Journal of Evaluation in Clinical Practice
International Journal of Public Health Policy and Health Services Research

Journal of Evaluation in Clinical Practice ISSN 1365-2753

Communicating about the management of medications as patients move across transition points of care: an observation and interview study

Elizabeth Manias RN MPharm MNursStud PhD,[1,2,3] Marie Gerdtz RN PhD,[4,5] Allison Williams RN PhD,[6] Josephine McGuiness BPharm MClinPharm[7,9] and Michael Dooley BPharm GradDipHospPharm PhD[8,10]

[1]Research Professor, School of Nursing and Midwifery, Deakin University, Melbourne, Victoria, Australia
[2]Adjunct Professorial Fellow, Department of Medicine, The Royal Melbourne Hospital, The University of Melbourne, Parkville, Victoria, Australia
[3]Adjunct Professor, [4]Associate Professor, Melbourne School of Health Sciences, The University of Melbourne, Parkville, Victoria, Australia
[5]Associate Professor, Emergency Department, The Royal Melbourne Hospital, Department of Medicine, The University of Melbourne, Parkville, Victoria, Australia
[6]Associate Professor and Director, Monash Nursing Academy, Faculty of Medicine, Nursing and Health Sciences, School of Nursing and Midwifery, Monash University, Clayton, Victoria, Australia
[7]Clinical Pharmacist, [8]Director of Pharmacy, Pharmacy Department, The Alfred, Prahran, Victoria, Australia
[9]PhD Student, [10]Professor of Clinical Pharmacy, Centre for Medicine Use and Safety, Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Parkville, Victoria, Australia

Keywords
communication, interprofessional care, medication management, observations, interviews, transitional care

Correspondence
Elizabeth Manias
School of Nursing and Midwifery Deakin University
221 Burwood Highway
Burwood, Victoria 3125
Australia
E-mail: emanias@deakin.edu.au

Accepted for publication: 9 December 2015

doi:10.1111/jep.12507

Names and addresses of the institutions at which the work was carried out: Melbourne School of Health Sciences, The University of Melbourne, Parkville, Victoria, Australia; Alan Gilbert Building, Grattan Street, Carlton, 3053, Victoria, Australia; Alfred Health, Commercial Road, Prahran, 3181, Victoria, Australia.

Abstract

Rationale, aims and objectives As patients move across transition points, effective medication management is critical for patient safety. The aims of this study were to examine how health professionals, patients and family members communicate about managing medications as patients moved across transition points of care and to identify possible sources of communication failure.

Method A descriptive approach was used involving observations and interviews. The emergency departments and medical wards of two hospitals were involved. Observations focused on how health professionals managed medications during interactions with other health professionals, patients and family members, as patients moved across clinical settings. Follow-up interviews with participants were also undertaken. Thematic analysis was completed of transcribed data, and descriptive statistics were used to analyse characteristics of communication failure.

Results Three key themes were identified: environmental challenges, interprofessional relationships, and patient and family beliefs and responsibilities. As patients moved between environments, insufficient tracking occurred about medication changes. Before hospital admission, patients participated in self-care medication activities, which did not always involve exemplary behaviours or match the medications that doctors prescribed. During observations, 432 instances of communication failure (42.8%) were detected, which related to purpose, content, audience and occasion of the communication.

Conclusions Extensive challenges exist involving the management of medications at transition points of care. Bedside handovers and ward rounds can be utilized as patient counselling opportunities about changes in the medication regimen. Greater attention is needed on how patients in the community make medication-related decisions.

Introduction

Transition points of care involve movements of patients between health professionals or clinical settings, and they include hospital admission, discharge and intra-hospital and inter-hospital transfer [1]. The process of clinical handover is fundamental to patients' movements across transition points, and involves transferring professional responsibility and accountability for patient care to another person or health professional group [2]. As patients move across transition points, they are very likely to experience medi-

cation incidents relating to communication problems [3]. Examining communication at transitions of care can assist health professionals to understand how they potentially contribute to medication incidents with the aim of creating strategies for preventing these incidents.

