Journal of Tissue Viability 33 (2024) 672–680

Contents lists available at ScienceDirect

Journal of Tissue Viability

journal homepage: www.elsevier.com/locate/jtv

Using PURPOSE-T in clinical practice: A realist evaluation

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ARTICLE INFO

Keywords:
Pressure ulcer/injury
Risk assessment
Realist evaluation

ABSTRACT

Aim: To explain how the clinical and organisational context influenced the way the Pressure Ulcer Risk Primary or Secondary Evaluation Tool (PURPOSE-T) is used by nursing staff to support their clinical judgement and decision making about care planning and delivery.

Methods: A realist process evaluation was undertaken in a large acute hospital trust using mixed methods incorporating organisational policy review, staff semi-structured, ethnographic observation of clinical care and patient record review. Approximately 75 h of ethnographic field work involving 72 patients, 15 patient record reviews and 16 staff interviews were undertaken on 4 wards.

Findings: Findings suggest PURPOSE-T assisted nurses differently depending on their level of experience. Those with less experience use it as an educational guide, while those with more experience made an initial clinical judgement and used PURPOSE-T as a safety net to ensure they hadn't missed anything. Nurses were concerned about demonstrating good documentation of assessment, care planning and delivery in order to underpin consistent communication about care and because they had an underlying fear of being blamed if things went wrong. There is an array of other contextual features that impact the planning and delivery of pressure area care that go beyond the use of PURPOSE-T alone, including systematic equipment provision, competing patient safety initiatives and rehabilitation requirements.

Conclusion: The findings reinforce the assertion that PU-RAIs are complex interventions and could inform the development of a more integrated system of care which takes into account the contextual features associated with PU prevention in modern hospitals.

1. Background

Pressure Ulcers (PUs) remain a considerable healthcare problem worldwide with prevalence in acute care settings being 11.9–15.8 % and incidence being 2.8–9.0 % [1,2]. They have a detrimental effect on patients' quality of life [3,4] and represent a financial burden to healthcare organisations [5–9]. It is not appropriate to subject all patients to resource intensive preventative interventions (e.g. repositioning, expensive mattresses) which may impact on their quality of life (e.g. disturbing sleep) and divert nursing time from other essential areas and care should be targeted appropriately. International and national guidelines advocate risk assessment to identify 'at risk' patients and prompt the initiation of preventive [10,11]. To support this in clinical practice, PU- Risk Assessment Instruments (PU-RAIs) have been developed and are routinely used in many countries by nurses in preference to clinical 'judgement' alone [10,11].

The need for the development of a new evidenced-based PU-RAI was identified after a systematic review of risk factor literature [12] and a review of the content, development and testing of 14 existing PU-RAIs [13] identified by NICE [10]. The review [13] identified limitations in the development methods of existing instruments raising concern about their content validity and ability to identify risk satisfactorily [14–16]. Practical concerns have also been acknowledged with PU-RAI full assessments being undertaken on all patients even those who are obviously not at risk, diverting time away from other important care activities; there is failure to distinguish between those with and without PU and the use of condensed numerical scores as a basis for care interventions

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https://doi.org/10.1016/j.jtv.2024.06.014
Received 20 December 2023; Received in revised form 10 June 2024; Accepted 27 June 2024
Available online 5 July 2024

Abbreviations

APM	Alternating pressure mattress
HSF	High specification Foam
HCA	Health Care Assistants
PU	Pressure Ulcer
PU-RAIs	Pressure Ulcer risk Assessment Instruments
PURPOSE-T	Pressure Ulcer Risk Primary or Secondary Evaluation Tool
UP	Universal Precaution
SSKIN	Surface, Skin inspection, Keep your patients moving, Incontinence/moisture, Nutrition/hydration
NICE	National Institute of Clinical Excellence

which do not facilitate consideration of individual risk profiles in care-planning (27). In addition, since the time of traditional PU-RAI development, the context of care has dramatically changed; advancement in medical care has led to people living longer with increasing morbid disease and higher expectations for their health [17,18]. This has led to hospitals becoming more acute with a faster throughput of patients with more complex needs [19,20]. Likewise, PU prevention care standards have improved with evidenced-based national and international guidelines to support care and the widespread provision of improved support surfaces (mattresses and profiling beds) in hospital and community care settings [10,11].

To address limitations of existing PU-RAI and contextual healthcare changes noted above, the PU Risk Primary Or Secondary Evaluation Tool, PURPOSE-T was developed as part of a NIHR funded PU Programme Of Research (PURPOSE: RP-PG-0407-10,056) [21]. The work was underpinned by the principles of the MRC complex intervention framework [22–24] and incorporated robust instrument development and evaluation methods and innovative service user involvement [12,15,25–28]. PURPOSE-T (https://ctru.leeds.ac.uk/purpose/purpose-t/) has since been implemented into routine care in 'early adopter' acute and community NHS Trusts. It provides a different approach to PU risk assessment incorporating a screening stage to allow those who are clearly not at risk to be quickly screened out, a full assessment stage facilitating a comprehensive assessment for those potentially at risk and encourages users to use their clinical judgement as part of the assessment process. It is underpinned by an up to date evidence base, the views of experts, clinicians and service users. It encourages a more holistic and tailored approach for care planning, promoting consideration of the individual patient's risk profile, rather than a numerical score as used in traditional PU-RAIs. In theory, the use of PURPOSE-T could lead to the instigation of more appropriate preventative interventions and individualised care planning that in turn could enable improved care and PU outcomes. However, existing evidence about traditional PU-RAIs suggests poor linkage between the assessment outcome, the selection of preventative interventions and PU incidence [29]. Having a deeper understanding of how PU-RAIs are enacted in practice could provide important information to enhance clinical practice.

