

## Research paper

# Nurse-to-nurse communication about multidisciplinary care delivered in the emergency department: An observation study of nurse-to-nurse handover to transfer patient care to general medical wards

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## ABSTRACT

**Background:** Little is known about how Australian national safety standards for communicating multidisciplinary care are operationalised during high-risk care transitions. We examined transfer of care for complex patients from the emergency department (ED) to medical wards to explore nurse-to-nurse communication about multidisciplinary care provided in the ED.

**Methods:** Using naturalistic, mixed-methods design, observation, audit and interview data were collected from a convenience sample of 38 nurses during transfer of care for 19 complex patients from the ED to medical wards at a tertiary hospital. A focus group with 19 clinicians from multiple disciplines explored explanations for findings and recommendations. Quantitative data were analysed using frequencies and descriptive statistics; the Connect, Observe, Listen, Delegate (COLD) framework informed qualitative content analysis.

**Results:** Nurses seldom communicated multidisciplinary care at patient transfer. Most handovers included *Connect* and *Observe* (63–95%) and *Listen* (90%); *Delegate* (42%) behaviours were infrequent. Behaviours consistent with good practice recommendations (90%) and known to increase communication risk (53%) were observed. Tensions between policies and clinical processes, and information quality negatively impacted transfers.

**Conclusions:** This study revealed gaps in nurse-to-nurse communication about patients' multidisciplinary care. Complex factors negatively impact nurses' handover communication necessitating workarounds, and highlighting nurses' role as patient safety advocates.

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## Introduction

Patients with complex medical care needs frequently enter hospital via the emergency department (ED) where they are often cared for by a team involving clinicians from multiple disciplines, before transfer to inpatient medical wards for ongoing care. The multidisciplinary team in the ED includes clinicians from different disciplines who work together to deliver safe and comprehensive care that meets patients' health and related care needs in line with

the Australian National Safety and Quality Health Service (NSQHS) Standards [1]. Emergency nurses' responsibilities include oversight and coordination of patient care, including management of transfers between care locations, and the effective, comprehensive handover communication necessary to safely transfer responsibility for care [2–4]. Little is known about how nurses communicate about the care provided by multidisciplinary clinicians in the ED when transferring responsibility for care of patients with complex needs to inpatient wards [2].

Research has demonstrated that inadequate information and complex handover processes contribute towards gaps, duplication or delays in patient care at transitions, increasing risk for errors and harm [5–9]. Face-to-face communication at the bedside, engaging with patients and families, reducing distractions, and following structured processes for transfer and communication are

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recommended to reduce handover risk at patient care transitions [1,10–15].

The aim of this research was to examine nurses' communication about the multidisciplinary care provided in the ED during the transfer of responsibility for care of patients with complex care needs from the ED to inpatient medical wards. Specific objectives were to:

- Describe nurses' communication of multidisciplinary care provided in the ED at patient transfer to a medical ward for ongoing care;
- Describe patterns and processes used for nurse-to-nurse handover communication during transfer of care for complex patients, who received multidisciplinary care in the ED, to a medical ward;
- Identify barriers and facilitators for safe nurse-to-nurse handover communication during transfer of patient care from the ED to a medical ward.

## Participants

All nurses in the ED and inpatient medical wards were informed about the study via email, information sessions, and flyers. Nurses were eligible to participate if they were permanent employees in the ED or medical wards, and directly involved in the selected patient transfers. Participants involved in observations and interviews were provided with a verbal explanation and invited to give verbal consent or 'opt out' at the time of data collection. The convenience sample involved sequential recruitment (i.e. the next suitable patient transfer) on pre-determined days (weekdays and weekends) and included 38 nurses involved in 19 patient transfers.

Patients were treated as indirect participants with verbal consent obtained immediately prior to data collection. To be included, patients had two or more comorbidities; were seen by three or more different healthcare professionals in the ED; and allocated a bed on one of two medical wards. Patients who were cognitively impaired and not accompanied by a companion to give verbal agreement were excluded. All patients approached agreed to be observed.

In addition, all members of the multidisciplinary teams in the ED and wards were invited to participate in a focus group; 19 clinicians including nurses, doctors and allied health professionals provided written consent and participated.

## Methods

### Research design

Using a naturalistic, concurrent mixed-methods descriptive design [16,17], data were collected using observation, audit and interviews during patient transfers from the ED to medical wards, and a focus group involving clinicians from multiple disciplines. The naturalistic approach involved collecting data real-time in the environment where the phenomenon of interest naturally occurs.

### Research setting

The study was conducted during August 2018 in the ED and two 40-bed medical wards at a 640-bed tertiary teaching hospital in Melbourne, Australia. Over 70,000 annual ED presentations provided a high number of complex medical patient admissions from the ED. Complex patients are often managed by clinicians from multiple disciplines in both the ED and inpatient wards [2]. Transfer policies and procedures at the participating hospital included a telephone handover prior to moving the patient, and standard

forms in ISBAR (Identification, Situation, Background, Assessment, Recommendation/Results [7]) format for information transfer.

### Data collection

Hospital (RES-18-0000-260L) and University (2018-245) Human Research Ethics Committee approvals were obtained prior to data collection.

### Audit

Audit data were collected from patient medical records, immediately coded, de-identified and recorded electronically on an iPad into a purpose-designed form using REDCap software. Variables included patient characteristics, number and type of comorbidities, disciplines of the clinicians documenting in patient records, summaries of ED treatment received, and the medical record forms completed by treating clinicians.

### Observation and interview

The observations captured steps in the patient transfer journey. Semi-structured and unstructured field note data and nurse characteristics were also recorded electronically into a purpose-designed form in REDCap. The observation tool used the Connect, Observe, Listen and Delegate (COLD) process developed and validated in previous research [15,18] to examine the quality of high-risk patient transfers [12]. The elements are: *connect* the patient to staff and equipment, *observe* to ensure immediate care and safety needs are met, *listen* during verbal exchange of patient information, and *delegate* responsibility using discussion, a checklist or documents, and clarification of important patient information. Data capture for the *listen* step included verbal communication of ISBAR [7], consistent with the hospital's handover policy. Prior to use, the tool was reviewed by experienced researchers and pilot-tested over three patient transfers; minor refinements were made to ensure clarity of data, consistent definitions, logical flow of items, and comprehensive data capture.