Exploratory studies have been conducted involving interviews with health professionals [4–7], patients and family members [4] about medication management across transition points. Health professionals of different disciplines appreciate the importance of knowing what patients are prescribed at different points of care. However, confusion appears to exist about who should take responsibility for accurately determining what medications patients are taking [5,6]. In hospital settings, doctors perceive it should be the pharmacist's or nurse's role, while pharmacists and nurses believe this is a doctor's role [6]. In residential care settings, nurses perceive that doctors rely on them to make medication decisions and to identify what medications that residents are taking [7]. Patients and family members voice concerns about time pressures, the need for efficiency and an overriding need to move patients out of clinical settings [4].

Using observational designs, investigators have examined health care processes across transition points of care [8–12]. This body of work has involved examining clinical handover and transition processes and identifying problems relating to communication and information exchange that influence quality of care and patient safety. Ethnographic observations of handovers between health professionals situated in emergency department (ED) and inpatient wards highlight confusion can occur about responsibilities for patient care. This confusion is demonstrated when inpatient doctors accept patients from the ED but they cannot attend to these patients promptly [8]. Time-and-motion activities in geriatric, medical and surgical settings demonstrate workflow inefficiencies relating to a lack of coordination and a lack of agreement on the roles and responsibilities of health professionals [10]. Within residential care environments where pharmacist and doctor availability is often lacking, nurses spend considerable time completing medication reviews on resident transfer, and seeking clarification from doctors [9]. Observational work involving admission and discharge hospital processes conducted with older people show family members need to request information from health professionals about the patients' medical condition and medications. At times, delivery of information at clinical handover is inadequate, with missing documentation of tests or unclear details about patients' medications. For health professionals at the receiving end, considerable time is spent attempting to obtain relevant details [12]. In an observational study involving discharge from hospital to primary health care settings, health professionals situated in the community report inconsistencies and inaccuracies comprising missing information about medication regimens, and incorrect medication lists [11].

The ED is identified as a weak point in the chain of events during patient transfer. In the ED, the presence of patients who require urgent treatment and the demand for rapid throughput create barriers for tailored care and patient-centred decision making [13]. It is also likely that miscommunication can occur within the ED as patients transfer to other environments [4].

In examining communication about medication management, interviews provide details of what people say rather than what they actually do [14,15]. Conversely, observations reveal information about the dynamics of interactional processes [9,10]. In examining communication about medication management, it is important to observe how various participants – doctors, nurses, pharmacists, patients and family members – interact with each other across different environments.

This study aimed to examine how health professionals, patients and family members communicate about managing medications as patients moved across transition points of care, and to identify possible sources of communication failure in managing medications across transitions. Transition points were defined as those occurring from the ED to discharge, and from the ED to a medical ward to discharge.

Methods

Design

A descriptive design was undertaken comprising observations and follow-up interviews with health professionals. The study was conducted in an inner-city, public teaching hospital and an outer-metropolitan, public teaching hospital in Melbourne, Australia. The ethics committees of the hospitals and the administering university granted approval for the study.

Sample

The study was undertaken in the EDs and medical wards of the two hospitals. Doctors, nurses and pharmacists were eligible to participate if they were registered health professionals who worked at least one day each week in the wards under investigation. Students were not eligible to participate. We conducted information sessions with potential participants and obtained referrals from various clinical staff to facilitate recruitment.

Patients could participate if they were under the care of the observed health professional, were aged 18 years or over, had a sufficient understanding of English, presented as a result of an unplanned admission to the ED and were either discharged following the ED presentation or transferred to a medical ward. Patients were ineligible to participate if they were physiologically unstable at the time of observation. Family members were able to participate if they understood English and they had a relative situated in either the ED or a medical ward. Information sessions were conducted at the bedside or cubicle areas before observations to determine patients' and family members' interest and agreement in participating.

Data collection

Observations focused on how health professionals managed medications as patients moved across the EDs and medical wards. The sampling frame comprised randomly selected health professionals, the patients allocated to these health professionals, and family members of patients. Observations involved how health professionals communicated with other health professionals, and with patients and family members.