1.1. Realist evaluation

Realist evaluation is becoming more common in the evaluation of complex interventions [30] and is considered particularly appropriate for the evaluation of new interventions, to explore how an intervention may be adapted for different contexts and the impact upon outcomes [31].

From a realist perspective PURPOSE-T is a resource for clinicians and its impact on care will be dependent on how it is used in practice, which will differ according to context [32,33]. The approach seeks to understand how features of the context in which an intervention is implemented shapes the ways in which it works in practice and thus affects outcomes [34].

Realist evaluation incorporates 2 key phases including theory elicitation (or identifying ideas and assumptions associated with how the intervention, here the use of risk assessment instruments is intended to work) and theory testing, whereby identified candidate programme theories (initial identified ideas/assumptions) are subsequently tested to confirm, refute or refine the programme theory and build a more detailed explanation of how and why the intervention works.

The development of candidate programme theories was informed by a programme theory scoping review of PU-RAIs to identify ideas and assumptions associated with PU-RAI use [35], twenty two nursing staff interviews (including Tissue Viability Nurses (TVNs), Ward Managers (WMs), Staff Nurses (SNs) and Health Care Assistants (HCAs) to elicit their experiences of PU-RAI use in practice and a focus group with service users and key clinical stakeholders (3 Tissue Viability Nurse leaders from acute NHS Trusts in England, 3 researchers of PU risk assessment, 2 realist researchers and 3 PPI representatives) to review the findings of the earlier work and agree the focus of theory testing. This led to development of the following candidate programme theories for testing and are the focus of this paper (they are also illustrated along an implementation pathway (Fig. 1).

- **Candidate Programme Theory 1: Clinical judgement:** operates at the individual level and relates to how the use of PURPOSE-T impacts the nurse's reasoning and behaviour, i.e. does it support, modify, change or leave untouched their clinical judgement and does the nurses level of experience affect this?
- **Candidate Programme Theory 2: Care Planning and Delivery:** operates at the individual and clinical team level and relates to how PURPOSE-T informs a nurse's reasoning and behaviour about care planning and delivery, i.e. does it prompt care planning and delivery (interventions including equipment provision, repositioning, referrals)?

2. Aim

To explain how the clinical and organisational context influenced the way the Pressure Ulcer Risk Primary or Secondary Evaluation Tool (PURPOSE-T) is used by nursing staff to support their clinical judgement and decision making about care planning and delivery.

3. Method

A realist process evaluation [32,34,36,37] was undertaken allowing a flexible mixed method approach to enable exploration and testing of the candidate programme theories (Fig. 2), facilitating the development of explanations associated with the use of PURPOSE-T in practice.

3.1. Sampling

A purposive sampling strategy, informed by our candidate programme theories, was used at a hospital, ward, observation, patient and staff level [38].

3.1.1. Hospital and ward

The acute NHS Hospital Trust had implemented PURPOSE-T and was using it routinely across all specialties. Within the hospital we purposively sampled wards to facilitate exploration of potential differences in PURPOSE-T use in different care contexts. This incorporated 2 elderly care wards where a large proportion of patients are at risk of PU development and 2 adult surgical wards where PU risk was more variable.

3.1.2. Ethnographic observation and record review

Key aspects of care processes and delivery where PURPOSE-T was

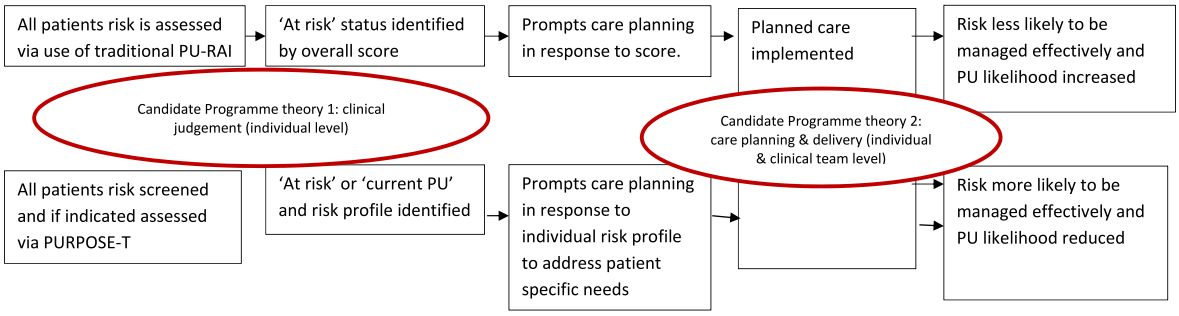

Fig. 1. Traditional PU-RAI and PURPOSE-T Implementation pathway and candidate programme theory themes.

Candidate Programme Theory		Methods used to test and refine the theory
1: Clinical judgement (individual level)	→	Semi-structured interviews with key members of staff (including ward managers, staff nurses, health care assistants) involved in PURPOSE-T use and care provision to gain a deeper insight of how social, cultural and structural organisational features shaped the mechanisms through which PURPOSE-T was used in practice.
2: Care planning and delivery (individual and clinical team)	→	Ethnographic observation of clinical care including use of PURPOSE-T and associated care planning and delivery in a 'real world' context to understand how contextual features shaped care practices on the ground [43-48];
	→	Patient record review to examine PURPOSE-T fidelity and response to the assessment in terms of associated care plans, equipment requests, repositioning and referrals to Tissue Viability Teams or other specialists for pressure area care and evaluation of planned care.
	→	Organisational policy review to examine policies, guidance, documentation and throughput to allow a deeper understanding of the context in which care is delivered.