Immediately after each patient transfer, a brief semi-structured interview was conducted with each nurse (ward and ED) to clarify observation data, and explore their views and experiences of the transfer. Interviews were captured via field notes for analysis. The same researcher collected all observation and interview data to ensure consistency.

### Focus group

After preliminary analyses of observation data, the focus group was used to test the face validity of preliminary findings, explore plausible explanations for the findings, and perspectives about how to enhance practice. The focus group was recorded and transcribed verbatim for analysis.

### Data analysis

Data from each of the methods were triangulated in the analysis. Audit data were collated in an Excel spreadsheet, and analysed using frequencies and descriptive statistics [19]. As quantitative data were not normally distributed, median (Mdn) and interquartile range (IQR) are reported.

Qualitative data from observations, interviews and the focus group were integrated into a single Excel spreadsheet and subject to content analysis to capture details related to content, behaviours, processes and patient safety risks during transfer of care. Rigor of analyses was enhanced by the triangulation of different data sources, independent examination by multiple researchers, and evidence about recommended practices for patient transfer and handover communication [1,10,11,18].

**Table 1**  
Key times in the observed patient journeys.

Characteristics (n = 19)	Mdn	IQR	Range (min–max)
Patient length of stay in the ED (HH:MM)	15:14	07:01	02:30–22:17
Time between bed allocated (centrally) and ward bed available for patient (ward) (HH:MM)	02:08	03:18	00:00–7:11
Time between expected transfer time and actual ED departure time (minutes)	22	34	(40) <sup>a</sup> –291
Time between patient leaving ED to emergency nurse leaving ward (minutes)	11	9	4–41

<sup>a</sup> Patient(s) transferred to ward prior to allocated time.

**Results**

*Nurse characteristics*

Most of the 38 nurses (95%, n = 36) were female, and the median age of ED (Mdn 27, IQR 6.5 years) and ward nurses (Mdn 28, IQR 7 years) was similar. The median nursing experience was 20 months (IQR 20.5 months; range 1–102 months) for emergency nurses and 36 months (IQR 66 months; range 6–144 months) for ward nurses; 75% (n = 29) of emergency nurses and 50% (n = 19) of ward nurses had 3 years or less of work experience.

*Patient characteristics*

Of the 19 patients observed, 63.2% (n = 12) were male and 36.8% (n = 7) were accompanied by companions during the transfer. Patient length of ED stay ranged from 2 h and 30 min to 22 h and 17 min (Mdn 15:14; IQR 7:01 h) (Table 1). Six patients (31.6%) were transferred to Ward A and 13 (68.4%) to Ward B. All patients were transferred between 07:00–21:30.

The median time emergency nurses spent away from the ED for the patient transfer was 11 min (IQR 9 min; range 4–41 min). Four (21.1%) patients arrived on the ward before their expected arrival time (within 8 min); 2 (10.5%) arrived within 15 min after their expected arrival time; and 6 (31.6%) arrived within 30 min after the expected arrival time (Table 1).

*Communication of multidisciplinary care*

Patient medical records identified that each patient had between three and six (median 5, IQR 1) health professionals from different disciplines involved in their ED care. When asked immediately after the patient transfer, both ED and ward nurses could identify a median of only one multidisciplinary team member involved in each patient's care. This revealed inconsistency between multidisciplinary care recorded in patients' ED records, and the knowledge of ED and ward nurses involved in the transfers.

*Process and patterns in patient transfer*

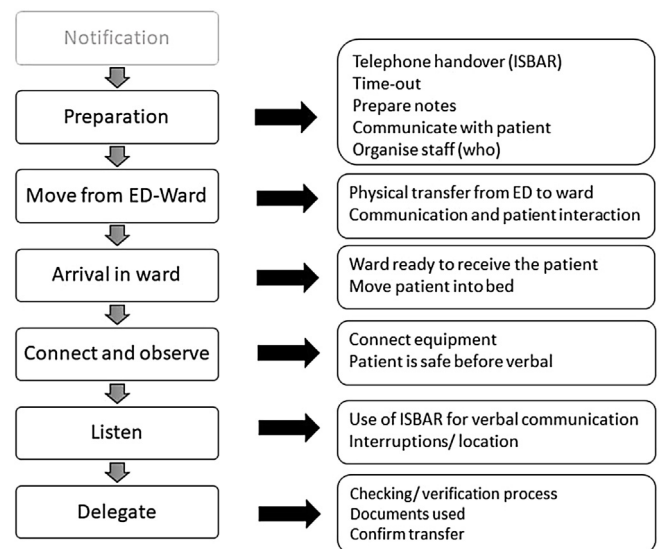
Five steps were identified in the process of ED-ward transfers (Table 2): (1) preparation; (2) transfer (move from ED to ward); (3) connect and observe; (4) listen; and (5) delegate (Fig. 1).

*Preparation*

Focus group comments that the primary emergency nurse should prepare for patient transfers were consistent with the observations (Table 2). Practices that enhanced patient safety included patient review by the inpatient medical team immediately prior to transfer (89.5%, n = 17); of these, 10.5% (n = 2 patients) had changes made to their treatment plans at the time of transfer. Practices

**Table 2**  
Process of ED-ward transfers.

Step	Description
1 Preparation	Preparation commenced when the primary emergency nurse became aware of patient bed allocation and ended when the patient left the ED to go to the ward. In this step, the nurse undertook activities to prepare for the patient transfer.
2 Move from ED to ward and arrive in ward	This stage commenced when the patient left the ED and ended on arrival at the ward. This step included the mode of transfer (e.g. wheelchair, ED trolley or ward bed), and items or equipment that accompanied the patient (e.g. oxygen delivery system, intravenous fluid pump(s) and patient belongings).
3 Connect and observe	Connect and observe steps were combined as these activities often occurred simultaneously. This stage commenced when the patient arrived on the ward and ended when they were located in their ward bed. Connect and observe involved ensuring the patient was connected to required equipment, and observed as safe by ensuring any urgent or immediate care needs were met. This step was useful to ensure patient safety and minimise risk of interruption during the verbal handover communication.
4 Listen	The listen stage captured the actions of verbal communication to transfer information between ED and ward nurses.
5 Delegate	The delegate stage captured the steps used to ensure the ward nurse had all the information required for continuity of patient care, and transfer of responsibility for ongoing care.



