



## Barriers and facilitators to preventing pressure ulcers in nursing home residents: A qualitative analysis informed by the Theoretical Domains Framework



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### ABSTRACT

**Background:** Pressure ulcers are areas of localised damage to the skin and underlying tissue; and can cause pain, immobility, and delay recovery, impacting on health-related quality of life. The individuals who are most at risk of developing a pressure ulcer are those who are seriously ill, elderly, have impaired mobility and/or poor nutrition; thus, many nursing home residents are at risk.

**Objectives:** To understand the context of pressure ulcer prevention in nursing homes and to explore the potential barriers and facilitators to evidence-informed practices.

**Methods:** Semi-structured interviews were conducted with nursing home nurses, healthcare assistants and managers, National Health Service community-based wound specialist nurses (known in the UK as tissue viability nurses) and a nurse manager in the North West of England. The interview guide was developed using the Theoretical Domains Framework to explore the barriers and facilitators to pressure ulcer prevention in nursing home residents. Data were analysed using a framework analysis and domains were identified as salient based on their frequency and the potential strength of their impact.

**Findings:** 25 participants (nursing home: 2 managers, 7 healthcare assistants, 11 qualified nurses; National Health Service community services: 4 tissue viability nurses, 1 manager) were interviewed. Depending upon the behaviours reported and the context, the same domain could be classified as both a barrier and a facilitator. We identified seven domains as relevant in the prevention of pressure ulcers in nursing home residents mapping to four “barrier” domains and six “facilitator” domains. The four “barrier” domains were *knowledge*, *physical skills*, *social influences* and *environmental context and resources* and the six “facilitator” domains were *interpersonal skills*, *environmental context and resources*, *social influences*, *beliefs about capabilities*, *beliefs about consequences* and *social/professional role and identity*. Knowledge and insight into these barriers and facilitators provide a theoretical understanding of the complexities in preventing pressure ulcers with reference to the staff capabilities, opportunities and motivation related to pressure ulcer prevention.

**Conclusion:** Pressure ulcer prevention in nursing home residents is complex and is influenced by several factors. The findings will inform a theory and evidence-based intervention to aid the prevention of pressure ulcers in nursing home settings.

### What is already known about the topic?

- Pressure ulcers are usually avoidable, but continue to be problematic especially in older populations and those residing in nursing homes.

- Little is known about the barriers and facilitators to pressure ulcer prevention in nursing homes.

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## What this paper adds

- Fear of being reported to outside agencies such as the Care Quality Commission motivates nursing home staff to adhere to recommended pressure ulcer prevention practices. Community-based tissue viability nurses believe that many referrals from nursing homes to the NHS tissue viability service are inappropriate and more training for the nursing home staff is required. However NHS community-based tissue viability nurses have limited resources to provide training and nursing home care workers have limited resources to access training.
- Nursing home and NHS staff felt that good working relationships, both within and between teams, facilitated pressure ulcer prevention in nursing homes. It was also felt that these relationships could be complex and time pressures in both settings negatively impact on them.

## 1. Introduction

Pressure ulcers are defined as an area of localised damage to the skin and/or underlying tissue as a result of pressure or pressure and shear (National Pressure Ulcer Advisory Panel et al., 2014). Risk factors for pressure ulcers include, but are not limited to, increasing age, poor mobility, poor nutrition and multi-morbidity; putting many nursing home residents with multiple risk factors at the higher end of the risk continuum (Coleman et al., 2013; Moore and Cowman, 2012). In March, approximately 7388 (4.5%) individuals across different healthcare settings in England had pressure ulcers during the 24 h period when these data were reported (NHS Safety Thermometer, 2017). The prevalence of pressure ulcers among nursing home residents in the UK is unknown. Hall et al. (2014) conducted a point prevalence survey of people with complex wounds (including pressure ulcers) across a northern city in the UK. Hall et al. (2014) found that pressure ulcers were the most commonly reported complex wound and the point prevalence increased with age and was highest in people aged 90 years or above (22.88 per 1000 patients with complex wounds; 95% CI 19.08–27.42).

Pressure ulcers can be a major burden for patients and can cause pain (Pieper et al., 2009; Smith et al., 2017), distress and a loss of independence (Keen, 2009; National Institute for Health and Care Excellence, 2014). Pressure ulcers are believed to negatively impact on patient's health and health-related quality of life (Gorecki et al., 2011; Hopkins et al., 2006; Spilsbury et al., 2007). When a pressure ulcer develops, additional care is required causing a significant strain on National Health Service (NHS) resources. The treatment costs have previously been estimated to range from £1214 for a Stage 1 pressure ulcer to £14,108 for a Stage 4 pressure ulcer (Dealey et al., 2012). Moreover, serious complications often occur, for example cellulitis or gangrene, which can lead to amputation and in some cases death (Allman, 1997; Reddy, 2011).

The English National Patient Safety Agency (2010) distinguishes between avoidable and unavoidable pressure ulcers and regards the majority as avoidable when the correct preventative measures are used. There are currently several national and international clinical guidelines for the prevention of pressure ulcers (e.g., National Institute for Health and Care Excellence, 2014; National Pressure Ulcer Advisory Panel et al., 2014). These guidelines draw on both research findings and expert opinion, and recommend a range of activities and interventions to promote pressure ulcer prevention including risk assessment, skin assessment, repositioning, good hydration and nutrition, pressure redistributing devices and barrier creams.

In England, nursing homes are private organisations and are not obliged to follow national guidance such as that from the National Institute for Health and Care Excellence on the prevention and

management of pressure ulcers (National Institute for Health and Care Excellence: Pressure ulcers, 2014). As a consequence, the NHS does not have any legislative power over the care provided in nursing homes. However, the Care Quality Commission, an independent regulator of health and social care in England, requires all care provider organisations (including nursing homes) to report the development of Stage 3 pressure ulcers and above (Care Quality Commission Regulation 18: Notification of other incidents, 2009). If appropriate, the Care Quality Commission can refer a case to the police or local council concerning the safeguarding of individuals (Care Quality Commission, 2017).