Fig. 2. Methods used to test programme theory 1 and 2.

likely to be used were purposively sampled for observation including staff handover and safety huddles, multidisciplinary team meetings, staff interactions, staff and patient interactions, routine pressure area care delivery and completion of PURPOSE-T and care planning. Approximately 70 h of ethnographic field work was planned [39,40] across the four ward environments with a minimum of four observation periods per ward, each lasting at least 4 h (on the basis that patients at risk of developing a PU should have a minimum of four hourly repositioning) [41,42].

Purposive sampling of a key patients (KP) for record review was undertaken. On each ward we aimed to observe and review records for four patients with different levels of risk, as exemplified by varying mobility/skin status (1 patient without mobility restrictions or vulnerable skin, 1 patient with mobility restrictions but no vulnerable skin, 1 patient with mobility restrictions and vulnerable skin, 1 patient with mobility restrictions and existing PU (cat 1 or above). The bays which housed these patients were then the focus of the 4-h observation period.

3.1.3. Semi-structured staff interviews

Purposive sampling of approximately four members of ward staff (incorporating ward managers, staff nurses, student nurses and Health Care Assistants) per ward (16 overall) were planned informed by those encountered during the observation periods [49].

3.2. Ethical considerations

The study was submitted to and approved by the Health Research Authority (Yorkshire and the Humber - Leeds West Research Ethics Committee Research Ethics Committee ref: 19/YH/0033). Prior to recruitment a detailed study information sheet was provided to participants and informed consent was sought by the researcher.

3.3. Data collection

All data collection was undertaken by one researcher, a qualified nurse, who interacted with both staff and patients, but it was made clear that her presence was in a research capacity rather than as a clinician (and she didn't work clinically in the hospital). The researcher was "participant as observer" in order to remain as neutral as possible during the observation period and not to influence practice. A one-week pilot period of data collection was undertaken to allow the development of data collection material and schedules, identification of particular contextual barriers to data collection and problem solving to address these.

Fig. 3 provides an overview of the data collection process which began with a review of hospital/ward PU policies and guidance and observation of key communication processes.

Sampled and consented key patients, underwent detailed clinical

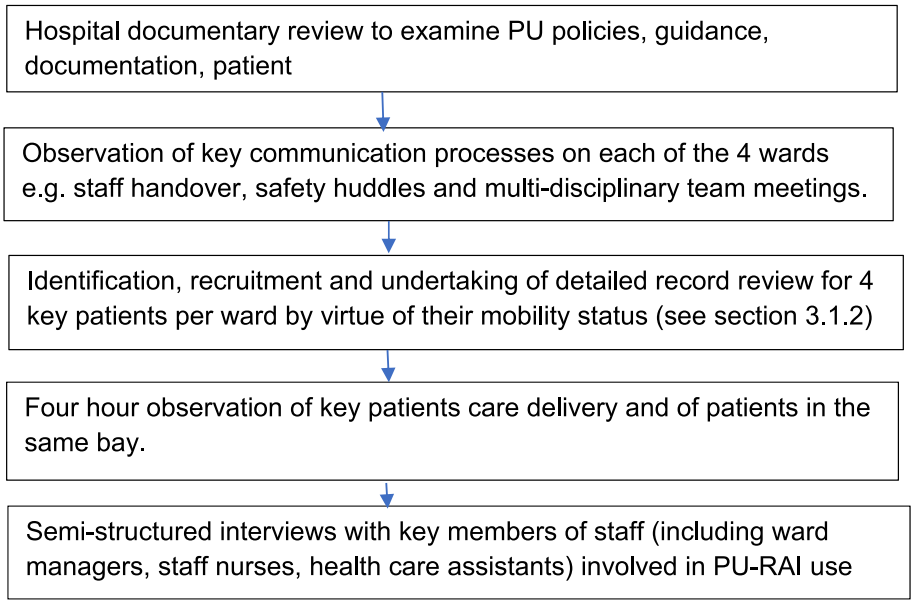

Fig. 3. Data collection process.

record review of PU prevention and/or treatment care for the current ward admission using a detailed data collection booklet. This allowed further understanding of care planning activities and along with the observation work, how this was implemented in practice. The record review incorporated PURPOSE-T assessments, SSKIN (Surface, Skin inspection, Keep your patients moving, Incontinence/moisture, Nutrition/hydration) care plans and records and PU assessments (where present) (ref SSKIN.

During observation periods detailed field notes were recorded by the researcher using different types of entries to differentiate between what type of observation it was e.g. [DD] detailed description of what was happening, said etc., [OC] observers comments for ideas, views or theories about what was happening, [SR] subjective reflections for personal feelings about interactions or what was happening at that time. Field notes were written up in full as soon as possible following the period of observation.

Following the observation period, audio-recorded interviews with key members of ward staff involved in PURPOSE-T use and preventative care were undertaken. Interviews were conducted around a topic guide using the teacher-learner cycle, whereby the interviewer teaches the interviewee about the theories under consideration (informed by the record review and ethnographic observations) and the interviewee provides their informed insight [50,51].

3.4. Analysis

Due to the iterative nature of realist evaluation, analysis is not a distinct phase of the research process, rather it is undertaken on an ongoing basis [37,51] to inform subsequent phases of the evaluation and maximise exploration of programme theories. NVIVO was used to manage the data with analysis focussing on producing explanations in the form of context (C) mechanism (M) and outcome (O) configurations through a process of using data gathered (to support, refute and refine candidate programme theories associated with the use of PURPOSE-T. In order to prepare the data for this realist analysis the following was undertaken.