**Fig. 1.** Process of the transfer of care between the ED and the inpatient ward.

that increased patient risk included two cases (10.5%) whereby the emergency nurse made two or more attempts to contact the ward nurse for telephone handover, which took the emergency nurse from other activities and delayed transfers. Prior to leaving the ED, only 37% (n = 7) of patients could state the name of the ward they were going to and none knew the bed number.

*Transfer (move from ED and arrive in ward)*

In 47% (n = 9) of transfers, practices associated with enhanced patient safety were observed. For example, the emergency nurse checked the patient documents during transfer (Table 3). During 53% (n = 10) of transfers, practices associated with increased risk were observed, such as incorrect personal protective equipment

**Table 3**  
Synthesis of observation, interview and focus group data illustrating steps in the transfer process.

Stage	Events	Practices associated with enhanced patient safety <sup>a</sup>	Practices associated with risk to patient <sup>b</sup>
Preparation	EDIS <sup>c</sup> displays allocated ward and time.	Observations:	Medical team updating plan for patient during tele handover to ward nurse (Case 2, 10).
	Emergency nurse caring for patient made aware.	<ul style="list-style-type: none"> <li>• Appropriate amount of preparation (Min 30 min) increased arrival on time or within 15 min (32%).</li> </ul>	Patient and/or family informed of transfer at the time of patient transfer (Case 15)
Preparation	Emergency nurse prepares patient for transfer.	<ul style="list-style-type: none"> <li>• Appropriate health professionals have reviewed patient and are ready for transfer (n = 17)</li> </ul>	Primary nurse did NOT prepare patient and/or perform patient tele handover (Case 3)
		<ul style="list-style-type: none"> <li>• Appropriate documentation is present (N = 19)</li> </ul>	Interview – ED Nurse concerns:
		<ul style="list-style-type: none"> <li>• Patient is stable and ready for transfer (N = 19)</li> </ul>	The ward is not prepared [Equipment] (Case1)
		Interview – Emergency Nurse:	The ward is not going to like accepting this patient (Case 5) Delay in patient transfer [2≥ attempts contacting ward] (Case 10, 15)
		<ul style="list-style-type: none"> <li>• Vital signs/Observations/ Trends/Check MET<sup>d</sup> call criteria (Cases 1, 2, 5, 6, 7, 8, 9, 11, 13, 15, 18)</li> </ul>	I don't know the patient that well (Case 17)
		<ul style="list-style-type: none"> <li>• Understand patient plan/Read patient notes (Cases 1, 3, 4, 5, 6, 8, 9, 10, 11, 18, 19)</li> </ul>	Mobility, High falls risk, Cellulitis to both legs, GCS15 but unclear (Case 18)
		<ul style="list-style-type: none"> <li>• Medications charted and checked (Case 1, 2, 3)</li> </ul>	No – Patient stable / ward happy to accept (Case 2, 4, 6, 7, 8, 11, 13, 19)
		<ul style="list-style-type: none"> <li>• Check Intravenous fluids charted (Case 1)</li> </ul>	No – But patient requires regular on ward management (Case 3)
		<ul style="list-style-type: none"> <li>• Call ward/Telephone handover (Case 2, 13)</li> </ul>	No – Patient did not want to be admitted, but doctor reassured in 'Time-out' (Case 9)
		<ul style="list-style-type: none"> <li>• Use notepad to document key elements (Case 5)</li> </ul>	Focus Group:
		<ul style="list-style-type: none"> <li>• Check patients Goals of Care chart (Case 5, 18)</li> </ul>	Policies and procedures reflect minimum requirement of current practice is a tele handover.
		<ul style="list-style-type: none"> <li>• Pathology Request/Results (Case 5, 6, 18)</li> </ul>	
		<ul style="list-style-type: none"> <li>• Perform 'Time out<sup>e</sup>' (Case 7, 10)</li> </ul>	
		<ul style="list-style-type: none"> <li>• Print paperwork (Case 7)</li> </ul>	
		<ul style="list-style-type: none"> <li>• Inform patient of transfer / Confirm plan with patient (Case 9, 11)</li> </ul>	
	Focus Group:		
	<ul style="list-style-type: none"> <li>• Emergency nurse caring for patient in the ED organises transfer</li> </ul>		
Transfer	Transferred using suitable method (wheelchair, ED trolley, ward bed)	- Patient transferred with appropriate medical equipment (Case 1, 4, 5, 10, 11, 12, 19)	- Distraction during transfer; nurse looking at personal phone during transfer (Case 1, 6)
	PSA <sup>f</sup> facilitate transfer	Emergency nurses checked patient documentation during transfer (Case 17, 18)	- Inappropriate PPE by nurse or PSA during transfer (Case 3, 15)
	Patient engaged in conversation where appropriate.		- Nil interaction or patient engagement (Case 7, 8, 9, 10, 17).
	Patient has:		<ul style="list-style-type: none"> <li>• Patient asleep through transfer. Patient asked while on ward 'why am I here?' (Case 14).</li> </ul>

Table 3 (Continued)

