National Guidance Perpetuates Cognitive Error Associated with Fatal Delayed and Missed Diagnoses

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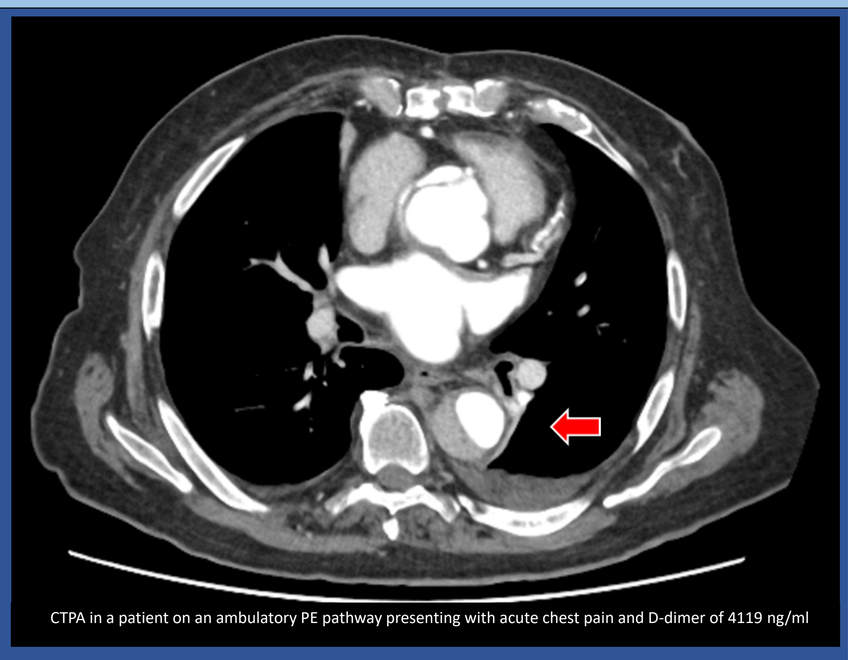
Conclusion

A local ambulatory Pulmonary Embolus (PE) pathway that followed national guidance had 4 deaths in a two year period due to undiagnosed Thoracic Aortic Dissection (TAD). The same cognitive error occurred in all patients; the raised D-dimer led to a 'diagnosis' of PE without consideration of the wider differential and without confirmatory Computed Tomogram Pulmonary Angiogram (CTPA). A regional survey of Emergency Departments (ED) has shown that this same cognitive bias is present in other ambulatory PE pathways across the region. The survey highlighted that the of majority EDs had limited access to CTPAs. It is possible that national guidance has systematised a cognitive error. ED access to emergency and urgent cross sectional imaging (CTPA) is likely to be a factor in delayed or missed life threatening diagnoses. A raised D-dimer in patients with acute chest pain is an indication for emergency imaging not ambulatory investigation.



CTPA in a patient on an ambulatory PE pathway presenting with acute chest pain and D-dimer of 4119 ng/ml

Introduction

Nationally, Ambulatory Emergency Care (AEC) is promoted as part of the solution to ED crowding, including for conditions such as Pulmonary PE. National Confidential Enquiry into Patient Outcome and Death (NCEPOD) also recommends that patients with suspected PE are commenced on treatment prior to CTPA. In patients presenting with acute chest pain and who have an elevated D-dimer, PE is part of the differential diagnosis, as is thoracic aortic dissection (TAD).

Methods

Mortality reviews and regional survey of emergency departments.

Results

Individual case reviews over a 2-year period at our hospital highlighted four patients who had presented with chest pain that was not 'typical' of TAD, but who subsequently suddenly and unpredictably died of TAD. All four patients had been managed on an ambulatory 'PE' pathway and were anticoagulated, none had had a CTPA before anticoagulation. Five out of seven other EDs in our region also reported this same type of AEC pathway was present in their institution. The two EDs that performed CTPAs prior to treatment and discharge were the only ones not to report difficulty in accessing CTPAs.