Field notes, record review data and interview audio-recordings of interviews with staff and patients/carers were transcribed verbatim. The researcher listened to the audio-tapes and read transcripts in total to ensure completeness. Analysis of the first four observation periods field notes, record review data and interviews (patient and staff) were independently undertaken by the researcher (SC) and a second researcher with expertise in realist evaluation (JG) to assess differences and similarities (repetition) [52]. These formed the basis of subsequent analysis with new CMO configurations or refinement of existing configurations being added as they emerged from the data.

4. Findings

Data was collected from October 23, 2019–March 11, 2020, prior to the first COVID 19 lockdown. It incorporated over 75 h of direct clinical practice observation, involving nurse and multi-disciplinary team interactions with 72 patients, 15 patient record reviews and 16 staff interviews (including the following - student nurse band 3/4 Health Care Assistants (HCA)/trainee nurse associate, staff nurse, junior Sister/Charge nurse and Senior Sister/Charge nurse).

4.1. Organisational context

All wards had a comprehensive PU prevention guideline to support clinical practice and were equipped with a full complement of High Specification Foam (HSF) prevention foam mattresses and electric profiling beds as a minimum for all patients, with access to alternating pressure and low air loss mattresses.

The guideline included: patient screening using PURPOSE T step 1 within 6 h of initial contact and where indicated; full assessment using PURPOSE T step 2, within 6 h of admission/transfer by a registered nurse; development of individualised SSKIN plan of care and monitoring bundle for ‘at risk’ patients by the RN in collaboration with the patient. This means that nurses are expected to link the PURPOSE-T assessment with the SSKIN care plan and bundle to provide a framework for care and documentation.

Key characteristics of the 4 wards and 72 patients observed relating to specialty, Length of Stay (LOS) and an overview of patients PU risk status are presented in Table 1. The patients on elderly care wards were older (Median: 85 range: 72–98) than the surgical wards (median: 68, range: 28–92) and more were at risk of PUs or had an existing PU(s) compared to those on surgical wards (Tables 1 and 3). Direct pressure area care was mainly delivered by HCAs with support from qualified and student nurses.

Table 1
Overview of ward and patient characteristic.

Ward	Specialty	Beds	Gender	Layout	Median staffing ratios qualified: unqualified (range)	Median student nurses (range)	Patient median (and range) PU risk status (over observed days) from whiteboard drawn from electronic PT assessment (range)	Patient median (and range) skin assessment (over observed days) as reported on handover sheet (range)
A	Elderly Admission	30	mixed	Four 6 bedded bays; 6 side rooms	4:5 (3-4:4-7)	2 (1–3)	Not at risk: 1 (1–2) At risk: 20 (17–23) PU: 7 (2–10)	Not seen: 2 (1–4) Intact: 1 (1–5) Vuln: 20 (16–22) Cat 1: 2 (0–2) Cat 2: 4 (1–4) Cat 3: 1 (0–1) Uns: 3 (3–5) SDTI: 2 (0–2)
B	Elderly Medicine	31	mixed	Four bays (one: 4 beds; one: 5 beds; two: 6 bed) and 10 side rooms	3.5:4.5 (3-4:4-6)	4 (2–7)	Not at risk: 3 (2–4) At risk: 21.5 (16–22) PU: 6 (6–13)	Cat 1: 1 (0–1) Cat 2: 3 (3–5) Cat 3: 1.5 (1–2) Uns: 1 (0–5) not sure: 1 (0–1)
C	General Surgical	21	male	Three 4 bedded bays and 5 side rooms	3.5:3 (3-4:2-4)	0 (0–3)	Out of use	Intact: 10 (10–11) Vulnerable: 9 (9–10) Cat 1: 1 (1-1) Cat 2: 1 (1-1)
D	Surgical Admission	20 plus	mixed	1 Treatment room 6 Trolleys 4 Side rooms 2 X 5 Bedded bays Sitting area 26 on board	4:2 (4:2)	1 (1–2)	Not recorded on whiteboard – explain system	Not recorded

4.2. Key patients (record review and observations)

The characteristics of the 15 key patients (across four wards) who were purposively sampled based on their varying mobility status (section 3.1.2), underwent observation and detailed record review are presented in Table 2. The clinical care of other patients in the bay was also observed (but without the detailed record review). As expected more of the elderly care ward key patients were at risk or had PUs than the surgical wards where 4 of the 6 patients were assessed using PURPOSE-T to be not at risk. The record review highlighted that patients on surgical wards had an increased number of care assessments/care plans when compared with the elderly care ward (Table 2).

Observation allowed assessment of the frequency and magnitude of movement for each key patient and it was noted that movement levels were significant (complete offloading) and frequent (1–2 h) in 10 patients (comprising 3 identified as 'not at risk', 6 identified as 'at risk' and 1 with an existing PU). Three patients moved frequently (1–2 h) but not significantly (offloading briefly) and this included 1 patient identified as

Table 2
Patient record review, Risk status according to PURPOSE-T - Amber: at risk; Pink: existing PU; Green: not currently at risk.