Stage	Events	Practices associated with enhanced patient safety <sup>a</sup>	Practices associated with risk to patient <sup>b</sup>
	<ul style="list-style-type: none"> <li>- Belongings</li> <li>- Own medications</li> <li>- Items stored with security (e.g. phones, wallet, keys, jewellery)</li> </ul> Nurse/PSA has: <ul style="list-style-type: none"> <li>- Medical equipment<sup>g,h,i,j</sup>.</li> <li>- Appropriate PPE<sup>k</sup>.</li> </ul>		
Arrival (Connect 1)	Ward is prepared to receive the patient: <ul style="list-style-type: none"> <li>• NIC<sup>l</sup> / Ward Clerk/ ward nurse greets patient on arrival at check in desk. Directs transfer to specific bed location.</li> </ul>	<ul style="list-style-type: none"> <li>• Patient is promptly greeted and directed to bed location (Case 1, 2, 4, 7, 8, 9, 11, 13, 19).</li> </ul>	<ul style="list-style-type: none"> <li>• Patient, emergency nurse and PSA arrive at check in, delay in being moved to bed location; lack of staff presence on arrival (Case 3, 5, 6, 10, 12, 14, 15, 16, 17)</li> </ul>
Bedside (Connect 2)	Ward staff are ready to receive patient: <ul style="list-style-type: none"> <li>• Ward nurse is prepared to receive the patient at the bedside (room clean, bed made, equipment prepared)</li> </ul> Ward is ready to receive patient: <ul style="list-style-type: none"> <li>• Patient is safely moved into new bed space.</li> </ul> Appropriate: <ul style="list-style-type: none"> <li>- Equipment (Slide sheets, Pat slide)</li> <li>- Staff (PSA, emergency nurse, ward nurse) with additional staff if required.</li> <li>- Performed in a safe manner with appropriate techniques (No lift, self-injury risk minimisation).</li> </ul> Ward is ready to receive patient: <ul style="list-style-type: none"> <li>• Appropriate equipment attached to patient.</li> </ul>	<ul style="list-style-type: none"> <li>• Ward nurse greets patient at bedside with equipment (AirVo), vital signs machine and patient ward folder (Case 1)</li> <li>• Patient step transferred from ED trolley to ward bed with emergency nurse and/or PSA, and/or Ward Nurse assisting (Case 1, 6, 7, 14)</li> <li>• Patient step transferred from Wheelchair to ward bed with emergency nurse and/or PSA, and/or ward nurse assisting (Case 19)</li> <li>• Patient was transfer to Ward in 'Ward Bed'. Bed in allocated bed space moved out. Patient on ward bed moved in (Case 3, 4, 8, 9, 10, 13, 16, 17)</li> <li>• Patient pat slid across from ED trolley to ward Bed (Case 5, 11, 15, 18)</li> <li>• ED trolley and ward bed placed parallel. Patient moved self across to ward bed with minor assistance [EG Nurse checking on O2/IVC/IVF/IDC lines] (Case 12)</li> </ul> Equipment required and appropriately recommenced: <ul style="list-style-type: none"> <li>• IV Pump (Case 12, 15)</li> </ul>	<ul style="list-style-type: none"> <li>• Ward bed not cleaned and made (Case 18)</li> <li>• Receiving ward nurse not aware of patient arrival (Case 14)</li> <li>• Patient step transferred from ED trolley to ward bed with emergency nurse assisting:</li> <li>- Ward nurse commenced asking questions about the patient while he was being assisted with minor help from ED trolley to ward bed by emergency nurse. Patient stood for several minutes during the communication next to ward bed with emergency nurse holding IV antibiotics in a gravity set and steadying the patient (Case 2)</li> <li>- Patient attempted to sit down on ward bed, ward bed moved as brakes weren't applied. Patient was steadied by emergency nurse. Emergency nurse applied brakes to bed. Patient was then appropriately settled on bed (Case 2).</li> </ul> Equipment not present or available, and/or treatment not recommenced. <ul style="list-style-type: none"> <li>• IVF not recommended [relevant context to presentation] (Case 7).</li> </ul>

Table 3 (Continued)