Trust	PE Diagnostic Pathway	Ease of access to CTPA
A	Anticoagulation and CTPA before discharge. No OPD risk stratification tool used.	Easy at all times
B	Anticoagulation and CTPA before discharge. No OPD risk stratification tool used	Easy at all times
C	CTPA and anticoagulation before discharge if 'in hours', otherwise ambulatory pathway. Variable use of risk stratification tool (PESI).	Only easy in-hours
D	CTPA and anticoagulation before discharge if 'in hours', otherwise ambulatory pathway. No OPD risk stratification tool used.	Only easy in-hours
E	CTPA and anticoagulation before discharge if 'in hours', otherwise ambulatory pathway. No OPD risk stratification tool used.	Never easy
F	CTPA and anticoagulation before discharge if 'in hours', otherwise ambulatory pathway. OPD risk stratification tool	Never easy
G	CTPA and anticoagulation before discharge if 'in hours', otherwise ambulatory pathway. No OPD risk stratification tool used.	Never easy

National Guidance

'Give an interim dose of anticoagulant to patients suspected of having an acute pulmonary embolism (unless contraindicated) when confirmation of the diagnosis is expected to be delayed by more than one hour.'
Know the Score. National Confidential Enquiry into Patient Outcome and Death (2019)

'If CTPA cannot be carried out immediately, offer interim therapeutic anticoagulation (if possible, choose an anticoagulant that can be continued if PE is confirmed)'
National Institute for Healthcare excellence, Management of suspected pulmonary embolus, June 2023.

Cognitive Error

The ambulatory PE pathway has systematised a cognitive error of associating a raised D-dimer with PE, leading to other potential diagnoses being forgotten – an example of anchoring / diagnostic momentum / Sutton's slip.

Bank-robber Willie Sutton was asked by a reporter in 1952 why he robs banks:

Sutton's slip: Focusing diagnostic strategy on the most obvious diagnosis may lead to error when other diagnoses are not considered

Sutton's law, Life in the Fast Lane. LITFL. 2020. Available at: https://litfl.com/suttons-law. Accessed 21.08.2023

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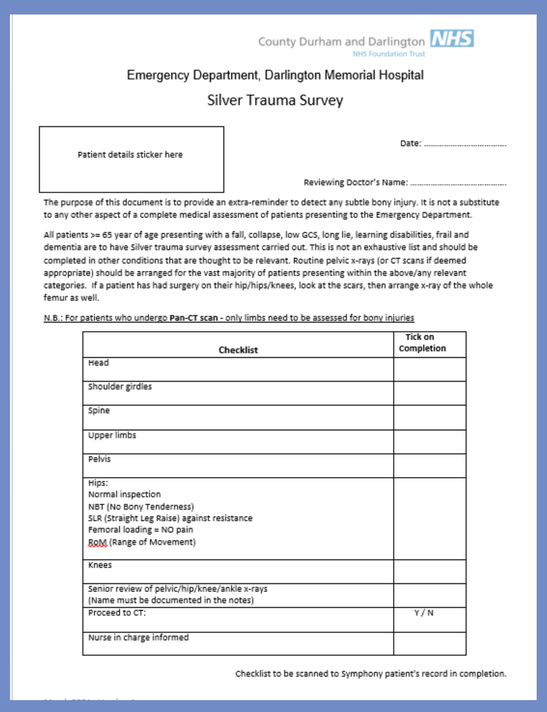
Silver Trauma Survey (STS)

Hussan T.



County Durham and Darlington NHS
NHS Foundation Trust

Emergency Department, Darlington Memorial Hospital

Silver Trauma Survey

Patient details sticker here

Date: .....

Reviewing Doctor's Name: .....

The purpose of this document is to provide an extra-reminder to detect any subtle bony injury. It is not a substitute to any other aspect of a complete medical assessment of patients presenting to the Emergency Department.

All patients >= 65 year of age presenting with a fall, collapse, low GCS, long lie, learning disabilities, frail and dementia are to have Silver trauma survey assessment carried out. This is not an exhaustive list and should be completed in other conditions that are thought to be relevant. Routine pelvic x-rays (or CT scans if deemed appropriate) should be arranged for the vast majority of patients presenting within the above/any relevant categories. If a patient has had surgery on their hip/hips/knees, look at the scars, then arrange x-ray of the whole femur as well.

