoing supervision. • Provide tailored, practical guidance that enhances

			confidence without requiring major structural change.
Motivation	Emphasise **not blaming frontline workers**; highlight **consequences**; **optimism/goals** understudied.	Managers and relatives strongly emphasised **consequences**; frontline workers seek **confidence** and positive reinforcement.	Use **consequence framed** messaging; add **goalsetting** & **recognition**. • Reinforce oral care's impact on dignity, comfort, nutrition and wellbeing. • Provide regular feedback and recognition to strengthen staff motivation and ownership.