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Content Analysis of Patient Safety Incident Reports for Older Adult Patient Transfers, Handovers, and Discharges: Do They Serve Organizations, Staff, or Patients?

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Objective: The aim of the study was to analyze content of incident reports during patient transitions in the context of care of older people, cardiology, orthopedics, and stroke.

Methods: A structured search strategy identified incident reports involving patient transitions (March 2014–August 2014, January 2015–June 2015) within 2 National Health Service Trusts (in upper and lower quartiles of incident reports/100 admissions) in care of older people, cardiology, orthopedics, and stroke. Content analysis identified the following: incident classifications; active failures; latent conditions; patient/relative involvement; and evidence of individual or organizational learning. Reported harm was interpreted with reference to National Reporting and Learning System criteria.

Results: A total 278 incident reports were analyzed. Fourteen incident classifications were identified, with pressure ulcers the modal category (n = 101, 36%), followed by falls (n = 32, 12%), medication (n = 31, 11%), and documentation (n = 29, 10%). Half (n = 139, 50%) of incident reports related to interunit/department/team transfers. Latent conditions were explicit in 33 (12%) reports; most frequently, these related to inadequate resources/staff and concomitant time pressures (n = 13). Patient/family involvement was explicit in 61 (22%) reports. Patient well-being was explicit in 24 (9%) reports. Individual and organizational learning was evident in 3% and 7% of reports, respectively. Reported harm was significantly lower than coder-interpreted harm ($P < 0.0001$).

Conclusions: Incident report quality was suboptimal for individual and organizational learning. Underreporting level of harm suggests reporter bias, which requires reducing as much as practicable. System-level interventions are warranted to encourage use of staff reflective skills, emphasizing joint ownership of incidents. Co-producing incident reports with other clinicians involved in the transition and patients/relatives could optimize organizational learning.

Key Words: incident reports, patient transitions, patient transfers, patient discharge, patient harm, patient safety

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P atient safety incident reporting by healthcare professionals is an established process across many healthcare systems internationally. Clinician incident reports can impact positively on patient safety by driving changes in care processes and changing knowledge and attitudes.[1] Reporting of safety incidents is a key component of a systems approach to safety; however, it has been identified that clinicians tend to "fix and forget" when they encounter a safety problem, rather than "fix and report," which hampers the ability for organizational learning.[2] Similarly, a systematic review of the effectiveness of incident reporting systems found that of 35 studies, none suitably demonstrated the double-loop learning required for changes to governance that would result in system learning.[3] Other well-recognized barriers to incident reporting and subsequent learning include perceived time constraints[4,5]; professional responsibilities[5,6]; lack of involvement in the system of reporting errors and rejection of bureaucracy[7]; incomplete feedback loops[4,5]; the inevitability of error[7]; and perceived seriousness of incidents.[5] Although avoidance of blame is an additional barrier to incident reporting,[4,7] it has also been identified that incident reports can be used to apportion blame to others.[8,9]

It is recognized that incident reports alone are not an adequate measure of safety[10] but that they should be used as an indicator for further investigation.[11,12] In turn, this creates a requirement for higher-quality incident reports, rather than an increased quantity that is indicative of a more positive safety culture.[13] Analyses of the content of incident reports have been relatively few and far between in the literature, despite the prevalence of incident reporting across healthcare systems. Existing analyses have tended to be descriptive, based on a single incident classification, such as medication errors,[14–17] falls,[18] or pressure ulcers.[19] Other studies have investigated incident reports related to patient outcomes, such as patient mortality,[20] and specific clinical areas, such as anesthesia[21,22] or the emergency department.[23] Incident reports relating to clinical handovers have also been studied in detail in one identified study,[24] with poor, incomplete, or no handover representing 74% of 334 analyzed reports and 99% of reports being assigned a rating of low harm. Notably, none of these studies reported whether, or how, the incidents were disclosed to patients. Involving patients and their families, even when limited to only incident disclosure, has been reported to have the ability to improve patient-provider relationships.[25] Moreover, disclosure of incidents is now required in the UK National Health Service (NHS) as part of a clinician's duty of candor where incidents lead to death or are deemed to be of severe harm, moderate harm, or prolonged psychological harm.[26]

The aim of this article was to elucidate what clinician incident reports tell us about patient safety incidents during transfers, handovers, and discharges (collectively referred to transitions) in the clinical contexts of care of older people, cardiology, orthopedics, and stroke. Specifically, we aimed to identify types of transitions and theoretical constructs of safety models (active failures and latent conditions[27]) to inform changes to practice. This included

the extent of individual and organizational learning, the degree of patient and family member involvement in safety incidents, and the extent that reported harm was deemed congruent with established criteria for categorization of harm.

METHODS

Ethical approval for the collection and analysis of incident reports for the included NHS Trusts and wards was obtained from the Yorkshire and The Humber/Leeds West NHS Ethics Committee (13/YH/0372) as part of the PRoSOCT study.[28] R&D approval for access and use of data was provided by the individual NHS Trusts. Incident reports were anonymized by participating Trusts as part of the research governance process.

Sampling Frame and Search Strategy

A structured search strategy identified all incident reports involving patient transitions during March 2014 to August 2014 and January 2015 to June 2015 from 4 hospitals within 2 NHS Trusts in 16 wards representing the following 4 clinical areas: care of older people; cardiology; orthopedics; and stroke. Incident reports relating to transfers, handovers, and discharges were identified based on pre-existing categories; "failure/delay of discharge" and "admission/transfer problems." This was supplemented by a key word search of incident reports consisting of "discharge," "transfer," "handover," or "hand-off." The trusts represented the upper and lower quartiles of all NHS Trusts in England based on the number of incident reports per 100 admissions. One of the Trusts had 7 reports per 100 admissions, whereas the second had 3 reports per 100 admissions.