A range of staff, including healthcare assistants and Nursing and Midwifery Council registered nurses, provide care in nursing homes. As nursing homes are largely independent organisations there is often little or no input from NHS community nurses. Nursing home staff are able to refer residents with a pressure ulcer to a NHS tissue viability nurse. The role of a tissue viability nurse is to provide advice about clinical practices, such as pressure ulcer prevention, rather than stipulate care and how it should be conducted. Thus, it is critical for the nursing home care staff to have their own knowledge of pressure ulcer prevention and assessment practices and the relevant evidence-based guidelines. However, translating guidelines into practice is often a slow and disorganised process (Eccles et al., 2009; Grimshaw et al., 2012); and guidelines themselves are insufficient for ensuring the implementation of best practices (Grimshaw et al., 2012). Moreover, the Care Quality Commission have raised concerns about the quality of the care some nursing homes provide (Care Quality Commission, 2017).

Several explanations are offered as to why guideline implementation is unpredictable and frequently sub-optimal (Flodgren et al., 2012; Grimshaw et al., 2012). Understaffing, high staff turnover and limited staff knowledge are the barriers often reported for the limited adherence to pressure ulcer prevention guidelines (Demarré et al., 2012; Donoghue, 2009); whereas communication and positive attitudes towards pressure ulcer prevention have been described as facilitators (Dellefield and Magnabosco, 2014; Hartmann et al., 2016; Worsley et al., 2016). To facilitate the uptake of evidence-informed guidelines in healthcare, care staff can become the potential target for behaviour change interventions. Having a theoretical understanding of the behaviours, attitudes and beliefs of care staff can increase the likelihood of their behaviour change (Baker et al., 2010).

Theory can be used to assist the interpretation and prediction of behaviours, enabling targeted interventions to be developed and evaluated (Corace et al., 2016; Michie et al., 2005). There are several behaviour change theories, many of which include similar constructs, making it difficult to decipher which are the most appropriate. Moreover, many theories include only a small number of constructs (e.g., Theory of Planned Behaviour, Health Belief Model), and it is possible that the key determinants of the target behaviour are not represented.

The Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2005) was developed in an attempt to improve healthcare researchers' access to psychological theory. The framework was developed by taking a systematic consensus approach to simplify behaviour change-related theories. The Theoretical Domains Framework consists of 14 theoretical domains taken from 33 theories and 128 constructs (see Table 1). The Theoretical Domains Framework can be used to explore the determinants of professional behaviour change and in turn inform intervention design.

Using the Theoretical Domains Framework, we aimed to explore staff perceptions of the barriers and facilitators to pressure ulcer prevention practices within nursing home settings across the North West of England. This study expands current knowledge by embedding the data collection and analysis within behaviour change theory to help inform the future development of a tailored pressure ulcer prevention intervention based on both theory and research evidence.

**Table 1**  
The Theoretical Domains Framework domains and definitions (Cane et al., 2012; Michie et al., 2005).

Theoretical Domains Framework domains	Definition
<i>Knowledge</i>	An awareness of the existence of something [knowledge (including knowledge of condition/scientific rationale), procedural knowledge, knowledge of task environment].
<i>Cognitive and interpersonal skills</i>	An ability of or proficiency acquired through practice [interpersonal skills]
<i>Behavioural regulation</i>	Anything aimed at managing or changing objectively observed or measured actions [self-monitoring, breaking habit, action planning].
<i>Memory, attention, and decision processes</i>	The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives [memory, attention, attention control, decision making, cognitive overload/tiredness].
<i>Physical skills</i>	An ability of or proficiency acquired through practice [skills, skills development, competence, ability, practice, skill assessment].
<i>Environmental context and resources</i>	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour [environmental stressors, resources/material resources, organisational culture/climate, salient events/critical incidents, person x environment interaction, barriers and facilitators].
<i>Social influences</i>	Those interpersonal processes that can cause individuals to change their thoughts, feeling, or behaviours [social pressure, social norms, group conformity, social comparisons, groups norms, social support, power, intergroup conflict, alienation, group identity, modelling].
<i>Social/professional role and identity</i>	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting [professional identity, professional role, social identity, identity, professional boundaries, professional confidence, group identify, leadership, organisational commitment].
<i>Beliefs about capabilities</i>	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use [self-confident, perceived competence, self-efficacy, perceived behavioural control, beliefs, self-esteem, empowerment, professional confidence].
<i>Optimism</i>	The confidence that things will happen for the best or that desired goals will be attained [optimism, pessimism, unrealistic optimism, identity].
<i>Intentions</i>	A conscious decision to perform a behaviour or a resolve to act in a certain way [stability of intentions, stages of change model, transtheoretical model and stages of change].
<i>Goals</i>	Mental representations of outcomes or end states that an individual wants to achieve [goals (distal/proximal), goal priority, goal/target setting, goals (autonomous/controlled), action planning, implementation intention].
<i>Beliefs about consequences</i>	Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation [beliefs, outcome expectancies, characteristics of outcome expectancies, anticipated regret, consequents].
<i>Reinforcement</i>	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus [rewards (proximal/distal, valued/not values, probable/improbable), incentives, punishment, consequents, reinforcement, contingencies, sanctions].
<i>Emotion</i>	A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event].

## 2. Methods

### 2.1. Study design

We conducted a qualitative study using individual semi-structured interviews. The Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2005) informed both the data collection and data analysis.