Stage	Events	Practices associated with enhanced patient safety <sup>a</sup>	Practices associated with risk to patient <sup>b</sup>
		<ul style="list-style-type: none"> <li>• Airvo (Case 1)</li> <li>• O2 (Case 4, 5, 10, 11, 16, 19)</li> <li>• PPE (Case 3, 15)</li> <li>• Gravity line (Case 2, Case 14)</li> </ul>	
Safety checks (Observe)	<p>Patient is checked to be safe and immediate needs met:</p> <ul style="list-style-type: none"> <li>• 3 patient identifiers checked.</li> </ul> <p>Patient is checked to be safe and immediate needs met: Bed settings are suitable for the patient.</p> <p>Patient is checked to be safe and immediate needs met: Call bell within reach</p> <p>Patient is checked to be safe and immediate needs met: All activities ceased prior to commencing verbal handover communication.</p>	<p>Patient is correctly identified (n = 12, 63.2), either;</p> <ul style="list-style-type: none"> <li>• Patient verbally provides name and date of birth, and correct ID band in situ (including allergy status), or;</li> <li>• 3 patient identifiers are checked on patient ID band (including allergy status) (Case 3, 5, 6, 8, 9, 10, 11, 12, 13, 16, 18, 19)</li> </ul> <p>Patient is physically safe in new environment (n = 14, 73.7%):</p> <ul style="list-style-type: none"> <li>• Patient sitting in chair in room.</li> <li>• Patients bed left at an appropriate height.</li> <li>• Family/CPO at patient's bedside.</li> </ul> <p>Interview – Ward Nurse:</p> <ul style="list-style-type: none"> <li>• Emergency nurse assisted with settling patient – skin tear identified (Case 5)</li> </ul> <p>Call bell was explained to patient and physically placed in a reachable position (n = 13, 68.4%).</p> <p>Emergency nurse and ward nurse completed patient safety assessment then focussed on completing handover.</p>	<p>Patient not correctly identified (n = 7, 36.8%), either;</p> <ul style="list-style-type: none"> <li>• ID Band not checked, and/or;</li> <li>• Allergies not identified. (Case 1, 2, 4, 7, 14, 15, 17)</li> <li>• Patient not left in a safe position in new room. E.g. bed left in high position (Case 4, 8, 17)</li> <li>• Call bell was not provided to patient by either ED or Ward nurse (n = 6, 31.6%)</li> <li>• Performing clinical handover while patient is physically transferred from ED trolley to bed (Case 2).</li> </ul>
Handover (Listen)	<p>Complete transfer of patient care information:</p> <p>Emergency nurse confirms the ward nurse has, either;</p> <ul style="list-style-type: none"> <li>• Received the telephone handover of the patient from the emergency nurse prior to transfer, or;</li> <li>• Received the internal 'Patient Transfer' form (MRD13n) and a verbal handover from the ward NIC/nurse receiving handover.</li> </ul> <p>The emergency nurse then provides a focused handover (in ISBAR format when necessary) of information the ward nurse requires.</p> <p>The patient's documentation is checked. The emergency nurse verbally and physically highlights critical information for the patient, including medication chart, intravenous fluids, goals of care etc.</p>	<p>Observations:</p> <p>Full ISBAR handover provided on ward with documentation check. ED and Ward rating of handover 10/10 (Case 13)</p> <p>Focus Group: emergency nurse provided ward nurse option, either to listen to the full ISBAR handover, or for the ward nurse to prompt emergency nurse on patient information.</p> <p>Emergency nurse role to highlight HIGH RISK patient factors.</p> <p>Completed ISBAR form by ward nurse receiving patient.</p> <p>Clear documentation by all health professionals</p> <p>Handover felt listen too, questions asked to clarify, increased information transfer.</p> <p>Interview – Ward nurse:</p> <p>Thorough bedside handover (Case 6, 13)</p> <p>Handover at bedside prompts you on information to look at (Case 15)</p> <p>The best handovers are face-to-face because they reduce risk (Case 19)</p>	<p>Observation:</p> <p>Emergency nurse left prior ward nurse arrival, documents left on bench outside of patient's room (Case 18).</p> <p>Patient high risk of aspiration in ED, not mentioned to ward (Case 1)</p> <p>Focus Group:</p> <p>Tele handover provided to alternate nurse. Nurse resuming patient care has not received full patient information</p> <p>ISBAR form partially completed and/or filled in by nurse not receiving patient.</p> <p>Interview - Emergency nurse: I would not have changed anything (Case 1, 11, 13)</p> <p>Important information provided in tele handover to ward nurse not receiving patient. Information was not provided to primary ward nurse. Rectified on arrival and onward handover (Case 7)</p> <p>'I did not really know the patient I was handing over' (Case 1216)</p> <p>Ward lost tele handover ISBAR sheet (Case 19)</p> <p>Interview – Ward nurse:</p>



Table 3 (Continued)

Stage	Events	Practices associated with enhanced patient safety <sup>a</sup>	Practices associated with risk to patient <sup>b</sup>
Ongoing Care (Delegate)	Complete the transfer of responsibility for ongoing patient care: Current Outstanding Requests/Results  Completing the transfer of patient care: Acceptance of responsibility for care	Focus Group:  Ward nurse had opportunity to ask questions to clarify patient understanding; questions asked. Emergency nurse clearly outlines investigations required/completed, outstanding requirements. Observations: Recognition from ward nurse of patient acceptance (Cases 7, 8, 9, 14).	Handover from ward NIC to ward nurse providing direct care (Case 2, 5, 16) I did not get a handover from the ED, I got a brief handover from my fellow staff member (Case 7, 10, 12, 18) If I had received the handover, I would have asked more questions to receive specific patient information (Case 10) I like receiving handover from the patient's primary emergency nurse at the bedside (Case 14).  Focus Group:  Ward nurse had opportunity to ask questions to clarify patient understanding; questions NOT asked Ward nurse did not have opportunity to ask questions.  Observation: Nil formal completion of patient acceptance (Cases 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 15, 16, 17, 18, 19)

<sup>a</sup> Consistent with NQSHSS and ACSQHC, evidence.

<sup>b</sup> Inconsistent with above, risk or error identified.

<sup>c</sup> EDIS: Emergency Department Information System.

<sup>d</sup> MET: Medical Emergency Team who are notified in an emergency situation and respond to a deteriorating patient.

<sup>e</sup> Time out: Patient's ED doctor and nurse confirm patient's stability for ward transfer (ie. admission notes, vital signs, management plan). Aim to decrease risk of at patient transfer.

<sup>f</sup> PSA: Patient Service Assistant.

<sup>g</sup> Oxygen Delivery System.

<sup>h</sup> IVF Pumps: Intravenous Fluid Pumps.

<sup>i</sup> Defibrillator.

<sup>j</sup> Portable resuscitation equipment.

<sup>k</sup> PPE: Personal Protective Equipment.

<sup>l</sup> NIC: Nurse in Charge of department or ward.

worn by the nurse, and the nurse distracted by looking at their personal phone during the move (Table 2).

### Connect and observe

Practices that enhanced patient safety during the connect and observe stage included both nurses confirming patient identification, applying suitable bed settings and ensuring the patient call bell was within reach (Table 2). On arrival to the ward 63% (n = 12) of patients were greeted by ward staff; 95% (n = 18) were transferred without any errors observed. An error was identified as any incident that increased risk to patient safety.

However, practices with potential to increase patient risk were unidentified and included:

- 68% (n = 13) of patients did not have their safety checked prior to the ED and ward nurses commencing verbal handover communication;
- 32% (n = 6) were not given a call bell;
- 37% (n = 7) did not have three patient identifiers checked by both the ED and ward nurses;
- 16% (n = 3) were not visually checked by the ward nurse for safety prior to the emergency nurse leaving the ward;
- All observed patients were at high risk for falls, and all beds were left in a high position; and
- One patient (5%, n = 1) was attempting to get out of bed when the ward nurse entered the room after the emergency nurse had departed.

### Listen

Consistent with local hospital policy, verbal communication about the patient occurred via a telephone conversation between ED and ward nurses prior to the transfer of most (95%, n = 18) patients. Of these, only 63% (n = 12) had the completed standard ISBAR form with patient information available at the bedside on arrival to the ward. For the remaining patients (n = 6), there was no record of the information communicated via telephone available to the nurses during the transfer. One (5%) patient was transferred without prior telephone communication. Only five patients (26%) were observed to be involved in verbal interactions during handover.