Anonymized incident reports retrieved from the search strategy were transferred to an Excel sheet with the following data fields: anonymous ID number; incident description; action(s) taken; category; degree of reported harm; and clinical area (derived from hospital ward name). Root cause analyses of the incident reports were not available.

Eligibility Criteria

Eligible incident reports had to explicitly describe any type of care process (collect, assess, plan, supplement, or follow-up/monitor or evaluation[29]) as part of a patient transition (completed or planned). A transition was defined as the movement of a patient from one location to another, which also included self-transfer (or self-discharge) by the patient. Incidents were excluded where there was no indication of a safety incident associated with a patient transition, such as an unwitnessed fall or incident reports focused on concerns about staffing levels.

Data Extraction and Analysis

A researcher (J.S.) became familiar with the data by reading a large proportion of the safety incidents and becoming immersed in the data, as part of the preparation phase for content analysis.[30] A data extraction form (online Appendix 1, http://links.lww.com/JPS/A252) and accompanying coding manual (online Appendix 2, http://links.lww.com/JPS/A253) were then developed to enhance the reliability of the data extraction and analysis process. Data extraction and coding were based on data explicitly reported in the incident report (otherwise a code of "none" was recorded).

The data extraction form was piloted; J.S. individually coded 20% of incidents, which were also independently coded by A.B., A.D.B., E.H., and P.D. (5% each). After the pilot, the extracted data were compared and discussed by the coders, with a particular emphasis on (dis)agreements and partial (dis)agreements. Interrater reliability was measured using percentage agreement and Scott's π. As a result of these discussions, the data extraction form was revised to improve clarity and meaning for all variables. Data extraction was then piloted on 20 randomly selected incident reports by 2 coders (J.S. and D.F.) working independently, with percentage agreement of more than 90%. Further refinements were then made to the data extraction form and coding manual. Interrater reliability testing results are available in online Appendix 3 (http://links.lww.com/JPS/A254). The final data extraction form captured the following variables:

- Type of transition (informed by definitions developed by Pezzolesi et al.)[24]
- Reason for transition
- Incident classification
- Active failures[30]
- Latent conditions[30]
- Staff actions
- Role of reporter in incident
- Patient/family involvement
- Patient well-being
- Evidence of individual learning
- Evidence of organizational/systems learning
- Concordance between level of harm reported in the incident and the coder's interpretation (based on National Reporting and Learning System [NRLS] definitions of harm)[31]
- Coder's reflections on the incident

D.F. then coded the remaining incident reports, with any case reports identified as ineligible confirmed by a second coder (J.S.).

Microsoft Excel was used to file and code qualitative data. Initial coding of incident classification, active failures, latent conditions, and free-text responses of the coder's reflections on specific incident classifications were content analyzed for manifest content.[30] Each incident report was treated as a single unit of data because of a tendency for the individual completing the incident report to conflate the 2 types of data, thus producing a single account.

(IBM Corp. Released 2016. IBM SPSS Statistics for Windows. Armonk, NY) was used to generate appropriate descriptive statistics for all variables, including conducting a χ^2 test to establish associations between observed levels of harm and interpreted harm within incident reports.

RESULTS

A total of 375 incident reports were identified by the search strategy. Ninety-seven were excluded for reasons such as not being related to a patient safety related transition (online Appendix 4, http://links.lww.com/JPS/A256), with 278 included in the analyses (Fig. 1). This meant that 2.5% of the 11,282 patient discharges during the study period had an incident report that met the inclusion criteria.

Fourteen incident classifications were identified across the data set overall (Table 1). The modal incident classification was pressure ulcers (n = 101, 36%), followed (in descending frequency) by falls (n = 32, 12%), medication (n = 31, 11%), documentation (n = 29, 10%), delayed transition (n = 15, 5%), communication (n = 15, 5%), device/equipment (n = 12, 4%), infection control (n = 11, 4%), potentially unsafe transition (n = 11, 4%), patient self-transfer (n = 10, 4%), staff related issues (n = 4, 2%), suboptimal treatment (n = 4, 2%), patient injury, (n = 2, 1%), and patient violence (n = 1, <1%).
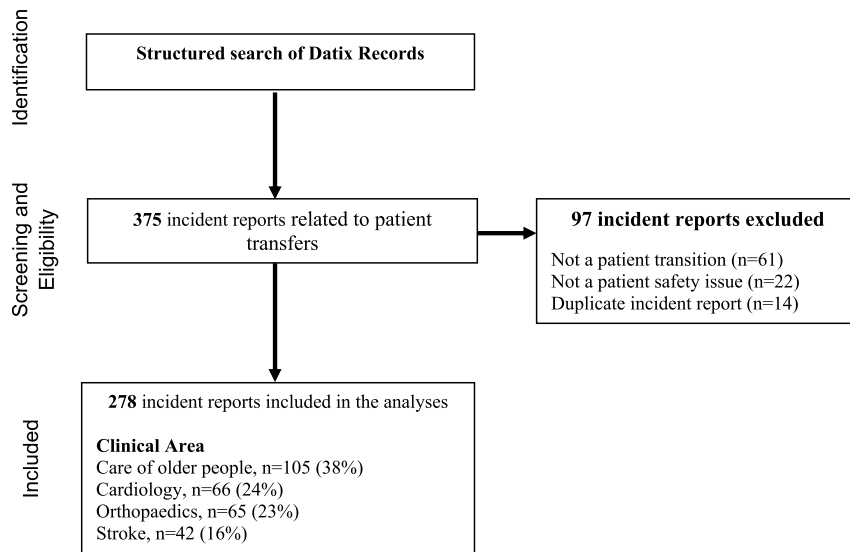
FIGURE 1. Flowchart diagram of the process used to identify incident reports.