### 2.2. Participants

Purposive sampling was used to recruit registered nurses and healthcare assistants working in nursing homes and specialist nurses who regularly provide wound care advice and training to nursing home care staff in the North West of England (e.g., tissue viability nurses). A local NHS Trust providing community nursing services expressed interest in participating. Thus, the nursing homes that receive specialist input from the Trust were identified through an online search. This process identified 57 nursing homes, as well as the NHS Trust, as potential recruitment sites. The managers (nursing home and NHS) and tissue viability nurses were contacted via an invitation letter and a follow-up phone call. Six nursing home managers, one NHS manager and four tissue viability nurses expressed an interest in participating and they were asked to circulate the participant information sheet on behalf of the research team. Those who were interested in participating were asked to contact the researcher, and an appointment for the researcher to visit the nursing home was made. Interview participants were all asked to complete a consent form if they agreed to take part. Sample size was based on data saturation which was assessed using the criteria proposed by Francis et al. (2010), whereby data collection can cease when no additional codes emerge within three consecutive interviews following the analysis of at least ten interviews.

### 2.3. Data collection

The topic guide was developed based on the Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2005) which contains 14 domains related to practitioner behaviours (see Table 1). Consequently, each question was formulated to enable an exploration of each of the 14 domains in relation to pressure ulcer prevention practices in nursing home settings (see Appendix A for topic guide). The topic guide was piloted with two participants and no further changes were necessary, thus the pilot data were included in the main analysis. We collected demographic information relating to participants' experiences of working with individuals who are at risk of developing pressure ulcers (i.e. how long they have cared for those at risk, how long they had been in their current role, wound care qualifications specific to pressure ulcers).

Face-to-face interviews were conducted at the participant's place of work. Each interview was conducted by the same researcher [JL] to ensure consistency and was approximately 50 min in length depending on the work commitments of the participants. The interviews were audio-recorded, transcribed verbatim and proof-read. Names and organisations were removed from all of the transcripts to enable anonymity to be maintained and pseudonyms were provided.

### 2.4. Data analysis

Data were managed in NVivo 10. Using the framework method outlined by Gale et al. (2013) the transcripts were read and initially coded inductively and then deductively using the Theoretical Domains Framework, where specific themes and codes were categorised according to the related domain. If data were relevant to different domains, they were incorporated into the most relevant code. Data were analysed inductively to ensure important themes were not lost through

the deductive data analysis and no new themes were identified during the inductive analysis. All transcripts were analysed by one author [JL] and independently reviewed by another author [TG] to ensure the reliability of the coding. Any discrepancies were discussed and resolved and the content of each code was discussed with all of the authors. Seven of the Theoretical Domains Framework domains were considered to be important within the current context and the extent to which the domains were viewed as barriers or facilitators to pressure ulcer prevention in nursing home residents lies along a continuum. Thus we present the domains as either barriers or facilitators in the discussion only, to ensure important data are not lost during the presentation of the findings.

### 2.5. Reflexive account

Some of the authors have previously worked as a healthcare assistant [JL] or a nurse [TG; NC] and all have experience in conducting wound care research and qualitative research. This study forms part of the first author's PhD project and all of the other authors work within academia and research, and have previously gained their PhD. As the authors have experience in the delivery of care and conducting research into wound care, we continuously reflected upon the interview process and analysis to ensure the analysis was always a true reflection of the data.

### 2.6. Ethics

This study was given approval by The University of Manchester, together with approval from the Research and Development department at the participating NHS site.

## 3. Results

A total of 25 participants took part in semi-structured, face-to-face interviews from three nursing home sites which provide a range of care services including nursing, dementia, residential, respite, palliative and convalescent care for 70–125 residents each in the North West of England. The remaining 54 nursing homes either did not respond to the researcher or declined due to understaffing, sickness within the management team and having recently participated in research activities.

The age of the participants ranged from 26 to 55 years and two participants were male. The care staff included healthcare assistants (n = 7), registered nurses (referred to from now on as nurses; n = 11) and nurse managers (n = 2). Five NHS staff were also included: community-based tissue viability nurses (n = 4) and a community nurse manager (n = 1). The median years of experience in caring for those at risk of developing a pressure ulcer was 14 years (interquartile range: 8.5–23 years), and eight stated that they had attended pressure ulcer prevention training.

### 3.1. Knowledge

The views of the nursing home care staff and the tissue viability nurses differed. The care staff believed they had a good understanding of pressure ulcers, the various causes and prevention procedures (e.g., repositioning). However, many of the care staff were unable to specify any particular pressure ulcer prevention protocols endorsed by the home (e.g., National Institute for Health and Care Excellence guidelines) and the tissue viability nurses discussed their concerns regarding the pressure ulcer prevention knowledge of the care staff.

*"I don't believe people are managed individually on their individual risk factors. Everybody seems to get the same care in terms of people will do 2 hourly turns"* [Tissue viability nurse, 1].

The views of the tissue viability nurses were supported by the data provided by the nursing home care staff:

*"we do, like, a prevention plan, which everyone pretty much has one for prevention anyway. We put them on 4 to 2 hourly turns depending on how bad, usually it's 2 hourly turns"* [Nurse, 10].

### 3.2. Skills (skills development, interpersonal skills)

Nursing home staff spoke enthusiastically about training and the importance of keeping up-to-date with practices. Some explained that guidelines may have changed since they last attended training. The participants reported attending regular training for pressure ulcer prevention, but were uncertain about the content of the training, who provided it and when they last attended. The training of the nursing home staff was a concern for the tissue viability nurses. In particular, the tissue viability nurses wished to correct any wrong or biased information given by outside agencies including pharmaceutical companies. Thus, the tissue viability nurses provided training sessions for the nursing homes, but they explained that attendance was usually poor; perceived reasons for this included a curfew on training due to poor staffing levels and financial reasons.