Ward	A					B				C				D	
Key Patient (KP)	KP1	KP2	KP3	KP4	KP7	KP5	KP6	KP8	KP9	KP10	KP11	KP12	KP13	KP14	KP15
Observation time	8.30-13.30	8.30-13.30	8.30-13.30	12.00-1600	13.30-1800	13.00-17.00	08.00-12.30	14.00-1900	16.30-20.30	13.00-17.00	14.00-19.00	11.00-15.00	07.00 11.15		
Age	80	72	88	87	80	82	85	90	85	66	67	61	28	68	81
Diagnosis	Fall	Fall, long lie	Fall, # pubic rami	Poor mob, fall, parkinsons, confusion	Pneumo	PVD, leg ulcer, pyrexia	Spinal stenosis	Parkinsons degenerative sponal disease	DVT, HF, confusion	Chrohns, small bowel stricture	CA bowel, hernia	Anterior resection of rectum	Abdo pain	Abdo pain vomiting	Lower back pain, constipation
Mobility capability	Walks with 1	Walks with 1	Immobile	Stands with frame and 2	Walks with 1	Walks unaided	Stands with frame and 2	Walks with simmer and 1	Walks with zimmer and 1	Walks unaided	Walks with zime and 1	Walks unaided	Walks unaided	Walks unaided	Walks unaided
Paper assessment/careplans (none PU)	8	10	7	13	12	9	12	12	11	11	16	16	17	7	5
Electronic assessment/careplans (none PU)									4	7	3	7	5	4	4
Total assessment/careplan (none PU)	8	10	7	13	12	9	12	12	15	18	19	23	22	11	9
No of PT in recorded	3	1	1	3	2	2	5	3	2	3	6	2	5	1	1
Most recent PT info nearest Record Review day															
PT at risk	1	1	1			1		1	1		1	1			
PU				1	1		1								
Not at risk										1			1	1	1
SSKIN careplan (RN or AP)	1	1	1	1	1	1	1	1	1	n/a	0	1	0	n/a	n/a
SSKIN Bundle (HCA)	1	1	1	1	1	1	1	1	1	n/a	0	1	1	n/a	n/a
Planned repositioning 4 hourly	1	NR	1	1	NR	NR	1	1	1	n/a	0	1	1	n/a	n/a
Planned skin assessment 8 hourly	1	NR	1	1	NR	NR	1	1	1	n/a	0	1	1	n/a	n/a
No reported Skin assess in obs	0	2	2	1	0	2	1	1	1	n/a	0	0	0	1	1
Observed															
Observed movement significant (complete offloaidng) Frequent 1-2 hrly	1	1			1	1			1	1	1	1	1		1
Observed movement frequent (1-2hrly) but not significant (not ofloading for long)			1					1						1	
Moderate 2-4 hrly				1			1								
Support Surface															
Mattress High Spec Foam	1	1	1		1	1		1	1		1	1	1	1	1
Mattress Alternating pressure				1			1								
No cushion	1	1		1	1	1			1	1	1	1	1	1	1
Cushion High Specc Foam			1				1	1							

Table 2: Patient record review, Risk status according to PURPOSE-T - Amber: at risk; Pink: existing PU; Green: not currently at risk

'not at risk' and 2 patients identified as 'at risk'. The movement of these patients tended to occur around routine activities of daily living. Half of these patients walked around unaided while the other required the assistance of a walking aid and/or a HCA. Of the remaining two patients who moved less frequently (2–4 hourly) both had an existing PU. For both patients their mobility was much more restricted and they required the help of 2 HCAs to stand and transfer. For all patients with care plans they indicated that repositioning should occur every 4 h and skin inspection should occur every 8 h.

4.3. Programme theory findings

Fig. 4 provides an overview of how findings link to the pathway of care and programme theories supported by the narrative summary below.

4.3.1. Clinical judgement

The evidence relating to clinical judgement and how the use of PURPOSE-T impacts the nurse's reasoning and behaviour was in the main generated from the interviews with the nursing staff detailed above supported by the record review and observational data.

PURPOSE-T assessment were routinely undertaken by qualified nurses for all patients in all ward areas and associated care plans and SSKIN bundles were put in place as per local policy (Table 2) in all but one of the key patients of the record review (KP11, Table 2).

Nurses with less experience tended to view the instrument as a valuable educational prompt to guide their assessment. This was highlighted by a third year student nurse '*Before I became a 3rd Year it was nice to have a tool just because when I was training I was quite new to everything and so it was a case of, ah, I need to check this area and I had specific things to look at. It was nice to learn and then advance from if that makes sense, yeah*'.

A ward manager echoed this '*Certainly for somebody, your students, I think they're a, you know, they're a really good way of giving a good insight into what patients risk and why so they can be used as a learning tool for, as a mentor with your student to go through and it helps you to not forget areas that you might if you were just having a general talk about pressure areas and damage and risk factors'*.

While more senior nurses acknowledged that they probably relied more on their experience and clinical judgement in the assessment of PU risk factors - '*I do think as you get more senior you do rely more on your clinical judgement and knowing your patients.'* She went on to describe how she used PURPOSE-T during the assessment process and how she would start with the skin assessment and notice how mobile the patient was in determining the patient risk. She indicated she used PURPOSE-T to confirm her clinical judgement when they were not at risk and that using PURPOSE-T might also flag something that they had not considered. This was echoed by a senior ward sister - *'they (PU-RAI) are for everybody in some respects because it does pick up on people that you might, you might not, you might not sort of appreciate with a risk of pressure damage, I don't know, somebody that's come in with, with a heart condition and oedema and things, it sort of highlights more of the risks that are there'*. While an experienced nurse may be more confident in identifying risk without PURPOSE-T (than a newly qualified nurse), they felt reassured by using the risk assessment instrument and that they hadn't missed important considerations. This suggests that PURPOSE-T had a safety net function for all nurses regardless of experience.

Many nurses interviewed noted a general concern about 'getting something wrong' and anxiety about PU development, particularly around hospital acquired PUs and the fear of being blamed for their development. Examples of how this presented itself were mentioned by several nurses; a newly qualified staff nurse explained– *'because I'm newly qualified [as well], I'm terrified for anyone like getting a PU in my care because it just makes you feel rubbish about yourself'*. She also suggested that some of the initiatives like the PU free days, while useful also had a negative impact when a PU did occur. She mentioned the issue of the blame culture -*'I think because I know it's not like a blame culture no more, but you'll have wards, like ring you and they're like you've told us that they've got no PUs and they've got a grade 1, we're going to Datix (incident reporting system) you' in that sort of like term'*.