Pressure ulcers was the dominant incident classification across all 4 clinical areas, followed by medication (care of older people and cardiology), documentation (orthopedics), and falls (stroke) (online Appendix 5, http://links.lww.com/JPS/A257). Table 2 shows the cross tabulation of incident classifications with active failures, including exemplar quotes from actual incident reports. Incidents related to medication had the greatest number of unique active failures (n = 11), with the number of active failures broadly equating to frequency of incident classifications.

Table 1 shows the summary statistics for a cross tabulation of type of transition and incident classifications (and codes) for the data set overall. Half of all incident reports were interunit/department/team transfers (n = 139, 50%), followed (in descending frequency) by discharges/out of hospital transfers, intraunit/department/team transfers, and hospital to hospital transfers (Table 1).

The rank order of the 3 most frequently reported transition types for the data set overall was identical for the care of older people, cardiology, and orthopedics (interunit/dept/team, out of hospital, intraunit/dept/team). For incidents from stroke care, interunit/ dept/team transitions were more frequently reported, and intraunit/ department/team and out of hospital were ranked second and third, respectively (online Appendix 6, http://links.lww.com/JPS/ A258). The transition type "into hospital" was present in reports from 3 of the following 4 clinical specialisms: care of older people; cardiology; and orthopedics. Patient self-transfers were only reported for 2 clinical specialisms: cardiology and orthopedics. In one incident report for orthopedics, the transition type was unknown.

Latent Conditions, Patient/Family Involvement, Patient Well-being, and Learning

A cross tabulation of incident classifications with latent conditions, patient/family involvement, patient well-being, and learning is presented in Table 3.

Information pertaining to 9 different latent conditions was present in 33 (12%) of 278 incident reports: inadequate resources/staff and related time pressures (n = 13); pressures for bed space (n = 6); competing demands of wards (n = 3); staff unaware of policy/ procedures (n = 3); staff inexperience (n = 2); local policy/ workflow procedures (n = 2); inadequate equipment (n = 1); ward

design (n = 2); and overruled by management (n = 1). Incident classifications with the highest proportion (percentage) of explicit references to latent conditions were staff-related issues, delayed transition, and infection control.

Patient or family involvement was identified in 61 (22%) of 278 incident reports, although this was typically superficial and passive, such as *"patient or family member informed or given advice."* The incident classifications with the highest proportion of explicit references to patient or family involvement were staff-related issues, patient self-transfers, and delayed transitions. Evidence of directly addressing patient well-being was identified in 24 (9%) of 278 reports (primarily for medication errors and staff-related issues that prevented timely provision of care), with statements such as *"apology given to patient or family member."* The greatest proportion of incidents with evidence of addressing patient well-being was for staff-related issues (3/4 = 75%), for example, a case involving an unexpected patient transfer (interunit/ dept/team) in the care of older people, where the patient felt unsafe because of receiving staff being *"very unwelcoming"* – *"Our member of staff stayed with the patient until a mattress had been found and tried to reassure her she would be safe on the ward."*

Individual learning was evident in only 7 (3%) of 278 incident reports. Nine (3%) incident reports made reference to organizational learning: discussed with staff/other senior team members (n = 7) and root cause analysis (n = 2). Only one incident report included explicit evidence of double-loop learning (both individual and organizational learning).

Concordance Between Reported and Interpreted Harm

A χ^2 test indicated that there was a significant difference between levels of harm reported within incident reports and the coder's (D.F.) interpretation (Fig. 2; χ^2 [9] = 216.5, $P < 0.0001$). Overall, 116 (42%) of 278 cases of reported harm were regraded by the coder, with 114 (98%) of 116 being regraded to a higher level of harm.

Examples from incident reports that illustrate the discordance between observed and interpreted harm related to pressure ulcers; the following examples were designated as no harm:

TABLE 1. Cross Tabulation of Type of Transition and Incident Classification

Incident classification and codes	Type of Transition*							Overall, n (%)
	Interunit/ Dept/Team	Out of Hospital	Intraunit/ Dept/Team	Hospital to Hospital	Into Hospital	Self-transfer	Unknown	
Pressure ulcer	70	18	2	8	3			101 (36)
Pressure sore								
Skin not intact								
Moisture lesion								
Identified after transition								
Falls	3		29					32 (12)
Patient fall								
Patient fall not reported on transfer								
Medication	8	18	2		2		1	31 (11)
Incorrect dosage								
Incorrect prescription/error								
Medication not prescribed								
Medication delayed								
Medication incorrectly labeled								
Missing medication								
Unclear prescription								
Documentation	16	9	1	1	2			29 (10)
Documentation missing/lost								
Incomplete documentation								
Incorrect (other patient) documentation								
Documentation error								
Delay in receipt of documentation								
No transfer documentation								
Delayed transition	4	10		1				15 (5)
Delayed discharge (communication)								
Delayed discharge (family)								
Delayed discharge (transport)								
Delayed discharge (documentation)								
Delayed discharge (tests)								
Communication	9	4			2			15 (5)
No handover taking place								
Suboptimal handover of information								
Referral not made								
Diagnostic tests not done/delayed								
Treatment not provided/delayed								