The importance of good interpersonal skills (e.g., good communication and teamwork) was raised throughout all of the interviews. Communication was identified as occurring through several sources, namely handover and documentation. Documentation was used to communicate the care a person needed in the future but also the care they had received, with the nurses relying on the healthcare assistants to inform them of any changes to the residents.

*"if it's not been written down, it's not happened!"* [Healthcare assistant, 2].

*"communication is vital! You know, if they don't report to us, obviously we don't always know what's going on"* [Nurse, 7].

### 3.3. Social influences

All of the participants spoke about collaborating with the multi-disciplinary team when preventing pressure ulcers. The nursing home staff spoke about how they welcomed the input of the tissue viability nurses, dietitians and podiatrists. Four nursing home staff participants highlighted the importance of working together as a multidisciplinary team by speaking about the negative impact on them when their relationship with the tissue viability nurse had previously broken down. These four participants also reported a lack of confidence to seek assistance with pressure ulcer prevention as they felt there was little support available and they did not want to be blamed for the development of a pressure ulcer.

*"staff need to be treated not like they're incompetent children, because they're trained nurses."* [Nurse, 13].

### 3.4. Environmental context and resources

The nursing home staff saw the context of the nursing home as a facilitator to pressure ulcer prevention due to the long length of stay of residents. Consequently, the nursing home staff became familiar with their residents' needs and reported their ability to recognise even minor deteriorations in health. Thus, the nursing home staff developed tacit knowledge about managing pressure ulcer risk in the nursing home environment.

*"you can kind of tell when someone's a bit off because you know them, er, or you can kind of tell when somebody's mobility's not as good as it*

*was or they're not eating as well as they should. So I think because I know them, that helps.*" [Nurse, 6].

The environmental context was also discussed as being problematic as a nursing home becomes a resident's home, making it difficult to maintain residents' adherence to pressure ulcer prevention practices in the long-term. This was particularly problematic when the participants spoke about the adherence to pressure ulcer prevention practices throughout the night. The participants explained that the residents did not wish to be disturbed by staff trying to reposition them every two to four hours. Whilst repositioning was the main practice reportedly affected by resident "non-compliance", the participants explained that the residents would sometimes refuse food, fluids and creams (e.g., barrier cream). When discussing poor adherence, a resident's mental capacity was often mentioned (e.g., dementia). Nevertheless, the staff recognised that some residents who have the mental capacity to understand why the procedures need to be conducted will still refuse which increases the challenge of delivering the pressure ulcer prevention activity.

*"you've got other people that feel that they do know better and are just not compliant"* [Nurse, 1].

*"it doesn't matter what, how much you sit down and tell them, they're, they're just gonna do what they want anyway"* [Nurse, 12].

Consequently, many of the participants reported that the support of other staff was vital to their own health and job satisfaction:

*"you need support in this role. You'd get, you'd probably get depressed if you didn't. You know so you need people talk to as well"* [Healthcare assistant, 4].

The nursing home care staff did not report any problems in sourcing the appropriate equipment required for preventing pressure ulcers (e.g., mattresses, cushions). The majority of the participants highlighted understaffing as a barrier as they explained that pressure ulcer prevention requires a team of people and was time and resource intensive (e.g., repositioning). The tissue viability nurses felt that the transient nature of the workforce within nursing homes impacted on the continuity of care, as important information may not be handed over especially if the member of staff they have spoken with is not a permanent employee. For example, the tissue viability nurses explained how they normally demonstrate a clinical technique to whoever has accompanied him/her to the resident, yet they were concerned that this demonstration may not be passed on to colleagues especially if the staff member was temporary (i.e. worked for an agency). In addition, the tissue viability nurses explained that whilst the nurses and healthcare assistants are keen to accompany them during consultations, they were often prevented from doing so due to other work commitments (e.g., medication rounds). Neither the tissue viability nurses nor the care staff were able to provide a solution to these problems.

*"When I go, ideally, it's better if you can get someone to come with you erm especially the nurse that's on duty there. Erm, it's hard to be honest with you, because sometimes they've just got agency staff. Last few times I've been in to the homes they've been agency, and some like to come with you because they just want to absorb so much"* [Tissue viability nurse, 4].

### 3.5. Beliefs about consequences

The tissue viability nurses explained that they did not feel that the care was standardised across the homes because each nursing home was a different private organisation, making quality assurance more difficult. They compared this to working within the NHS, where Trusts use standardised care protocols. The tissue viability nurses also explained how they would only go into a nursing home to provide advice if the home had referred a resident, which resulted in regular contact with

some homes but minimal contact with others. However, the tissue viability nurses did not perceive the number of referrals to be a true indication of the quality of pressure ulcer prevention within the nursing homes; the tissue viability nurses were uncertain whether the limited contact reflected a lack of pressure ulcers or a lack of referral for residents warranting specialist support. Thus, in an attempt to regulate the pressure ulcer prevention behaviours of the nursing home care staff, the tissue viability nurses reported continually highlighting to the staff the serious consequences that can arise following the development of a pressure ulcer (e.g., safeguarding issues).

*"There's never anything severe is there? Nothing! They've never left it until it's got really severe before they've called us in which is really good! Quite promising really. ... unless they're not reporting them and then they're not letting us know then that's and that's the thing we don't know."* [Tissue viability nurse, 4].

Each participant reported several consequences if a resident developed a pressure ulcer and this influenced why they felt that pressure ulcer prevention was important. Firstly, they were aware of how painful pressure ulcers can be for a resident and wished to avoid the health risks associated with pressure ulcers.

*"them not having sores is fantastic. They have enough to deal with being at older life without having anything added to it"* [Nurse, 11].