### Delegate

The importance of delegation was highlighted in focus group discussions that identified desirable actions (Table 2) such as: providing opportunity to ask questions; reiterating important information; checking completeness of documentation; looking for outstanding results or requests; and confirming acceptance of care to conclude the transfer process. These actions increased understanding of the patient's presentation and ongoing care needs, decreased risk for adverse events, and facilitated continuity of care. Observations revealed these behaviours were most often associated with review of high-risk medications and chart checking, checking intravenous fluids, and noting patient falls and pressure injury risk. Over half (68.4%, n = 13) of patients had treatments commenced in the ED that needed to be recommenced on the ward; of these most (n = 11, 85%) had the treatment recommenced prior to the emergency nurse leaving.

**Table 4**  
Prevalence of steps in the COLD process.

Process	Percentage of transfers observed (n = 19) n (%)
Connect 1: Ward ready for patient	12 (63%)
Connect 2: Patient safely transferred to ward bed space	18 (95%)
Connect 3: Patient introduced to receiving nurse	12 (63%)
Observe: Patient safe prior to handover commencement	13 (68%)
Listen 1: Verbal face-to-face communication between ED and ward nurses observed on ward	17 (90%)
Listen 2: Verbal communication occurred with the ward nurse providing ongoing care	17 (90%)
Delegate: Ward or emergency nurse checked/confirmed important patient information and ward nurse explicitly accepted responsibility for patient care	8 (42%)

In contrast, for 36.8% (n = 7) transfers, there were multiple ED and ward nurses were involved in steps of the transfer of care for a single patient; for example telephone handover, emergency care delivery, receiving the patient on the ward and responsibility for providing ongoing care. The emergency nurse involved in case 7 commented that important information provided in tele handover to the ward was NOT to the nurse receiving the patient. Up to four nurses were involved in providing different steps of one patient transfer, and up to three ward nurses were involved in providing ongoing care. Conversely, the ward nurse in case 10 commented that if she had received the handover, she would have asked more questions to receive specific patient information. In these cases, observations revealed negative impacts on the effectiveness of the delegation process; and some interviews suggested poor interdepartmental communication was a source of possible tension in the relationship between the ED and ward (see Table 3).

#### Presence of elements of the COLD process

No patient transfers included all four of the COLD process steps; however, three steps were observed in at least 90% of transfers: patient safely transferred to ward bed (95%, n = 18); verbal face-to-face communication between ED and ward nurses observed on ward (90%, n = 17); and verbal communication between ED and ward nurses providing ongoing care (90%, n = 17). Checks of important patient information, or the ward nurse's explicit acceptance of the patient's care, occurred in less than half of the transfers (42%, n = 8) (Table 4).

#### Facilitators and barriers to good practice

Using recommendations for good handover practice from National Standards and literature to examine the data revealed both facilitators and barriers for safe patient transfers. Facilitators included: (1) face-to-face communication between ED and ward nurses; (2) nurses advocating for ideal management of ongoing patient care; (3) checking for patient safety during transfer; and (4) checking documents before and during transfer.

Nurses often used workarounds to enhance patient safety during transfers that were at times contrary to local policies. For example, despite the policy for telephone communication to transfer patient information prior to arrival, nurses used face-to-face communication to engage in dialogue at the bedside, allowing ward nurses to request additional patient information, confirm their understanding of patient care needs, and undertake a visual check of specific patient detail. Nurses advocating for ideal patient management was evident in their customising of patient information

(in contrast to using the ISBAR format) to share specific concerns or detail, identify gaps in care or emphasise management priorities.

Barriers to good practice during patient transfers also emerged (Table 3), including: (1) nurses' lack of awareness of multidisciplinary care; (2) limited or incomplete information available at transfer; (3) interpersonal conflict between ED and ward nurses; (4) poor interdepartmental communication; (5) organisational policy that was inconsistent with best practice evidence; (6) inconsistent use of local policy and practices; and (7) structural and environmental limitations such as limited equipment or staffing.

## Discussion

This study has highlighted many complex patterns and processes that occur during patient transfers from the ED to medical wards with potential to impact patient safety. The processes used had both similarities and differences to recommendations for good practices described by national standards and in the literature [1,10,11,18] particularly in relation to effective handover communication and patient safety during transfers.

#### Facilitators to patient safety at transfer

Face-to-face communication at the patient's bedside, and directly engaging with patients and family, are frequently recommended for safe patient transfer [10,11,13,15,20]. However, this study showed that, contrary to participants' expressed views in the focus group that bedside handover improved information transfer and prompted further questions regarding patient management, face-to-face handover communication was inconsistent and limited in 74% of handovers.

Despite a local policy directing handover communication by telephone, a detailed face-to-face communication between nurses also occurred in 26% of the patient transfers. This may reflect a workaround used by nurses to compensate for shortfalls in local policy and address their safety concerns related to perceived gaps in communication effectiveness prior to patients arriving on the ward.

Implicit in the dynamic nature of ED care is the risk that patients will not receive all required assessments and treatment prior to ward transfer [7,21–23]. In this context, nurses were observed to advocate for patients by using workarounds for failure-prone activities despite the presence of local policy and procedures. Consistent with literature, emergency nurses used strategies to increase ward nurses' awareness of gaps or priorities in a patient's management to enhance patient safety during transfers [12,13,24]. Nursing practices for patient advocacy to support delivery of holistic patient care can directly enhance the continuity of care, especially during transitional phases [6,25,26]. However, advocacy requires empowerment of ED and ward nurses to take responsibility for practices to enhance patient safety and improve transfer practices.

#### Barriers to patient safety at transfer

A number of observed patterns were inconsistent with recommended practices for effective handover communication and processes, for example poor communication of multidisciplinary care.