(Continued next page)

TABLE 1. (Continued)

	Type of Transition*							
	Interunit/ Dept/Team	Out of Hospital	Intraunit/ Dept/Team	Hospital to Hospital	Into Hospital	Self-transfer	Unknown	Overall, n (%)
Device/equipment	5	4	2	1				12 (4)
Device left in situ								
Equipment failure								
Infection control	9		1	1				11 (4)
Infection control failure								
Infection control risk/protocol breach								
Potentially unsafe transition	9		1	1				11 (4)
Inadequate monitoring of patient								
Inappropriate transition								
Unsafe handover								
Patient self-transfer		1				9		10 (4)
Self-discharged without informing staff								
Self-discharged against medical advice								
Staff-related issues	2	1	1					4 (2)
Suboptimal levels of staff								
Patient distress arising from staff actions								
Unable to provide safe care/meet patient needs due to staff shortages								
Patient allegations of abuse								
Suboptimal treatment	3	1						4 (2)
Breach of discharge protocol								
Treatment error								
Patient injury			2					2 (1)
Abrasions								
Skin tear								
Patient violence	1							1 (<1)
Overall, n (%)	139 (50)	66 (24)	41 (15)	13 (5)	9 (3)	9 (3)	1 (<1)	278 (100)

*Types of transfer definitions: Into hospital, a patient is admitted to a hospital ward from their home or in the community; Out of hospital, a patient is discharged home (with or without community care), or to a care home; Interunit/department/team, a patient is moved from one ward to another in the same hospital; Intraunit/department/team, a patient is moved from a hospital bed to wheelchair or handover between day and night staff; Hospital to hospital, a patient is moved from one hospital to another, dependent on the perspective of the reporter (receiving or sending the patient); Self-transfer, a patient expresses a wish to discharge themselves from hospital (irrespective of whether they followed through with it or not, and staff were informed or not); Unknown, it is not clear what type of transfer the patient went through based on the data included in the incident report.

TABLE 2. Cross Tabulation of Incident Classifications and Active Failures With Exemplar Quotes From Incident Reports

Incident classification		n (%)	Active Failures	Exemplar Quotes
	Pressure ulcer	101 (36)	• Skin bundle documentation inaccurate • Nonadherence/lack of follow-up to treatment of pressure ulcer in skin bundle • No mention of pressure ulcer in transfer documents • No skin assessment undertaken before transition • Skin assessment not thoroughly undertaken • Incorrect location of pressure sore in documentation • Pressure sore graded incorrectly in documentation • Tissue viability nurse was not alerted • Pressure ulcer worsening	• Patient transfered [sic] from [name of sending ward] to [name of receiving ward] found to have a stage 1 pressure sore on right buttock however skin bundle stated it was normal • Patient transfered [sic] into the care on our ward and stated on handover that skin was intact and has a grade 2 • Patient was handed over to have skin intact but fragile. on skin inspection this was not the case, patient had grade 2 spine; scab to forehead; grade 3 to left calf-sloughy; grade 2 to left calf, scabbed; dry cracked skin to both heels and arms; grade 2 to right forearm, • Nothing has been documented or handed over. No body map already in place and patient has been in hospital for a few days already. • Telephone handover given but no mention of any issues with skin damage
	Falls	32 (12)	• Inadequate moving and handling • Failure to use equipment available • Failure to check patient understood instructions • Information in patient notes overlooked • Inadequate observation/monitoring of patient • Fall not documented in transfer notes • No medical review after previous falls	• OT and physiotherapy joint transfer assessment. Sliding transfer from bed to chair. Somehow the wheelchair was pushed away. Patient fell to the floor. • Staff sat at nurse's station having handover when heard a loud bang [sic]. when we stood up we saw pt on floor [sic] at doorway to bay 4. Pt had been walking out of bay when she fell but staff had not seen her due to board round screen blocking the view of bay 4 (falls bay). • Bank HCA C reports to me that she was supervising the patient transferring from bed to chair, on route to the bathroom when his legs gave way and he crumbled to his knees. • About to transfer [patient name] from the bed to a wheel chair to sit out. I had placed his slippers on and dropped the bed rail ready for him to move his legs out. I went to the end of the bed to get a Zimmer frame, to assist with the transfer, when I turned round Mr C coughed and his legs moved and he turned and rolled out of bed. He landed on the floor next to his bed