The suggestion of a blame culture was also reinforced as an important contextual feature that shaped risk assessment use by a charge nurse who noted that having a risk assessment and skin assessment done on transfer was a way of checking previous records, to ensure accuracy and that they weren't 'blamed' for skin deterioration. This charge nurse suggested that PU-RAIs were useful in ensuring good documentation of assessment and care and saw this as 'proof' of care delivery. Many of the other nurses interviewed also noted the importance of having a consistent approach to the assessment process that everyone understood, as well as ensuring good documentation of care.

4.3.1.1. Preliminary programme theories: clinical judgement. By

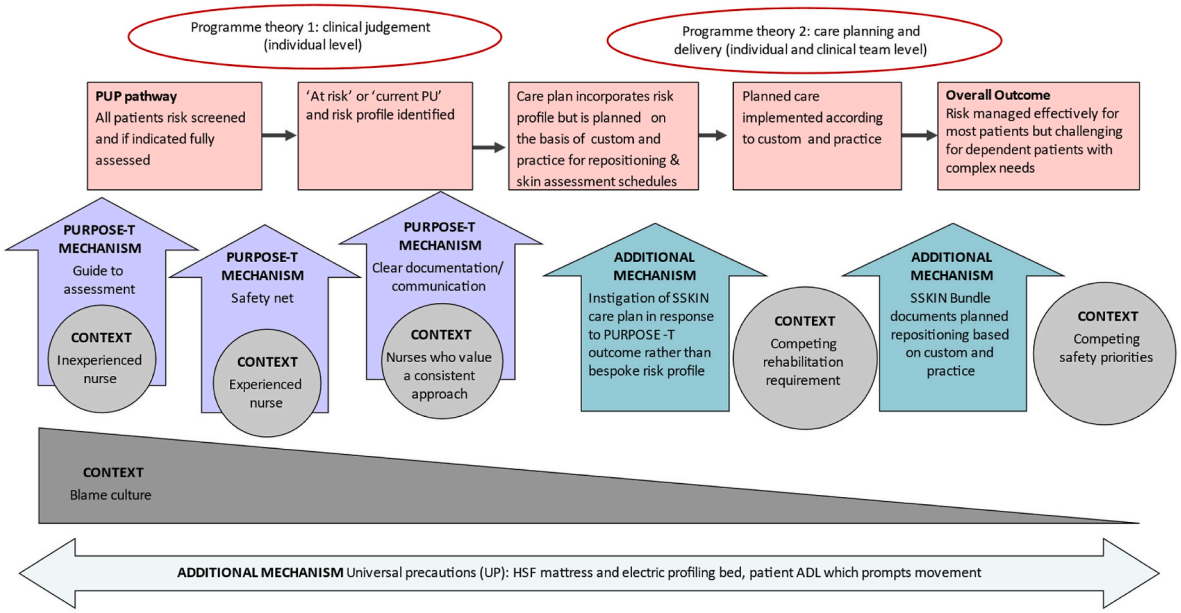

Fig. 4. Overview of how findings link to pathway of care and programme theories.

reviewing the candidate programme theories (section 1.1) and reflecting on the evidence above, the following preliminary programme theories relating to clinical judgement were developed.

1. Inexperienced nurses (Context) use PURPOSE-T as a guide to the assessment process (Resource) because it reassures them they have undertaken a comprehensive assessment and have not overlooked important consideration (Mechanism) to support their clinical judgement (Outcome).
2. Experienced nurses (Context) initially use their clinical judgement to identify PU risk and use PURPOSE-T (Resource) as a safety net (Mechanism), to ensure important considerations are not overlooked (Outcome).
3. Nurses who value a consistent approach to the assessment process (context) use PURPOSE-T (Resource) to facilitates clear documentation in the patient record (Outcome) because this enables other forms of communication (e.g. handover amongst the nursing and wider MDT team (Mechanism), to promote appropriate care interventions (Outcome).
4. In a culture of blame (Context) nurses use PURPOSE-T (Resource) as a means to document care in a consistent way (Outcome) because they fear being blamed if they cannot provide evidence that care has occurred (Mechanism).

4.3.2. Programme theories: care panning and delivery

The evidence relating to care planning and delivery was obtained through the ethnographic observation, detailed patient record reviews and staff interviews. Interviews with staff of all levels indicated a general concern and desire to ensure the delivery of effective pressure area care. However, some nurses on the elderly care wards indicated that there were other competing patient safety issues e.g., the trust was working to comply with a Commissioning for Quality and Innovation (CQUIN) improvement indicator for fall prevention [53]. In practice there was evidence of those at risk of falls being nursed in the same bay, to facilitate close monitoring and prevention. A trainee nurse associate noted *'obviously falls are probably at the top but then PUs are pretty close'*. This was supported by a HCA who noted '*Its [PU risk] not highlighted as much as falls, but we are more, we were all aware of it. Everyone knows that pressure is a big deal, but falls, I would say falls probably take more priority, so if someone fell you could fracture something. Yeah you could fall and bang your head and then you could pass away, so the fall, I would definitely say on the ward is more the priority. They'd choose, like sometimes when we're short staffed, turns take less priority than stopping someone from falling'*.

This suggests that falls have an increased priority because they are perceived to have potentially fatal consequences that are directly related to a specific event occurring in hospital, compared to PUs where the onset may happen over a longer period of time and in different settings.