N.B.: For patients who undergo **Pan-CT scan** - only limbs need to be assessed for bony injuries

Checklist	Tick on Completion
Head	
Shoulder girdles	
Spine	
Upper limbs	
Pelvis	
Hips: Normal inspection NBT (No Bony Tenderness) SLR (Straight Leg Raise) against resistance Femoral loading = NO pain RoM (Range of Movement)	
Knees	
Senior review of pelvic/hip/knee/ankle x-rays (Name must be documented in the notes)	
Proceed to CT:	Y / N
Nurse in charge informed	

Checklist to be scanned to Symphony patient's record in completion.

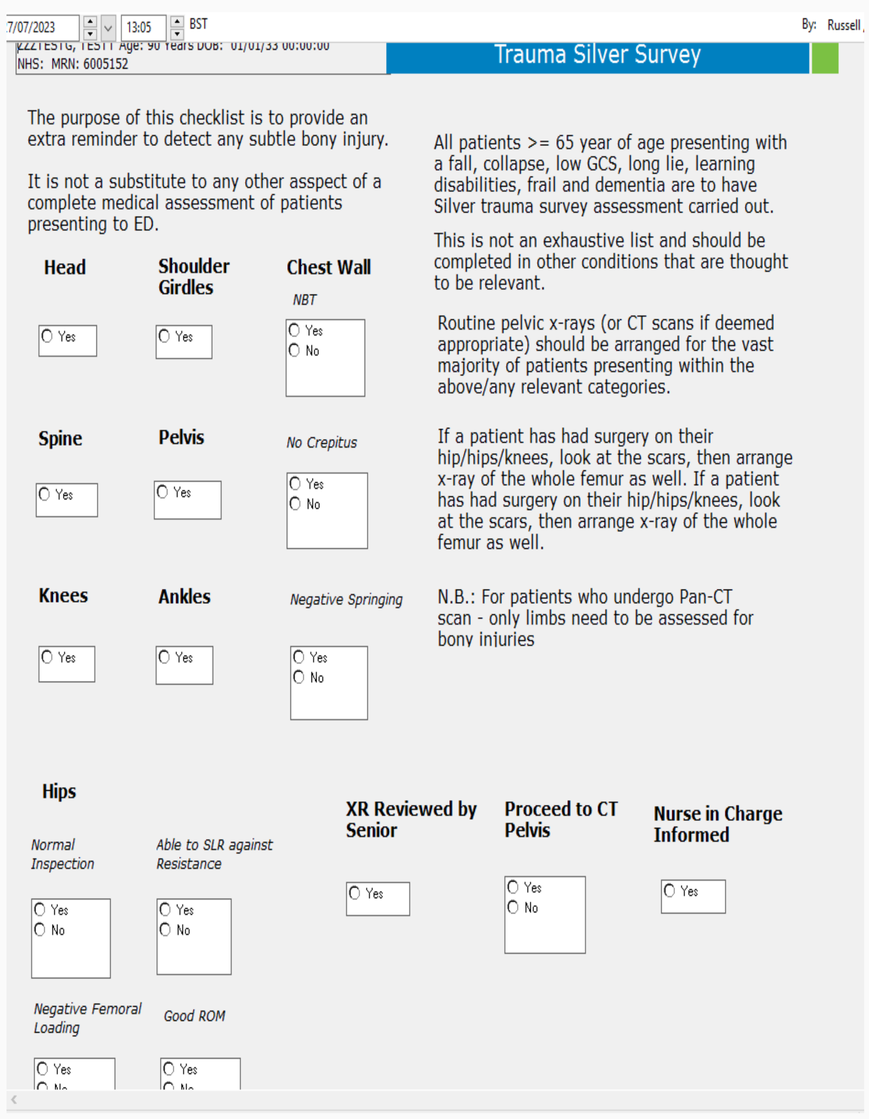
Original hard copy format prior to introduction of new electronic patient record system in CDDFT in 2022 (electronic version below).

Modified secondary survey with special focus on hip examination, senior involvement and CT scanning as per the Trust's hip pathway (clinical suspicion + normal radiography).

Silver Trauma is major trauma (ISS >15) caused by low energy mechanism (e.g. fall from standing height) in older people.

Introduction

This survey was created to reduce the number of missed hip/femoral neck fractures (#NoF) due to the increased number in 2020. The aim was to also improve documentation of secondary survey, increase accountability of senior clinicians and so protection/continuous supervision of junior clinicians as well as education regarding subtle/undisplaced (Garden 1 and 2) NoF fractures.