TABLE 2. *(Continued)*

	n (%)	Active Failures	Exemplar Quotes
Medication	31 (11)	• Discharge medication prescription incomplete • Discharged without prescribed medication • Incorrect medication prescribed • Incorrect medication prescribed (other patient) • Medication not administered • Unsigned for controlled medication • Prescription illegible/unclear • Lost medication • Medication labeled incorrectly • Incorrect medication dosage in discharge notes • Medication not checked on arrival to ward	• The ward then checked their drug cupboard and it came to light that 1 vial (10 g) had gone missing so they could not make up the full 30 gram dose • I came onto shift onto [date] and was administering the 8 A.M. medications. Noticed on drug chart, 22:00 medications had not been given • Following handover checked prescription which was very unclear. • When discharging patient and gathering TTOs together it was noticed that patients insulin had not been prescribed on TTOs
Documentation	29 (10)	• Patient documentation not signed • Missing information on patient documentation • Required documentation not completed • Lost/misplaced documentation • Incorrect (other patient's) information	• Patient discharged to [name of hospital] this P.M. [name of hospital] contacted ward at 17:00 stating no notes for the patient had been received • Patient transferred to [name of receiving ward] from [name of sending ward], and found to have another patient's PPM checklist in their notes • When speaking to staff and reading medical notes from [name of sending ward] there has been no documentation [sic] around the wound • No postop instructions or postop care written by staff from previous day when patient returned rom theater
Delayed transition	15 (5)	• Transport failed to arrive on time • Ambulance personnel not willing to wait • Ambulance arrived with no room for nurse escort • Miscommunication with ambulance service • Miscommunication between staff about availability of bed • Poor communication with family members • Delay in obtaining test results • Take home medications not documented or signed off	• The patient was made ready for transport at 10:00 h. The patient's transport finally arrived at 16.30 h. • Patient then turned up unannounced by hospital transport, but bed was unavailable • Patient should have been discharged today all TTOS and paperwork completed, patient needed pacing check before discharge. We understand the technician was busy and there were emergency's he had to attend to • Patient was ready for collection 2 ambulance men arrived on the ward at 18:30 the patient had about 8 bags of property. I explained they were not going with her. As I was on the phone arranging for the bags to be collected the ambulance man shouted he had aborted it and I would have to rebook.

Category	N (%)		
Communication	15 (5)	• Failed to inform at handover that patient required cohorting • Not informed at transfer about deprivation of liberty being in place • No verbal handover took place • No handover of patient history/symptoms# • Not referred for advice/treatment/follow-up • Miscommunication between ward staff	• Stroke Outreach Service (SOS) had been told that her discharge was planned for [date]. No [Information System] referral had been made to SOS on [later date]. • Theater coordinator was not aware of this patient and theater was not booked. • Routine telephone call to nursing home after discharge – they report that recommendations were not passed over on transfer from nursing staff. • Patient transferred to [name of ward], with an inappropriate handover, was not informed that that the patient needed to be cohorted as gets confused during the night, although this question was specifically asked.
Device/equipment	12 (4)	• Sutures not removed • Cannula left in situ • Catheter left in situ • IV in situ not replaced • IV pump running at incorrect rate	• Patient sent home with Venflon still in situ. • On exam it was found that patient had 2 embedded sutures still in place from surgery undertaken in [location of hospital] over 6 weeks ago • Pt found to have catheter in situ, which was full and was drained of 1500 ml urine. • During bad side hand over, 7:20 A.M. (approx) an IV pump with Furosemide alarmed to say it had finished, was not due to finish until 1 P.M. approx, the pump display showed it was running at 24 mL/h. It was prescribed to be running at 1.5 mL/h
Infection control	11 (4)	• Failure to implement infection control procedures • Poor communication at handover/transfer between staff • Suboptimal patient isolation • Suboptimal ward cleaning • MRSA swab test not undertaken	• Patient was being nursed in a closed bay due to Diarrhea and Vomiting Outbreak. Phone call received from site manager over at the [name of hospital] that patient was to outlie on [name of receiving ward] as identified as medically stable for transfer. Therefore patient was transferred over resulting that other patients on [name of ward] were put at risk. Another patient transferred into empty bed space. • This meant that patient had been exposed to a side room environment, which had previously been occupied by a patient who had been very symptomatic with C. diff., without it being HPV • Patient transferred to [name of ward and date]. It was handed over that this patient was clear of C. diff. [date] infection control came to ward and explained that patient was not clear of Cdiff and had not been made clear initially. • Pt transferred from [name of ward] to [name of ward] from a side room into a side room with active diarrhea [sic] and vomiting within the previous 48 h? why transfer to ward 35 and with these symptoms

TABLE 2. *(Continued)*

	n (%)	Active Failures	Exemplar Quotes
Potentially unsafe transition	11 (4)	• Transition without cardiac monitoring • Nonadherence to treatment protocols • Inaccurate handover of patient history • Failure to take into account well-being of patient • Patient transferred with chest pain	• Staff Nurse from [*name of ward*] phoned, and advised that they have an admission coming in from [*other ward name*], but they prefer us admitting the patient while they take one of our patients instead. The patient they want is having on going chest pain, he was on cardiac monitor and was to have Angiogram done the following day at 11:00 h. The Staff Nurse insisted on having the patient moved to [*name of ward*] that night, despite the fact that no procedure was scheduled for him during the night. • Patient transferred [sic] from Catheter Lab without monitoring. Patient previously had HR 22, on arrival to Recovery, pre procedure, HR 36. Nil heart monitoring on transfer; additionally, no nurse attended during transfer. • Mr J H was transferred to [*name of ward*] from [*name of ward*] on the 03/01/15, Stoke Rehab, with a 1–1 carer and still needing Specialist Stroke Rehab, felt to be an inappropriate transfer and was in fact transferred back on the 05/01/15 • Pt handed over as being pleasantly muddled and just in hospital with increased confusion and was fine to go into the main ay. Explained that we had 3 pts already on the ward who required 1–1 care and we had no 1–1 carers. When pt arrived on the ward she immediately started climbing out of bed and becoming very aggressive
Patient self-transfer	10 (4)	• Delayed diagnostic test • Mental health issues not addressed • Suboptimal patient observation	• Following a conversation with the medical team in which pt was informed that he was medically fit for discharge pt voiced to the Dr that he had suicidal thoughts and may wish to harm himself if he went home. Shortly after the conversation pt left the ward without informing staff and without any discharge papers or medication. As pt had communicated that he felt suicidal and had left the ward abruptly concerns were felt for his safety. • Patient found reading own notes and taking photos of script on phone. Patient very unhappy about what he had read, and started to remove electrodes, tried to diffuse and calm patient to stay in hospital appeared shaky not angry, saying wasting his time in hospital if no one believes these are epileptic seizures, explained that does not mean he isn't having seizures. Refused to listen, statement supplied regarding conversion. Patient self-discharged, without waiting for Dr to see.