Secondly, some spoke about how people may associate the number of pressure ulcers with the quality of care provided by nursing home care staff. The participants described the development of a pressure ulcer as being a form of "abuse" and "neglect". Thirdly, the nursing home care staff were aware of the potential consequences for themselves if a resident in their care developed a pressure ulcer. One unit lead was very clear that her staff know what to expect should a pressure ulcer develop and they knew that there would be serious consequences in the form of "final warnings" (i.e. there are a finite number of warnings staff can receive and if they breach this number they will lose their job). Finally, the fear of being reported to the Care Quality Commission if a pressure ulcer reaches a Stage 3 or above was discussed by most of the participants.

*"I don't want getting, y'know, get into trouble for getting people with pressure sores"* [Healthcare assistant, 4].

### 3.6. Social/professional role and identity

All of the participants saw pressure ulcer prevention as part of their daily role and some reported it as the most important aspect in their caring role. However, the participants' beliefs surrounding who was responsible for the prevention of pressure ulcers were role dependent. Most of the healthcare assistants stated it was everyone's responsibility, whereas the nurses and tissue viability nurses perceived it to be a nurse's job. Nevertheless, all of the participants agreed that it was the healthcare assistants who provided much of the hands-on care.

Professional role and professional boundaries were reported together as a participant's role appeared to dictate the boundaries within which they worked. For example, the healthcare assistants explained that they report any tissue viability concerns (e.g., skin redness) to the nursing staff within the nursing home and, if a nurse deems it necessary, they refer to the tissue viability nurse. All of the participants were very clear about what was expected of them within their role in pressure ulcer prevention.

*"I'd let them [the nurses] know and then they would have to act on it and let us [the healthcare assistants] know what to do about it"* [Healthcare assistant, 5].

The NHS community-based participants believed that many of the referrals they received were "inappropriate" (i.e. pressure ulcer below a Stage 3) and that the nursing home care staff regarded any change in



the condition of a resident as warranting specialist support. Thus, the community-based participants were concerned that the nursing home care staff did not have a strategy for managing pressure ulcers up to Stage 2 in-house.

*“Yeah we get tissue viability involved with all pressure ulcers. When, if somebody comes in with a pressure ulcer, they’re referred to the tissue viability nurse straight away” [Nurse, 4].*

Moreover, the community based NHS participants were concerned that sometimes this was a way of passing responsibility:

*“at the minute it comes to us for everything, so they hold no responsibility with regards to any dressings, any form of assessment, or anything like that” [Nurse, 14].*

Whereas the nursing home care staff view sending a referral to a tissue viability nurse to assess a Stage 1 or Stage 2 pressure ulcer as being pro-active.

### 3.7. Beliefs about capabilities

The nursing home staff reported a high perceived competence in pressure ulcer prevention, as most of the nurses explained that the healthcare assistants were very good at identifying and reporting changes in the condition of a resident’s skin. Most of the nursing home care staff reported feeling confident in pressure ulcer prevention but explained that this could be influenced by the health status of the residents, how well the residents adhered to pressure ulcer prevention interventions and the perceived views of outside agencies. For example a perceived “blame culture” associated with pressure ulcers, together with the local tissue viability nurses’ lack of confidence in the ability of nursing home staff to prevent or manage pressure ulcers, reduced the confidence of the nursing home staff. Furthermore, in some cases the nursing home staff felt pressure ulcers were inevitable regardless of how hard they tried to prevent them.

*“if I rang up [the tissue viability nurse] today and said there’s been a further deterioration, she’s not going to think ‘Oh I need to change the treatment plan then’, she’s gonna think “well they’re doing something wrong!”” [Nurse, 7].*

One tissue viability nurse acknowledged that sometimes pressure ulcers were unavoidable; however, she stated that:

*“99.9% of the time there’s a case to answer because there will be a problem with their piece of equipment, there will be a problem with decontamination, there will be a problem with the way a person’s sitting or lying” [Tissue viability nurse, 1].*

## 4. Discussion

This study explored the context of pressure ulcer prevention within nursing home settings. Drawing on the Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2005), the barriers and facilitators to evidence-informed pressure ulcer prevention were identified. Seven domains appeared to be consistently relevant and we have grouped these domains into barriers or facilitators in line with the results presented.

### 4.1. Barriers

#### 4.1.1. Knowledge, physical skills, social influences, environmental context and resources

We identified a high level of enthusiasm for improving knowledge and skills towards pressure ulcer prevention by nursing home staff. However, the knowledge and skills described by the nursing home care

staff in this study appeared to be limited. The differing views of the nursing home staff (registered and unregistered) and the tissue viability nurses, regarding the quality of the pressure ulcer prevention provided within nursing homes, may reflect the specialist knowledge of the tissue viability nurses. The tissue viability nurses were keen to help the nursing home staff improve their skills, expressing a concern that the clinical techniques demonstrated to a member of nursing home staff during a visit to a resident may not be passed on to colleagues unless at least one of the following circumstances exist:

- Nursing home staff are motivated to share the information and newly acquired skills with their colleagues;
- nursing home staff remain on duty immediately after the tissue viability nurse visit and have the time to discuss the consultation with other staff;
- nursing home managers allocate time for the sharing of practice and transference of skills;
- the tissue viability nurse returns to provide regular training sessions.