7/07/2023 13:05 BST By: Russell

ZZZTEST6, TEST Age: 90 Years DOB: 01/01/33 00:00:00
NHS: MRN: 6005152

Trauma Silver Survey

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This is not an exhaustive list and should be completed in other conditions that are thought to be relevant.

Routine pelvic x-rays (or CT scans if deemed appropriate) should be arranged for the vast majority of patients presenting within the above/any relevant categories.

If a patient has had surgery on their hip/hips/knees, look at the scars, then arrange x-ray of the whole femur as well. If a patient has had surgery on their hip/hips/knees, look at the scars, then arrange x-ray of the whole femur as well.

N.B.: For patients who undergo Pan-CT scan - only limbs need to be assessed for bony injuries

Head ○ Yes

Shoulder Girdles ○ Yes

Chest Wall *NBT* ○ Yes ○ No

Spine ○ Yes

Pelvis ○ Yes

No Crepitus ○ Yes ○ No

Knees ○ Yes

Ankles ○ Yes

Negative Springing ○ Yes ○ No

Hips

Normal Inspection ○ Yes ○ No

Able to SLR against Resistance ○ Yes ○ No

XR Reviewed by Senior ○ Yes

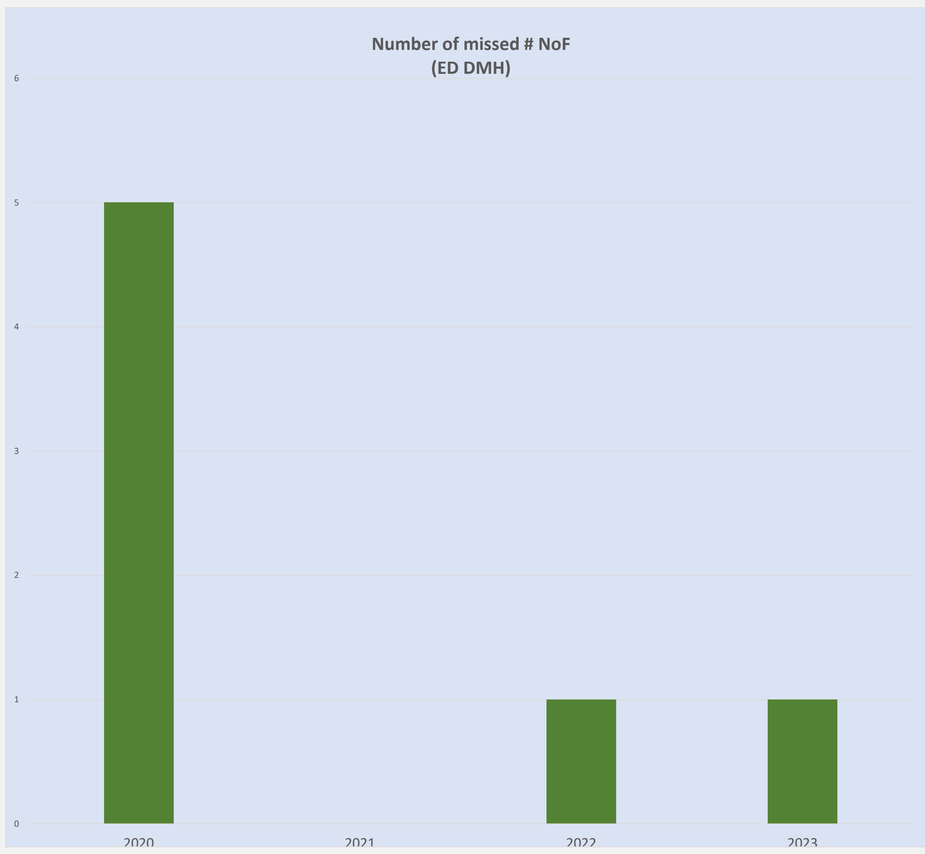
Proceed to CT Pelvis ○ Yes ○ No

Nurse in Charge Informed ○ Yes

Negative Femoral Loading ○ Yes

Good ROM ○ Yes

Results



The first bar represents the number of missed fractures prior to the STS (**x5/2020**). Since it was introduced, the number of missed fractures has been significantly reduced (**zero in 2021/ x1 in 2022** missed by radiologist external to the Trust on pan-CT/ **x1 in 2023** junior doctor failed to utilise the survey).