| Staff-related issues | 4 (2) | • Poor communication between transferring and receiving ward staff
• Inadequate staffing levels/staff shortages | • Staff transferred [*sic*] patient to ward and was told by staff nurse that patient was not expected, no hand over given and they did not have mattress for the patient. The receiving staff on the ward was very unwelcoming to the patient stating that she was not supposed to be coming to their ward.
• Short staffed with ×2 RN's and 1 HCA. bed manager informed an 2nd HCA sent to ward. Lots of confused high falls risk patients. Very loud on ward all night with patients using call bell, patients not using call bells and just getting up, lots of patients unwell, short of breath chest, pains, etc. All staff on ward constantly attending patients. One patient especially noisy shouting out an wake other patients or making it so other patients couldn't sleep at all, which is exacerbating [*sic*] other high falls risks patient to get up and be unsettled.
• Short staff – 6 members of staff working [*date*] Late shift. Discharging many patients – discharge meds (controlled drugs) not going with the pt as ambulances arrive and want a quick discharge. Spending 35 min on the phone booking ambulances which left patients without staff to provide care. |
| Suboptimal treatment | 4 (2) | • Temperature probe used incorrectly
• Patient on incorrect SLT fluid regimen
• BM not taken according to protocol
• Patient returned from x-ray without neck collar | • Patient met discharge protocol, oral temperature being 36.3°C. When arriving on the ward, the ward nurse failed to take an accurate reading, due to the fact they did not insert the probe all the way down the ear canal.
• Pt had an unstable neck fracture and was sent to x-ray for imaging with neck collar in situ. On pts return to the ward she was found to have been transferred back to the ward without the collar on.
• I'm not sure whether the error occurred with [*sending ward name*] handing over SLT recs or with [*name of ward*] receiving them but the pt was put on out of date SLT recommendations.
• Patient transferred from [*name of ward*] after having had a lumbar puncture. It was noted that his BM had not been taken since 17:10 h. |

(Continued next page)

TABLE 2. *(Continued)*

	n (%)	Active Failures	Exemplar Quotes
Patient injury	2 (1)	• Staff failed to notice an injury had occurred during transfer • Suboptimal use of bed hoist	• Noticed a bump and small bruise to the patient's left eyebrow, and according to the husband, the patient bumped her left eyebrow on the hoist while being transferred from wheelchair to bed, and again according to the husband, it seems that the day staff did not notice what she had done • Whilst patient being transfered [*sic*] off hoist sling on bed, patient suffered skin tear to left forearm.
Patient violence	1 (<1)	• Information about patient mental health and behavioral history not handed over	• Documented in the nursing notes "can become aggressive and angry very quickly... this puts others at risk" information that was not handed over before transfer.... • The patient was verbally aggressive to staff immediately on arrival to [*name of ward*] she was wandering around the ward threatening to hit staff and other patients
Overall	278 (100)		

BM = bone marrow, HR = heart rate, HPV = hydrogen peroxide vapour, MRSA = methicillin-resistant staphylococcus aureus; OT = occupational therapist, Pt = Patient, SLT = speech and Language therapist, TTO = to take out.

TABLE 3. Cross Tabulation of Incident Classifications With Latent Conditions, Patient/Family Involvement, Patient Well-being, and Learning

| Incident classification	n (%)	Latent conditions, n (%)	Patient/family Involvement, n (%)	Patient Well-being, n (%)	Individual Learning, n (%)	Organizational Learning, n (%)
Pressure ulcer	**101 (36)**	1 (1)	18 (18)	4 (4)	1 (1)	7 (7)
Falls	**32 (12)**	3 (9)	4 (13)	2 (6)		3 (9)
Medication	**31 (11)**	5 (16)	10 (32)	8 (26)		3 (10)
Documentation	**29 (10)**	3 (10)	6 (21)		2 (7)	1 (3)
Delayed transition	**15 (5)**	6 (40)	6 (40)	2 (13)		1 (7)
Communication	**15 (5)**	3 (20)	2 (13)	2 (13)		1 (7)
Device/equipment	**12 (4)**	1 (8)	2 (16)	1 (8)		1 (8)
Infection control	**11 (4)**	4 (36)			1 (9)	
Potentially unsafe transition	**11 (4)**	3 (28)	1 (9)		2 (18)	
Patient self-transfer	**10 (4)**	1 (10)	7 (70)	2 (20)		
Staff-related issues	**4 (2)**	3 (75)	3 (75)	3 (75)		2 (50)
Incorrect treatment	**4 (2)**					
Patient injury	**2 (1)**		1 (50)			
Patient violence	**1 (<1)**	1 (100)	1 (100)		1 (100)	
Overall	**278 (100)**	33 (12)	61 (22)	24 (9)	7 (3)	19 (7)
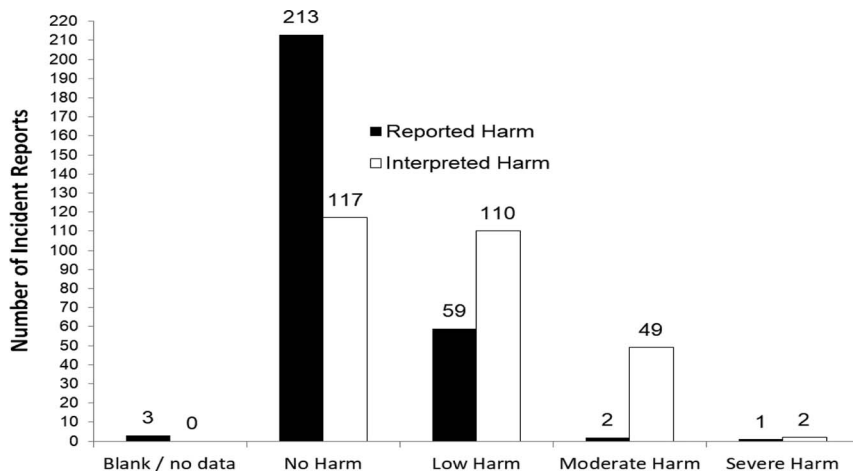
FIGURE 2. Clustered bar graph of reported and interpreted harm.