The tissue viability nurses appeared very frustrated by the lack of attendance of nursing home staff at training sessions. However, this is where the collaborative approach discussed by the participants would be useful. The tissue viability nurses explained that they have a programme of education on pressure ulcer prevention, but they thought that the training may not be accessible to the nursing home staff due to understaffing and limited funding. Limited access to training was also reported by Cooper et al. (2017) who conducted a modified Delphi survey to reach a consensus on the continuing professional development needs of registered nurses working in nursing homes in the UK. Cooper et al. (2017) received a total of 352 responses and the participants ranked low staffing levels as the most frequent barrier to accessing training courses. Another barrier reported by Cooper et al. (2017) was the lack of support provided to the nurses by the nursing home organisation, as the nurses were often not allocated the time or funds to attend training sessions. Thus, the nursing home context has become a recognised barrier to the prevention of pressure ulcers due to the limited opportunities given to staff to improve their knowledge and skills (Shekelle et al., 2011; Soban et al., 2016). However, changing the behaviour of healthcare workers by increasing pressure ulcer prevention knowledge is likely to be ineffective in isolation (LaRocca et al., 2012; McCluskey and Lovarini, 2005). Instead, a multifaceted approach is likely to be required which takes account of the barriers intrinsic to the organisational context (Baker et al., 2010; Coleman et al., 2013; Colquhoun et al., 2017; Michie et al., 2014, 2011).

Currently, there are concerns regarding the inconsistency and inaccuracy of pressure ulcer categorisation, measurement and referrals (Dealey et al., 2012; Hall et al., 2014; Moore and Cowman, 2014; Stevenson et al., 2013). The number of inappropriate referrals to the tissue viability service by nursing home staff may be due to a lack of confidence and skills to assess and manage pressure ulcers effectively, which may result from limited access to opportunities for skills development training and support. Cross et al. (2017) demonstrated the value of knowledge in a study which found that an education intervention aimed at community-based formal caregivers increased their confidence in their ability to identify signs of skin changes. Consequently, developing a method of education and support that will be feasible and sustainable may be beneficial to both nursing home staff and tissue viability nurses.

The nursing home environment itself can be a barrier due to understaffing and the transient workforce. Understaffing in nursing homes is widely recognised within the literature as a problem and has been found to impact on the quality of care (Azermai et al., 2017; Carthon et al., 2016; Lawrence et al., 2016). Castle et al. (2007) found that the increased use of agency staff and low stability (i.e. staff who have not

worked in the home for a long period of time) were associated with lower quality of care. Moreover, Brannon and Mor (2005) found that nursing homes with high stability had fewer pressure ulcer incidences, highlighting the importance of reducing the staff turnover rates in nursing homes.

Our findings also highlight the additional demands faced by nursing home care staff when providing care for residents with limited capacity, (e.g., residents diagnosed with dementia). The neuropsychiatric symptoms common to dementia (e.g., aggression, psychosis, depression) often pose serious challenges to care staff (Davison et al., 2016; Hazelhof et al., 2016) and impact on staff turnover rates (Pitfield et al., 2011; Testad et al., 2010). In addition, some residents with dementia may lack the ability to communicate their feelings of pain with the nursing home care staff, potentially compromising the effective and timely prevention of pressure ulcers as pain can indicate the development of a pressure ulcer (McGinnis et al., 2014).

#### 4.2. Facilitators

##### 4.2.1. Interpersonal skills, social influences, environmental context and resources, beliefs about capabilities, beliefs about consequences, social/professional role and identity

Teamwork and effective communication channels are consistently reported as facilitators in the prevention of pressure ulcers (e.g., Dellefield and Magnabosco, 2014; Hartmann et al., 2016) and pressure ulcer prevalence has been found to be associated with staff cohesion (Temkin-Greener et al., 2012). Leadership and supportive team structures enable staff to feel that they are working towards achieving their goal and facilitate the integration of the various staff roles (Hartmann et al., 2016). This study complements these findings and extends our knowledge by explaining the types of communication and teamwork which nursing home care staff use. There appears to be two types of communication: formal and informal. The latter generally occurs between staff during a shift and will not be planned; whereas formal communication occurs in several forms such as handover, care plans and documentation. Many of the participants talked about how the care delivered is reflected in the case notes of the residents and if something is not recorded, it cannot be believed to have happened. This is important when considering the safety of the residents and reducing the risk of litigation. Despite participants reiterating the importance of accurate documentation, studies examining the quality of pressure ulcer prevention documentation continue to report inadequate record keeping (e.g., Li, 2016; O'Brien and Cowman, 2011; Webster et al., 2017).

Effective teamwork within the multidisciplinary team was an important factor as indicated by the value the nursing home care staff placed on the input from the tissue viability nurses. It is unfortunate therefore, that due to work-load pressures, support from the tissue viability nurses is often transient. Recently, the difficulties faced by nursing homes when trying to access specialist services have been highlighted in the literature and access appears to depend on the speciality, with some being more difficult than others (Iliffe et al., 2016). Despite The British Geriatric Society stating the need to clarify the NHS obligations to nursing home residents, disparities between the services provided by the NHS and the needs of the staff working in long-term care facilities (e.g., nursing homes) remain (Carter, 2015; Goodman et al., 2013).

Skin champions or link nurses have been introduced within some services (including nursing homes) and they are members of the team who are trained by specialist nurses to disseminate, facilitate and promote the use of research-informed wound care practices (Flodgren et al., 2012). Findings from a systematic review of 26 pressure ulcer prevention implementation studies in hospital settings suggest that having a designated skin champion may facilitate the success of pressure ulcer prevention interventions (Sullivan and Schoelles, 2013). However, little is known about their roles and responsibilities in the

nursing home setting in relation to pressure ulcer prevention, and very few participants mentioned skin champions or link nurses. Nevertheless, improving leadership through the use of skin champions may be an effective approach for pressure ulcer prevention initiatives (Sharkey et al., 2013).

According to the Theoretical Domains Framework (Cane et al., 2012; Michie et al., 2005), a person's behaviour can be affected by their beliefs about the consequences of a particular action. The domain 'beliefs about consequences' encompasses five constructs and includes a person's outcome expectancy (i.e. the belief that a particular behaviour will lead to a certain outcome (Bandura, 1977)). All of the participants within this study reported feeling that within society pressure ulcers are a consequence of a lower quality of care. The participants explained that their beliefs about what might happen if a resident developed a pressure ulcer motivated them to ensure they conducted the appropriate pressure ulcer prevention practices. Moreover, all of the participants repeatedly reported having a positive attitude towards pressure ulcer prevention.