While observational data revealed the universal use of HSF mattresses (as a minimum) and electric profiling beds, providing a systematic minimum standard for PU prevention care, nurses interviewed recognised that the PURPOSE-T outcome was the trigger for the instigation of the SSKIN care plan and bundle. This was observed in practice and via the record review where all but one patient identified at risk or with an existing PU had an SSKIN care plan and bundle in place This suggests that PURPOSE-T was being used similarly to traditional PU-RAIs where an overall cut off score (or outcome category in the case of PURPOSE-T) between at risk/not at risk determined specific actions.

When prompted about what care actions should be taken on finding a new PU, staff across all levels of seniority described a good understanding of the need to escalate care. The observational and record review data showed escalation in relation to the mattress being used with 2 of the 3 patients with a PU having an alternating pressure mattress, while those at risk remained on HSF mattresses. However, in relation to repositioning, the record review indicated that for both patients 'at risk' and those an existing PU, the planned intervals for repositioning and skin inspection (according the SKINN bundle) were 4 hourly and 8 hourly respectively, with no escalation planned for those with an existing PU. In other words, those at risk of a PU were subject to the same repositioning and skin inspection schedules as those who actually had an existing PU. This suggests a custom and practice, one size fits all approach to planning of repositioning and skin inspection schedules, with no escalation for those with existing PUs and supports previous research findings where clinicians failed to respond to clear signs that a patient had a PU [54]. Conversely the observational findings indicated that those considered 'at risk' actually had much more frequent independent movement (usually corresponding to activities of daily living) than planned in the SSKIN bundle (i.e. 4hrly), indicating that the plan of care did not reflect either what was actually happening or required. This leads to questions about how the SSKIN bundle is enacted in practice and the need for improved and objective methods of patient movement monitoring, enabling adjustments to the pan of care.

For the 3 patients who had PUs, the observational data demonstrated how their complex care needs made their management difficult. On the day of observation two of these patients (both who needed the assistance of 2 nurses to stand) were requested to sit out for longer than desired (increasing their exposure to pressure), one because they were trying to increase the patients sitting time as part of their rehabilitation plan (this patient had HSF cushion in their chair) and the other because the physio and discharge co-ordinator wanted to discuss future care requirements with the patient and his wife (this patient did not have a HSF cushion in chair and given that they had an existing PU and were sitting out for a longer period it was an important yet overlooked consideration). Here the pressure area care needs of the patient appeared to be competing with their rehabilitation needs. These findings incorporating the systematic use of universal precautions, the integration a second preventative mechanism (i.e. the SSKIN care plan and bundle) and failure to escalate the repositioning schedules for patients with PUs and competing rehabilitation requirements, suggests the potential for PURPOSE-T to facilitate an individualised approach to care are not being fully realised, due to a one size fits all approach to prevention.

4.3.2.1. Preliminary programme theories: care panning and delivery. By reviewing the candidate programme theories (section 1.1) and reflecting on the evidence above, the following preliminary programme theories relating to care planning and development were developed.

1. The implementation of universal precautions provides a safety net/minimum standard of pressure area care (Context) and encourages a one size fits all approach to pressure area care (Outcome), rather than a more targeted approach that could be realised by using PURPOSE-T (Mechanism). This leads to adequate care for most patients but not those with complex needs (Outcome).
2. In a culture of blame and with the existence of care pathways for skin care, such as the SSKIN (context), a custom and practice system is used for all patients because nurses fear making tailored decisions about care (mechanism), so there is little distinction between the care provided to 'at risk' patients and those with a PU (outcome).
3. Dependent patients with competing rehabilitation needs who have an existing PU and require the assistance of 2 people to stand/transfer (context) reposition less frequently than their 'at risk' counterparts and as recommended in local and national policy (outcome).

5. Discussion

This study explored how context shapes the use of PURPOSE-T in clinical practice using a mixed method realist approach and builds on extensive development work [12,15,25–27] and psychometric evaluation in the UK and Sweden and nurses positive attitudes about using PURPOSE-T in practice [27,55–57]. Although the study was conducted in one acute setting, we identified many contextual features that shape

the use of PURPOSE-T at the individual level, such as clinical experience and organisational level, such as a fear of blame and competing priorities, that are generalisable to hospital settings internationally. The findings about clinical judgement indicate that PURPOSE-T led to different reactions by nurses depending on their level of experience. Those with less experience use it as an educational guide to their assessment, while those with more experience made an initial clinical judgement and used PURPOSE-T as a safety net to ensure they hadn't missed anything. These findings correspond with Hultin et al. work [56,57] where nurses suggested using PURPOSE-T facilitated a deeper understanding and awareness of risk factors as well as the opportunity for them to draw their own conclusions regarding patients' risk status.

Nurses of varying levels of experience noted the importance of PURPOSE-T providing a consistent approach to assessment, as well as means by which they could evidence care, suggesting an underlying fear of blame. Some staff were open about this, but it is also interesting that some staff denied they were working in a blame culture, while their responses seemed to indicate that they were (see section 4.3). This could relate to the rhetoric of a 'no blame culture' that is at odds with how it is actually enacted within the healthcare organisation where accountability is a dominant organisational feature [58]. This causes anxiety in nurses and subsequent risk aversion, particularly in those who are less experienced. An emergency department based vignette study found that less experienced doctors were more risk averse and have increased difficulty dealing uncertainty [59]. The consequence of this was more risk averse decision making (e.g. ordering more diagnostic tests to reduce uncertainty) and within the context of this study it would be understandable for clinicians to become more reliant on systems and processes to distance themselves from decision making. This may also explain why nurses find using PURPOSE-T as reassuring they do but this does not bode well for patient centred decision making and care planning. More effort should be afforded to addressing the underpinning organisational blame culture that was evident in this study, as this is a key barrier to empowering nurses in their clinical practice.