"Patient was admitted into hospital with a grade 3 pressure sore to her sacrum, onto [ward name] patient then transfered [sic] to [ward name] on [date] with a fractured hip" **[Incident report 154]**

"Found to have Cat 3 pressure ulcer on coccyx 2 cm × 1.5 cm. Discharged home with pressure [sic] relieving equipment" **[Incident report 339]**

DISCUSSION

The aim of this article was to elucidate what clinician incident reports tell us about patient safety incidents during transitions in the clinical context of care of older people, cardiology, orthopedics, and stroke. Most incidents (69%) in our data set are related to pressure ulcers, falls, medication, and documentation errors; these categories generally reflect studies that have investigated single incident classifications,[14–19] but no known study has previously observed the prevalence of these incidents in relation to transitions in care. Half (50%) of incidents involved interunit/department/team transfers, closely matching the 51% of incident reports previously identified in relation to patient handovers.[24] Aggregate level analyses revealed that the vast majority of incident reports involving patient transitions were of poor quality; they tended to focus on identifying the presence of an incident and, to a lesser extent, explaining the contributory active failures. Only 12% made any explicit references to latent conditions that could help elucidate the factors associated with the why and how, which are necessary to inform learning and design of preventative strategies. This low proportion of contributory factors has also been described in analyses of incident reports in the context of primary care.[32]

There was also paucity of explicit references to individual and organization learning, with only one incident report containing evidence of double-loop learning needed to drive changes to governance that would result in system learning.[3] The dearth of individual and organizational learning is a particularly crucial finding as the importance of local learning has recently been recognized.[31] However, our findings seem to suggest that incident reporters are either not using their reflective skills or are reporting to apportion or deflect blame. For instance, staff may be adopting a "fix and forget" as opposed to "fix and report" philosophy,[6] which could moderate their motivation (and behavior) to provide a more comprehensive incident report. Another explanation may be that staff are using the incident reports for purposes other than learning. Building on previous work where culture was deemed to be a barrier to incident reporting,[4] analyses in the current study suggest that incident reports were primarily used as a vehicle to defend receiving staff and organizations by assigning responsibility to senders (out of hospital, hospital to hospital, interunit/department/team, and into hospital) or to patients (intraunit/department team and self-transfer). Previous research has identified that clinicians can use incident reporting to protect professional identity[34,35] and to deflect blame for incidents.[8,9]

Explicit references to patient/family involvement and directly addressing patient well-being were infrequent within reports (22% and 9%, respectively). Involvement in the current analysis was typically passive with few details included in reports of how disclosure was addressed, although it is acknowledged that most data were collected before the implementation of a duty of candor.[26] Despite this, the widespread underreporting of the levels of harm, which concurs with previous research,[24] has implications for future disclosure of harm, where duty of candor is unlikely to be adhered to because incidents were incorrectly recorded as no or low harm. This discordance between reported and coder-interpreted harm is suggestive of reliability and validity issues of NRLS criteria in the context of patient transitions or might be a further example of defensive reporting. Actively engaging patients and their families in reporting safety incidents[33–37] is one such way of improving involvement. However, our analysis indicates that there is also a need to consider wider disclosure of incidents, not just those resulting in death or deemed to be of severe harm, moderate harm, or prolonged psychological harm, as required by the duty of candor in the UK NHS.[26] The disclosure of lower levels of harm could ensure that patients and/or family are more involved in their healthcare and

may be active participants in their own safety,[38] taking additional responsibility for their safety.[39] Co-production of incident reports could also facilitate deeper learning on contributory factors to the types of incidents identified in this study.

Self-transfer was included as a safety incident following NRLS coding criteria.[38] In some circumstances, it may be debatable as to whether this constitutes a safety incident. It can be argued that patients are making a preference- and value-based decision to leave hospital. For instance, one patient self-discharged after seeing his notes and that medical staff did not consider that his symptoms were indicative of epilepsy, thus making the test redundant, leading to a possible perception of futility of remaining in hospital. Reported harm in terms of NRLS criteria was discordant with coder-interpreted harm, particularly for pressure ulcers. There was evidence of overreporting of no harm and underreporting of both low and moderate harm. This may be explained as a consequence of staff not receiving adequate training on incident reporting. As suggested previously, it may be that staff who report incidents to deflect blame do not want to draw attention to the incident, or alternatively, they may believe that "ownership" of the harm does not belong to them. Regardless, harm has occurred to the patient and should be reported as such.