Face-to-face communication supports shared understanding of patient care [20,22,24,27,28]. However, in this study, as only 26% of cases included a comprehensive face to face handover at the bedside, limited face-to-face communication between nurses occurred in 74% of patient transfers. Similar to previous studies, the involvement of multiple steps and nurses in information transfer was associated with nurse perceptions of fragmented communication



[2,6,8,21,29], poor interdepartmental relationships [10,11,24,30] and adverse patient events [6,20].

Despite NSQHS [1] recommendations about engaging patients and families in transfers, only 26% of patients observed were involved in the transfer process, and fewer could state their destination ward. Limited patient involvement has been associated with increased risk to patient safety and poor quality of healthcare delivery [6,31–33]. Alternatively, patient and family involvement increases satisfaction and knowledge of what to expect during an inpatient admission [2,9,21,25–27].

#### *Gaps in communication of multidisciplinary care*

As the coordinator of patient care, nurse awareness of multidisciplinary care is essential for quality ongoing care on inpatient wards [2,27,29,34–36]. This study identified consistent gaps in nurses' knowledge about the patients' ED care provided by multidisciplinary team members, which was a barrier to effective communication during transfers. Further research is warranted to assess the impact of this gap on teamwork and patient care outcomes.

#### *Policy and practice gaps*

Policies and procedures are advocated to foster information transfer across care transitions, decrease risk for adverse events, and support safe movement of patients [34,37]. However, this study has shown inconsistency between local policy and safe clinical practice can have unintended negative consequences [37] for nurse-nurse interactions, interdepartmental relationships and teamwork. Nurses were observed to engage in workarounds to address inconsistencies between organisational policies and desirable patient safety behaviours. For example, nurses customised patient information at transfer to emphasise specific points rather than adhere to the ISBAR communication tools. Further, delegation activities such as checking documents and confirming important information was highlighted as important by focus group participants, but observed in less than half the patient transfers, revealing a gap in organisational guidance.

Limitations of this study include the small convenience sample that may have contributed to a systematic bias in the data; however, using sequential sampling, and data collected on different days and different times mitigated this risk. While data collection by a single researcher was a possible risk, it ensured reliability in data collection. Use of previously validated tools for data collection, triangulation of data from multiple sources, a homogeneous patient sample with complex care needs, and involving multiple independent researchers in analysis were strengths of the study design.

#### **Conclusion**

Comprehensive clinical handover enables the safe transfer of responsibility and accountability for ongoing patient care from one clinical setting to another. Transfers from the ED to inpatient ward are high-risk events, particularly for complex patients that require the involvement of the multidisciplinary team. This study highlights how complex patterns and processes impact these transfers, with many behaviours that facilitate or pose barriers to use of best practice recommendations. This research emphasises the important role of nurses in patient safety during transitional phases of patient care.

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#### **Conflicts of interest**

The authors declare there are no conflicts of interest.

#### **Author statement**

All authors (DO, HR and BR) conceived and designed the study, developed the study protocol, designed and tested the study instruments, supervised data collection, analysed the data, and prepared and approved the manuscript.

#### **Human research ethics approval**

This paper reports the findings of a research study that adhered to the National Statement on the Conduct of Human Research by the Australian National Health and Medical Research Council, and has been approved by the Deakin University Human Research Ethics Committee Approval (2018–245) and Monash Medical Centre (RES-18-0000–260L).

#### **What is known about the topic?**

- Australian national safety standard specify goals for multidisciplinary team communication to enhance patient safety.
- Transitions in care for complex medical patients are associated with high risk for communication errors and patient harm.
- Nurses have primary responsibility for handover communication to transfer responsibility for ongoing care when a patient is moved from the emergency department to inpatient ward.

#### **What this paper adds or contributes?**

- This study revealed gaps in nurses' awareness and communication of patients' multidisciplinary needs.
- The study contributes to understanding of the multiple complex factors that negatively impact nurses' handover communication practices.
- Nurses used workarounds for failure-prone activities, highlighting their role as advocates for patient safety.

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#### **References**

- [1] Australian Commission on Safety and Quality in Health Care (ACQSHC). National safety and quality health service standards; 2017. Available at: <https://www.safetyandquality.gov.au/sites/default/files/migrated/National-Safety-and-Quality-Health-Service-Standards-second-edition.pdf> Accessed July 1, 2019.
- [2] Bakon S, Millichamp T. Optimising the emergency to ward handover process: a mixed methods study. *Australas Emerg Nurs J* 2017;20(4):147–52.
- [3] Kemppainen V, Tossavainen K, Turunen H. Nurses' roles in health promotion practice: an integrative review. *Health Promot Int* 2013;28(4):490–501.
- [4] Smith CJ, Buzalko RJ, Anderson N, Michalski J, Warchol J, Ducey S, et al. Evaluation of a novel handoff communication strategy for patients admitted from the emergency department. *West J Emerg Med* 2018;19(2):372–9.
- [5] Horwitz LJ, Meredith T, Schuur JD, Shah NR, Kulkarni RG, Jenq GY. Dropping the baton: a qualitative analysis of failures during the transition from emergency department to inpatient care. *Ann Emerg Med* 2009;53(6):701–10.
- [6] Gonzalo JD, Yang JJ, Stuckey HL, Fischer CM, Sanchez LD, Herzig SJ. Patient care transitions from the emergency department to the medicine ward:

- evaluation of a standardized electronic signout tool. *Int J Qual Health Care* 2014;26(4):337–47.
- [7] Marmor GO, Li MY. Improving emergency department medical clinical handover: barriers at the bedside. *Emerg Med Australas* 2017;29(3):297–302.
- [8] Pun JKH, Matthiessen CMIM, Murray KA, Slade D. Factors affecting communication in emergency departments: doctors and nurses' perceptions of communication in a trilingual ED in Hong Kong. *Int J Emerg Med* 2015;8:1–12.
- [9] Sujan M, Spurgeon P, Inada-Kim M, Rudd M, Fitton L, Horniblow S, et al. Clinical handover within the emergency care pathway and the potential risks of clinical handover failure (ECHO): primary research. *Health Serv Deliv Res* 2014;2(5).
- [10] Chaboyer W, McMurray A, Johnson J, Hardy L, Wallis M, Chu FY. Bedside handover: quality improvement strategy to 'transform care at the bedside'. *J Nurs Care Qual* 2009;24(2):136–42.
- [11] Chaboyer W, McMurray A, Wallis M. Bedside nursing handover: a case study. *Int J Nurs Pract* 2010;16(1):27–34.
- [12] Graan SM, Botti M, Wood B, Redley B. Nursing handover from ICU to cardiac ward: standardised tools to reduce safety risks. *Aust Crit Care* 2016;29(3):165–71.
- [13] Klim S, Kelly A-M, Kerr D, Wood S, McCann T. Developing a framework for nursing handover in the emergency department: an individualised and systematic approach. *J Clin Nurs* 2013;22(15/16):2233–43.
- [14] Redley B, Botti M, Wood B, Bucknall T. Interprofessional communication supporting clinical handover in emergency departments: an observation study. *Australas Emerg Nurs J* 2017;20(3):122–30.
- [15] Redley B, Bucknall TK, Evans S, Botti M. Inter-professional clinical handover in post-anaesthetic care units: tools to improve quality and safety. *Int J Qual Health Care* 2016;28(5):573–9.
- [16] Leech NL, Onwuegbuzie AJ. A typology of mixed methods research designs. *Qual Quant* 2009;43(2):265–75.
- [17] Creswell JW, Klassen AC, Clark VLP, Smith KC. Best practices for mixed methods research in the health sciences. The Office of Behavioral and Social Sciences Research (OBSSR); 2011.
- [18] Redley B, Boti M, Wood B, Bucknall T. Interprofessional communication supporting clinical handover in emergency departments: an observation study. *Australas Emerg Nurs J* 2017;20(3):122–30.
- [19] Jenkin A, Abelson-Mitchell N, Cooper S. Patient handover: time for a change? *Accid Emerg Nurs* 2007;15(3):141–7.
- [20] Kerr D, McKay K, Klim S, Kelly A-M, McCann T. Attitudes of emergency department patients about handover at the bedside. *J Clin Nurs* 2014;23(11/12):1685–93.
- [21] Catchpole KR, Gangi A, Blocker RC, Ley EJ, Blaha J, Gewertz BL, et al. Flow disruptions in trauma care handoffs. *J Surg Res* 2013;184(1):586–91.
- [22] Manias E, Gerdtz M, Williams A, Dooley M. Complexities of medicines safety: communicating about managing medicines at transition points of care across emergency departments and medical wards. *J Clin Nurs* 2015;24(1/2):69–80.
- [23] Hilligoss B, Zheng K, Hilligoss B, Zheng K. Chart biopsy: an emerging medical practice enabled by electronic health records and its impacts on emergency department-inpatient admission handoffs. *J Am Med Inform Assoc* 2013;20(2):260–7.
- [24] Tobiano G, Whitty JA, Bucknall T, Chaboyer W. Nurses' perceived barriers to nbedside handover and their implication for clinical practice. *Worldviews Evid Based Nurs* 2017;14(5):343–9.
- [25] Sujan M, Chessum P, Rudd M, Fitton L, Inada-Kim M, Spurgeon P, et al. Emergency Care Handover (ECHO study) across care boundaries: the need for joint decision making and consideration of psychosocial history. *Emerg Med J* 2015;32(2):112–8.
- [26] Zakrisson TL, Rosenbloom B, McFarlan A, Jovicic A, Soklaridis S, Allen C, et al. Lost information during the handover of critically injured trauma patients: a mixed-methods study. *BMJ Qual Saf* 2016;25(12):929–36.
- [27] Fernando K, Adshead N, Dev S, Fernando A. Emergency department multiprofessional handover. *Clin Teach* 2013;10(4):219–23.
- [28] Marsden E, Craswell A, Taylor A, Coates K, Crilly J, Broadbent M, et al. Nurse-led multidisciplinary initiatives to improve outcomes and reduce hospital admissions for older adults. *Australas J Ageing* 2018;37(2):135–9.
- [29] Manias E, Gerdtz M, Williams A, McGuiness J, Dooley M. Communicating about the management of medications as patients move across transition points of care: an observation and interview study. *J Eval Clin Pract* 2016;22(5):635–43.
- [30] Lu S, Kerr D, McKinlay L. Bedside nursing handover: patients' opinions. *Int J Nurs Pract* 2014;20(5):451–9.
- [31] Bornemann-Shepherd M, Le-Lazar J, Makic MBF, DeVine D, McDewitt K, Paul M. Caring for inpatient boarders in the emergency department: improving safety and patient and staff satisfaction. *J Emerg Nurs* 2015;41(1):23–9.
- [32] Gray LC, Peel NM, Costa AP, Burkett E, Dey AB, Jonsson PV, et al. Profiles of older patients in the emergency department: findings from the interRAI multinational emergency department study. *Ann Emerg Med* 2013;62(5):467–74.
- [33] Kohn L, Corrigan J, Donaldson M. To err is human. Washington: National Academy Press; 1999.
- [34] Australian Commission on Safety and Quality in Health Care. Communicating for Safety resource portal; 2018. Available at: <https://www.c4sportal.safetyandquality.gov.au/> Accessed August 1, 2019.
- [35] World Health Organization. Regional strategy for patient safety in the WHO South-East Asia Region; 2015. Available at <https://apps.who.int/iris/handle/10665/205839> Accessed July 1, 2018.
- [36] Hickman LD, Phillips JL, Newton PJ, Halcomb EJ, Al Abed N, Davidson PM. Multidisciplinary team interventions to optimise health outcomes for older people in acute care settings: a systematic review. *Arch Gerontol Geriatr Suppl* 2015;61(3):322–9.
- [37] Calleja P, Aitken LM, Cooke ML. Information transfer for multi-trauma patients on discharge from the emergency department: mixed-method narrative review. *J Adv Nurs* 2011;67(1):4–18.