The findings indicate an array of contextual features that impact the planning and delivery of pressure area care that go beyond the use of PURPOSE-T alone and this reinforces the need to consider PU-RAIs as complex interventions rather than diagnostic instruments [24]. This is important because these factors are often not considered in the development and implementation of evidenced based guidelines, which may hamper their usefulness in practice. The systematic provision of HSF mattresses and electric profiling beds (as a minimum) that facilitate movement, provide universal precautions for all ward patients and a safety net for care delivery which is important given the increasing acuity and throughput of patients. This is something that has dramatically improved since the days when traditional PU-RAIs were developed and on its own, given the frequent offloading observed in many 'at risk' patients provides adequate preventative support for most patients.

While consistent escalation in mattress equipment provision was reported and observed, this is not the case for repositioning frequency; while most nurses understood/reported this to be a fundamental means of preventative care, the documentary and observational evidence indicated no escalation in repositioning frequency for those with PUs suggesting disparity between what they aim and think they do and what is actually delivered in practice. This is not unique to this study as another realist evaluation of heal PU preventative practice, found discrepancies between nurses accounts of practice and what was observed [54,60]. These findings also demonstrate the complexities of implementing evidenced-based practice in clinical settings that are influenced by practitioners supporting and having a shared commitment and knowledge across professional boundaries and being able to mobilise structural and cognitive resources to make required activities workable in practice [61]. While this has been realised for beds and mattress provision, possibly due to their systematic provision across the hospital, this is not the case for repositioning where there may be variability in the systems' ability to mobilise structural resources i.e. the 2 members of staff required to move a dependent patient at a specific point time, coupled with the complexities of other care/rehabilitation requirements.

The way that PURPOSE-T and SSKIN documentation are currently used is similar to that of traditional PU-RAIs, as the outcome of PURPOSE-T prompts whether the SSKIN bundle is instigated. The linkage between the risk factors identified via the PURPOSE-T assessment and the skin bundle care plan is possible but there is a lot of unnecessary duplication. In addition, the way key aspects of preventative interventions are enacted, such as repositioning and skin assessment schedules, takes on a more generic custom and practice approach, rather than one that is tailored to the patient. It is difficult to ascertain whether this is influenced by the additional paperwork or relates back to the need to be able to evidence care, fear of blame and a safety in numbers approach.

For most patients a systematic approach may be efficient and appropriate but for those with complex needs a more tailored approach to care is needed. The complexities of managing PU prevention and treatment for immobile patients alongside other rehabilitation priorities requires a planned and holistic approach to care with considerations of the risks and benefits overall. This may be hampered in a context of competing organisational safety priorities and disease/condition specific clinical guidelines e.g. falls prevention.

There is scope to improve PU prevention practice by acknowledging contextual and organisational changes in healthcare systems i.e. universal precautions with streamlined bespoke assessment and care planning/delivery activity to those in most need.

Fig. 5 proposes an initial integrated system of care that would require further development and evaluation in practice. It acknowledges important contextual changes and recognises that for most patients universal precautions (UP: HSF mattress and electric profiling bed, general promotion of movement) will be sufficient to address their risk without the need for time consuming detailed assessments and monitoring. For those at risk of PU development with relatively straightforward care needs, Universal Precautions plus additional daily monitoring of skin would be needed to quickly identify and address any deterioration in skin status. However, a more tailored approach would be needed for those with complex care needs (with competing aspects of care) whose risk profile includes key risk factors (Fig. 5). This approach may also support professional concerns about evidencing care, reduce unwarranted documentation for many patients and free up nurses time to focus on the care of patients with these more complex needs.

6. Conclusion

The findings indicate that nurses' level of experience influences the way they use PURPOSE-T with less experienced nurses using it as an educational guide to the assessment process, while more experienced nurses use it as a safety net to ensure important considerations are not

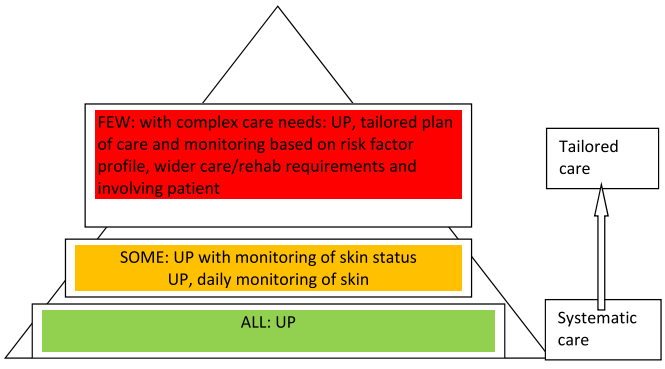

Fig. 5. Proposed integrated system of care. Universal precautions (UP): HSF mattress and electric profiling bed, general promotion of movement.

overlooked. It also facilitated a consistent approach to the assessment and documentation which was particularly important given the blame culture that was encountered.

The findings further along the PU prevention pathway demonstrate an array contextual features, impacting care planning and delivery, which go beyond the use of PURPOSE-T alone including the standardised use of PU prevention UP and complicating additional mechanisms (i.e. SSKIN). These contextual features encourage a one size fits all approach to care and reinforces the assertion that PU-RAIs are complex interventions. The findings could inform the development of a more integrated system of care which takes into account the contextual features associated with PU prevention in modern hospitals.

Funding

This report is independent research arising from a Post-Doctoral Research Fellowship (Susanne Coleman PDF 2016-09-054), supported by the National Institute for Health Research. The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the National Institute for Health Research, Health Education England or the Department of Health.

Declaration of competing interest

No conflict of interest have been declared by the authors.

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