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‘We hear but do we listen - Patients on the ED Corridor’

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University Hospitals of Morecambe Bay NHS Foundation Trust

The conclusion

Taking care of patients in ED corridors is becoming normalised. These QIPs provided us with the opportunity to look into our systems and processes to improve patients' safety in our corridors and reduced high value and fatality claims. Different themes emerged with possible solutions including future considerations. It includes improve staff patient ratio, corridor SOP, dedicated assessment cubicles, improve communication, mattresses to reduces bedsores, seen and safe checks. Future considerations are Live corridor dashboard, escalation tool for corridor and incident system to reduce psychological harm to the staff.

Introduction

Nationally, Emergency Departments continue to experience high level of attendances and patients are waiting longer to be seen. The Royal Lancaster Infirmary (RLI) faces the same challenges with high attendances and reduced bed capacity. The department becomes crowded which results in patients being cared for on the corridor.

Corridor care is dangerous. Providing care to patients in corridors and other non-clinical areas is becoming normalised. Care, safety, dignity and privacy are compromised. Teams working in the Emergency Department are being put under intolerable pressure to keep patients and each other safe. It has a real potential for high value and fatality claims.

Scientific evidence shows delays to care and long waits to admission to hospital increase a patient's risk of harm and death, even after leaving an ED. These patients are spending most of their time now in ED corridors which can lead to all the causes for high-risk fatality.

Aims and Objectives

The aim of our QIPs were to find out the issues and problems faced by the corridor patients (patients’ stories) and the staff (doctors and nurses survey) taking care of them on daily basis in the emergency department, this will help us to understand their perspectives and find some workable solutions based on their experience and suggestions and available date/ evidence.

Methods

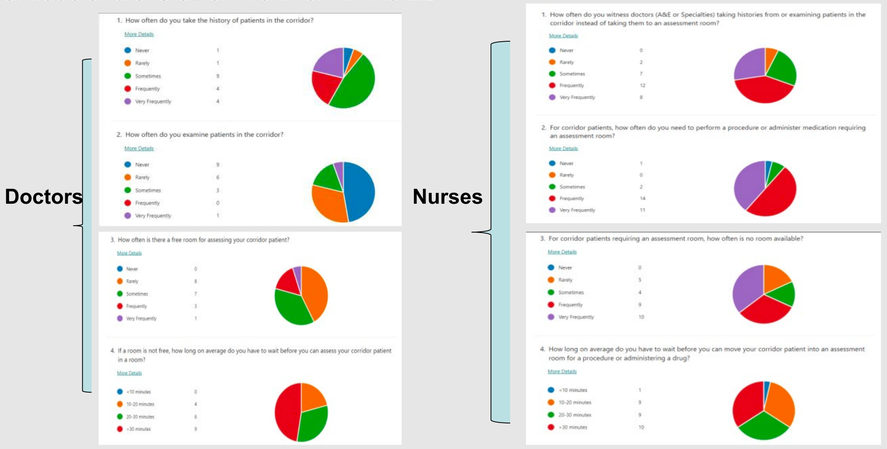
Our QIP has two parts, one was a survey conducted among ED staff (two questionaries) one for doctors and other for nurses. Second part was to talk to our patients who spent hours on our ED corridors.

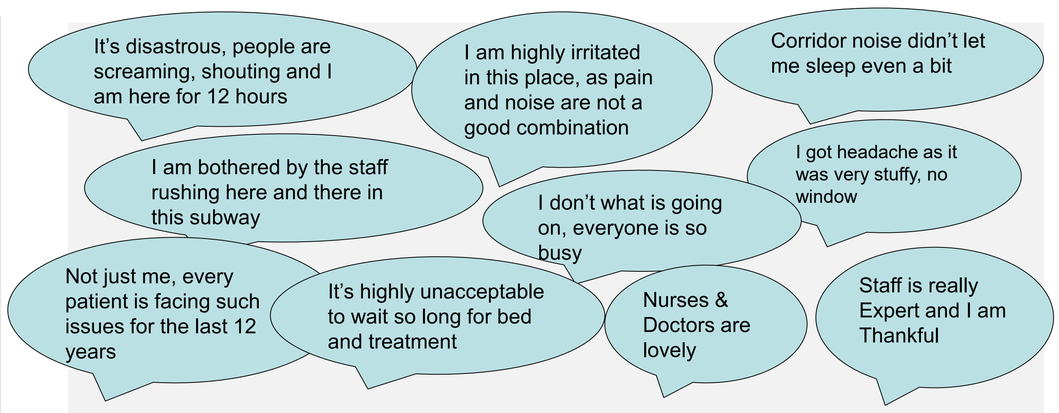
We randomly selected 20 patients who have been waiting in the corridor. The data was collected over three weeks starting from March 20, 2023, till April 15, 2023. We sat with the patients listening to them while they described their experiences in their own words. We asked them open-ended questions allowing them to be as detailed as they wanted and collecting qualitative data using unstructured interviews. We analysed the data in various themes.