The existing literature regarding staff attitudes towards pressure ulcer prevention is equivocal. Some studies report that staff have a lack of interest in pressure ulcer prevention and low motivation (Beeckman et al., 2011; Kaddourah et al., 2016). Whereas others report positive staff attitudes towards pressure ulcer prevention (Aslan and van Giersbergen, 2016; Moore and Price, 2004; Tubaishat et al., 2013). Our findings support a positive attitude and suggest that the "fear of adverse consequences" may be facilitating the positive attitudes of the nursing home care staff and motivating them to prevent pressure ulcers. This is a facilitator which has not been identified previously.

Within the UK, the prevention of avoidable pressure ulcers is part of a national agenda (Department of Health: NHS Outcomes Framework, 2014/2015) and the participants in this study highlighted the fear of being associated with the poor quality of care and/or being reported to the Care Quality Commission. Fear may be regarded as a barrier or facilitator and where present it may impact on staff attitudes. A positive behaviour change can be induced by a perceived threat but behaviour change will only occur if the threat is severe; the individual is susceptible to the threat; there is an effective response and the person feels able to execute the response (De Hoog et al., 2007). Most of the participants reported high levels of perceived competence, thus despite their potentially limited knowledge and skills, they felt that their ability to respond to the threat of being reported to the Care Quality Commission by using the appropriate practices was high.

#### 4.3. Strengths and limitations

This study has several strengths. Firstly, the findings from our study support those of previous studies exploring the barriers and facilitators of pressure ulcer prevention. In addition we provide a more detailed and theory-based understanding of the context and behaviours involved in the prevention of pressure ulcers in nursing home residents. Additionally, this work adds to the literature through its focus on nursing home settings and staff rather than more general nursing. Secondly, this study captured multiple viewpoints including the views of specialist nurses who are independent of the nursing home. Gaining the views of the wider team facilitated a more detailed understanding of the context of pressure ulcer prevention, rather than one specific aspect (i.e. immediate nursing care).

Thirdly, the Theoretical Domains Framework guided the design of the interview schedule and was a lens through which we analysed the data, enabling the exploration of the behavioural aspects of pressure ulcer prevention. Taking such a deductive approach to data analysis assisted with the identification of the new barriers and facilitators which previous studies have not identified (e.g., fear of being reported to the Care Quality Commissioners). However in taking a deductive approach, the data could have been viewed as being relevant within multiple theoretical domains and this is a common problem with

deductive data analyses (Phillips et al., 2015). Moreover, there is a lack of clear guidance on how findings obtained using the Theoretical Domains Framework should be reported. In our case some of the domains were both barriers and facilitators thus, the domains within the Theoretical Domains Framework appear to lie along a continuum. Through discussion and reflection we felt that the data were assigned to the most salient theme, and this is a novel approach within the literature. Additionally, presenting the findings as barriers or facilitators within the results section could have led to the repetition of some themes or the data may have been reduced too soon.

Finally, the findings from this study will inform a theory and evidence-informed intervention to facilitate the implementation of pressure ulcer prevention guidelines. Based on the current findings it is likely that the intervention will include a pressure ulcer prevention care bundle with an accessible education and training component. The categorisation of data using the Theoretical Domains Framework is a strength of the current research.

There are some limitations to the current study. Many participants reported a lack of pressure ulcers among their residents. Thus, the participating nursing home staff may not have come from nursing homes that are representative, either in terms of the health of the residents or the quality of the care provided. Nevertheless, the nursing homes were all situated in different areas of North West England and different levels of staffing grades were recruited; therefore we believe the participants, and consequently our findings, are representative. The small number of participating nursing homes was a limitation of the current research and this is similar to other studies (e.g., Tilden et al., 2013). Barriers to nursing homes participating in research have been reported previously (Maas et al., 2002; Menten et al., 2002); although most of the previous research focuses on engaging nursing home residents in research. Thus, the reported lack of interest in research from nursing home managers is a finding in itself. Finally, there is limited guidance explaining how the domains within the Theoretical Domains Framework may be interrelated (Atkins et al., 2017). Our findings suggest that whilst the domains were separate themes, some may be

interrelated which impeded the presentation of the individual barriers and facilitators. To ensure we did not lose the context of the ‘barrier’ and ‘facilitator’ domains we were not able to present each of the domains separately.

#### 4.4. Conclusion

The prevention of pressure ulcers is a high priority in all areas of healthcare in the UK. This study has highlighted the barriers and facilitators to pressure ulcer prevention in nursing home settings using the Theoretical Domains Framework. We used this framework to inform data collection and analysis and to explore how the behaviours of healthcare workers influence the prevention of pressure ulcers in nursing homes. There appears to be a complex interplay between nursing home staff, residents and outside agencies such as NHS staff and the Care Quality Commission. The findings confirm the need for an intervention to support nursing home care staff in their pressure ulcer prevention practices, with a particular focus on increasing knowledge, improving skills and providing a supportive environment using the appropriate behaviour change techniques. Using the Theoretical Domains Framework will enhance the design of a targeted intervention which should facilitate the prevention of pressure ulcers in nursing homes.

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#### Appendix A. Topic Guide.