Implications for Practice

Incident reporting is based on a safety science approach that requires the identification of incidents to inform organizational learning and intervention development.[27] Incident reports are often used to trigger a more in-depth analysis of the reported safety incident, such as through root cause analysis (RCA), or to identify trends and patterns across all reported incidents. However underreporting the level of harm and the use of incident reports as defensive practice, as identified in this study, supports the notion that reporter bias is an inherent feature of incident reporting.[10] These limitations have important implications for practice. Firstly, underreporting the level of harm may influence whether a RCA is conducted or not, and biases around defensive reporting may continue through into the RCA. This is particularly problematic when RCAs are identified to be at risk of political hijack among other issues.[40] Secondly, there is an increasing focus on the use of machine learning to derive meaning from large data sets within healthcare, often referred to as "big data."[41] Organizational and especially national incident report systems can generate these big data, and there is an increasing amount of research exploring the use of machine learning to analyze incident reports.[42–45] However, machine learning is unable to account for these biases as they are not yet fully understood and are arguably fluid in nature. Therefore, the adage of "garbage in, garbage out" that is used in relation to data quality[46] applies to the use of machine learning for incident reports. Recognizing and describing the biases that occur in incident reporting is therefore a requirement for addressing their causes and tackling the relevant organizational cultures and structures that result in defensive reporting and underreporting of harm.

A further implication for practice is that single incident reports may not be appropriate for patient transitions due to "ownership" of the incident representing a gray area. The incident reporter may be unaware of the precise nature and range of active failures or latent conditions contributing to the safety incident before the patient arriving in their care, including the disposition of the patient before and after transfer/discharge from their care. A lack of clarity around ownership and accountability may, in part, account for the infrequent reporting of latent conditions, individual and organizational learning, including underreporting of harm in a patient transition context. For example, a pressure ulcer that originated on another ward, hospital, or community may lead to a disownership of the incident with some staff reporting this as no harm (as the harm did not occur in the receiver's care), despite the patient actually experiencing harm. As a result of assigning responsibility for the incident to its origin, there is a concomitant reduced likelihood of engaging in reflective practices and initiating procedures to trigger systems learning. This external attribution of responsibility is particularly damaging as the transition incident may not have been identified or reported where the individual's pressure ulcer originated; thus, nowhere in the system is the incident or any harm recorded. Changes to existing training on why and how to complete incident report in relation to these gray areas could help improve the quality of incident reports. Incident reporting, particularly in relation to transitions in care, should therefore not be conducted in isolation. Instead, the social nature of healthcare delivery needs to be recognized and coordinated action should be taken. A transition incident report that is co-produced with patients/relatives and staff from both the sending and receiving team may help remove this gray area and improve the quality of incident reports related to transitions, particularly by reducing bias through triangulation.

Limitations

The reliability of the data collection process and analysis was augmented by use of a structured data extraction form and detailed coding manual. The interrater reliability of the data extraction form was more than satisfactory, although subsequent coding of incident reports was predominantly undertaken by one author (D.F.). Therefore, it is likely that there are some subjective interpretations of the information within reports. Furthermore, omission of some fields of the incident reports as part of the research governance process may have impacted on the analyses; for example, information on who compiled the incident report was excluded but may have had relevance, as it has been reported that seniority influences perception of severity of harm.[47] Incident reports were also derived from discrete 6-month periods as opposed to continuous months, which prohibited the impact of any underlying time trend or seasonality (using time series analysis) on frequency and content of reports to be established. Finally, because of variability in numbers of transitions in each clinical area and inherent differences in case mix, any meaningful comparisons between specialisms in terms of type of incident classification was prohibited.

Further Research

Increased numbers of incident reports, while an indicator of a positive safety culture, is an invalid measure of the safety climate. To ensure favorable cultural conditions for safety, system-level interventions are warranted that convey the value of incident reporting for the benefit of patients and quality of care, which capitalize on the reflective skills of practitioners. The potential to make an active error is highest in the sending team, whereas the potential to discover an error is highest in the receiving team. Therefore, development of patient transition incident reports constructed by sending and receiving teams (whether interhospital or intrahospital) are warranted for reducing the prevalence of defensive reporting and enhancing a sense of joint ownership of incidents. The latter would benefit from the inclusion of the patient's/relatives' narrative, and there is a pressing need to develop protocols for co-production of incident reports in collaboration with patients and relatives. Furthermore, the large underreporting of harm was a concern. Further research with staff that underreport levels of harm is needed to identify and address this issue.

CONCLUSIONS

Although there were 14 incident classifications identified, nearly 70% of incident reports were in relation to pressure ulcers, falls,

medication, and documentation errors, suggesting that these are the greatest challenges in providing safe care to patients undergoing a transition in care. Incident reports related to patient transitions were primarily used as a defense mechanism to apportion blame to other teams or units, or even to patients. The quality of incident reports was suboptimal for individual and organizational learning, and levels of harm seemed to be frequently underreported. This means that it is unlikely that clinicians' duty of candor—requiring disclosure of incidents resulting in moderate or greater harm, or prolonged psychological harm—is being adhered to. There is a need to improve the process of incident reporting to reduce cultural barriers and to improve the quality of incident reports, including the reduction of bias as much as practicable. For incidents relating to transitions, a co-produced incident report between the sending and receiving team, including the patient and/or relatives, may improve capacity for learning and help address the issue of bias through triangulation.

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