For ED staff - Two questionnaires were designed, for a diverse, randomly selected workforce; one questionnaire was for emergency department doctors (13), and the other for nurses (19). Responses were collected over a period of one month and this survey reflects the reality of Emergency Department staff experience, on daily basis.

Results

The number of doctors who responded was 19, with 36 nurses replying to the survey. Percentages of responses from the survey were statistically represented with suggestions to improve corridor patient care were presented in the weekly emergency department, interactive clinical meeting, which was attended by the doctors and nurses. Some important observations, based on responses were that 47% of the doctors have taken history on the corridor but only 5% clinically examined the patients. Among the nurses, 34% waited more than 30 minutes, before moving a patient to an assessment cubicle for a procedure or administering a medication. These patient stories focusing on the experiences of elderly patients and their caregivers. These cases narratives shed light on various aspects of the patient's experiences, including waiting times, triage, accommodation, discomfort, noise, staff attitude and overall environment in the ED.





Thematic Review and Recommendations

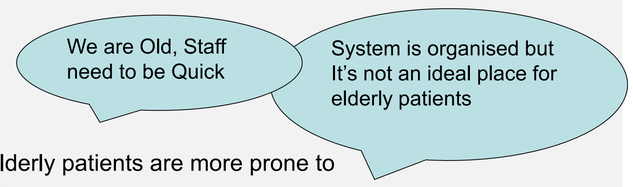
The thematic review below highlights the key themes that emerge from these cases:

Waiting Times and Triage Efficiency: triaged and seen by a doctor. Long waits in the ambulance, waiting area, and corridor are common themes.

Accommodations and Environment: Patients frequently express discomfort about staying in the corridor, citing issues related to noise, inability to rest, and a lack of privacy.

Discomfort and Restlessness:

Staff Attitudes and Care:



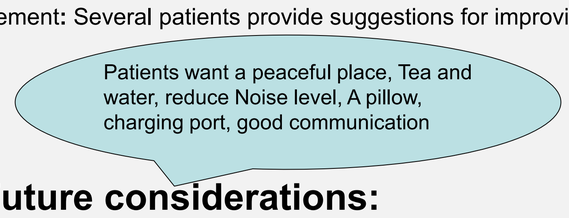
Age-Related Sensitivity: Elderly patients are more prone to discomfort and sensory sensitivities

Communication and Information: Patients express concerns about not being informed about their treatment plans, the reasons for delays, general flow of care.

Experience and Expectations: Comparisons to previous visits, reflecting on the quality of care, they received in the past.

Gratitude for Care Providers and NHS: Despite the challenges and discomfort, some patients acknowledge the hard work and dedication of the healthcare staff.

Suggestions for Improvement**:** Several patients provide suggestions for improving the ED experience.



Actions and Future considerations:

Actions:

1. **Improve patient to staff ratio (4:1)**
2. **Re-align trolley in the corridor to reduce congestions and noise**
3. **Improve communication with patients with dedicated corridor ‘SOP’**
4. **Seen and Safe/ SBAR, including Oxygen cylinder capacity (wall mounted)**
5. **Use dedicated cubicles for assessment**
6. **Improve trolley mattresses to reduce bedsores**
7. **Regular food and water trolley**

Future Considerations:

1. **Live Corridor Dashboard**
2. **Escalation tool for corridor**
3. **Reduce psychological harm in staff with dedicated incident reporting system (LFPSE)**

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