Questions	Prompts for further exploration	Theoretical Domains Framework Domains
What do you understand by the term pressure ulcer? How do you assess residents for pressure ulcer risk?	<ul style="list-style-type: none"> <li>- Are all residents routinely assessed for pressure ulcers?</li> <li>- How do you decide which residents are at risk?</li> <li>- Is there a protocol to inform practice?</li> <li>- Do you refer to guidelines? Which ones?</li> <li>- What resources are available to help you decide e.g., risk assessment scales?</li> <li>- What might influence your decisions e.g., residents, staff, protocols, experience?</li> <li>- If you suspect a resident to be at risk of a developing a pressure ulcer, what preventative measures would you use?</li> <li>- Is pressure ulcer prevention something you consider as part of your daily routine?</li> <li>- Can you think of any situations where you worry about a resident developing a pressure ulcer?</li> </ul>	<p><i>Knowledge</i> <i>Knowledge</i> <i>Social/professional role and identity</i> <i>Behavioural regulation</i> <i>Memory, attention, and decision processes</i> <i>Emotion</i> <i>Optimism</i> <i>Reinforcement</i> <i>Intentions</i></p>



<p>How do you decide what preventative measures to take for at risk residents?</p>	<ul style="list-style-type: none"> <li>– What action would you take first to prevent a pressure sore developing on a resident at risk?</li> <li>– Why and when would you implement this action/procedure?</li> <li>– Are there certain situations where it's difficult/easy to think about an alternative approach?</li> <li>– How long would you continue to try to prevent the pressure ulcer for?</li> <li>– What factors influence your decisions e.g., residents, staff, experience, protocols?</li> <li>– What kinds of processes might guide your decision to conduct a pressure ulcer prevention strategy e.g., protocols, risk?</li> <li>– Have you ever received any training or been provided with information about who is at risk of developing a pressure ulcer and how to prevent a pressure ulcer?</li> <li>– Are there practices that you are expected to do that you find easy? Why? Do you think they are effective?</li> <li>– Do you think there are practices that you do but your colleagues don't? Why?</li> <li>– Are there practices you are expected to carry out but find difficult or impossible?</li> <li>– If a resident develops a pressure ulcer, how does that make you feel?</li> <li>– How confident are you in preventing a pressure ulcer?</li> <li>– What do you think the benefits are of preventing pressure ulcers?</li> </ul>	<p><i>Knowledge</i></p> <p><i>Social/professional role and identity</i></p> <p><i>Skills</i></p> <p><i>Behavioural regulation</i></p> <p><i>Beliefs about capabilities</i></p> <p><i>Beliefs about consequences</i></p> <p><i>Memory, attention, and decision processes</i></p> <p><i>Emotion</i></p> <p><i>Reinforcement</i></p> <p><i>Intentions</i></p>
<p>How do you decide what measures to take once a pressure ulcer is identified?</p>		<p><i>Knowledge</i></p> <p><i>Memory, attention and decision processes</i></p> <p><i>Intentions</i></p> <p><i>Skills</i></p>
<p>Are there any environmental factors (organisational or resource-based) that influence your pressure ulcer prevention practices?</p>	<ul style="list-style-type: none"> <li>– Are any of the following enablers or constraints: team support, staff availability, resource availability?</li> <li>– What do you think would make pressure ulcer prevention more easy/difficult?</li> <li>– Are there any benefits or potential harms associated with trying to prevent a pressure ulcer?</li> <li>– Are staffing levels a consideration?</li> <li>– Is it difficult to use special equipment?</li> <li>– What problems/difficulties do you usually encounter when trying to prevent a pressure ulcer?</li> <li>– How do you overcome these difficulties?</li> <li>– Are there any incentives to encourage pressure ulcer prevention e.g., funding for the home?</li> <li>– Are there any competing tasks that might influence whether you conduct pressure ulcer prevention strategies?</li> <li>– When time is limited due to work load pressures?</li> <li>– If the resident has a visitor?</li> <li>– If there is a more urgent matter to attend to?</li> <li>– How high a priority would you say preventing a pressure ulcer is on a scale of 0 to 10 (0 = not a priority and 10 = a significant priority)?</li> </ul>	<p><i>Skills</i></p> <p><i>Beliefs about capabilities</i></p> <p><i>Environmental context and resources</i></p> <p><i>Beliefs about consequences</i></p> <p><i>Goals</i></p> <p><i>Optimism</i></p> <p><i>Reinforcement</i></p> <p><i>Intentions</i></p>

<p>Have other people or situations ever caused you to change your pressure ulcer prevention practices?</p>	<ul style="list-style-type: none"> <li>– Has there been an incident, what happened?</li> <li>– Change in protocol?</li>   <li>– How might the views of other team members affect your pressure ulcer prevention strategies?</li> <li>– Would other team members influence whether or not you conduct pressure ulcer prevention strategies?</li>   <li>– Are there any processes in place to help you share pressure ulcer prevention practices?</li> <li>– If you wanted to change the strategies you use to prevent pressure ulcers, how would you/the home do this? Can you think of a recent example?</li> <li>– Who’s responsibility is it to prevent a pressure ulcer?</li> <li>– Has anyone ever asked you about the practices you use? Who? What was the reason?</li> </ul>	<p><i>Social influences</i> <i>Behavioural regulation</i> <i>Social/professional role and identity</i> <i>Memory, attention, and decision processes</i> <i>Intentions</i></p>
<p>How do you know whether you are/the nursing home is making the right decisions regarding pressure ulcer prevention?</p>	<ul style="list-style-type: none"> <li>– Do you have any influence over the practices conducted?</li>   <li>– Who makes the overall decisions regarding pressure ulcer prevention practices?</li> <li>– Do you collect data on pressure ulcers, how?</li> <li>– When a resident develops a pressure ulcer, is there anything that as a team you think could have been done differently? Can you think of an example? What would you have done differently?</li> <li>– Do you ever meet as a team to discuss pressure ulcers?</li> </ul>	<p><i>Reinforcement</i></p> <p><i>Behavioural regulation</i> <i>Optimism</i></p> <p><i>Intentions</i></p>

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