A research officer with extensive hospital experience completed observations using a digital audio-recorder and a lapel microphone. She conducted observations of about 4 hours' duration during random times and on different days of the week. In shad-

Table 1 Observation and interview schedule

Observations
• Describe the medication activity in the context of what the health professional is doing and saying. Use direct quotes wherever possible.
• State the location of where communication occurs.
• State if communication occurs during handovers, ward rounds, meetings, patient counselling sessions or bedside conversations.
• Take note of who is present during the communication encounter about medications.
• Identify if overlapping conversations, interruptions or multitasking occur.
• Identify the communication channel used during the communication encounter.
• Identify if communication failure occurs, and the source of that failure.
Follow-up interviews with health professionals after observations
• What influenced your management of patients' medications?
• What affected your management of patients' medications as patients came to the ward?
• What affected your management of patients' medications as patients were leaving the ward?

Table 2 Overview of themes and subthemes

Environmental challenges
• Transient nature of patients' hospital stay
• Prioritization of patients' care to high-risk patients
Interprofessional relationships
• Reliance on documentation from previous admissions
• Gatekeeping activities
Patient and family beliefs and responsibilities
• Self-care decision making about managing medications
• Decision making about medications in relation to symptoms and side effects
• Family members' involvement about patients' medication-taking behaviours

owing participants, the research officer did not attempt to interfere with clinical activities. The research officer noted when overlapping conversations, interruptions and multitasking occurred and she identified the types of communication channels used and the location of where conversations took place.

Follow-up was undertaken soon after observations by interviewing health professionals to clarify what was observed. Table 1 shows the observation and interview schedules used.

Data analysis

Observations and interviews were transcribed verbatim. Data analysis occurred using Ritchie and Spencer's [16] five-stage framework approach. This approach comprised obtaining an overall impression of the data; identifying a thematic framework to derive repeating patterns of themes and subthemes; allocating data labels; annotating data with a specific theme and subtheme; and mapping and interpreting data. Two members of the research team conducted data analysis independently and we resolved any discrepancies by open discussion.

We also analysed transcripts to determine if communication failure occurred in individuals' communication about medication management. This failure was defined as a flaw in the content, audience, occasion or purpose of the communication encounter [17]. A flaw in the occasion means that timing of information is delayed. A flaw in content occurs where important patient information is missing or inaccurate. A flaw in purpose takes place when health professionals raise unresolvable questions. A flaw in the audience means that key individuals are not present in the communication encounter. Summary counts and percentages were calculated of identified communication failures, and chi-square analysis was used to examine associations between various explanatory variables and the prevalence of communication failure with a level of significance of $P < 0.05$. Logistic regression modelling was undertaken to determine the effects of explanatory variables on the prevalence of communication failure.

To ensure rigor, employment of prolonged engagement in the research field occurred, thereby promoting familiarity and ease of recruitment. Member checking of observational data occurred during follow-up interviews with health professionals whereby the research officer relayed her understandings of the events observed, and asked whether she fully captured the meanings of their experiences. The research officer received extensive training to ensure data collection occurred effectively and efficiently.

Results

In all, 85 health professionals, 112 patients and 44 family members were observed (Table 2). Health professionals' ages ranged from 33.9 to 62.0 years (M = 33.8 years, SD 9.9 years), with a median of 87 months since registration (interquartile range = 48 years, 207 months). They had between 1 month and 504 months of professional experience. We conducted 150 hours of observations and follow-up interviews and 1009 communication encounters relating to medications were observed. During observations, 432 instances of communication failure (42.8%) were detected. The presence of overlapping conversation was significantly associated with the prevalence of communication failure relating to medication management ($\chi^2 = 6.41$, df = 1, $P = 0.011$). Absence of patients or family members in conversations was also associated with the prevalence of communication failure ($\chi^2 = 6.09$, d.f. = 1, $P = 0.014$). Other explanatory variables examined, including the involvement of more than one other person in conversation versus one other person being involved, the presence or absence of interruptions and multitasking and location (ED versus medical ward) showed no significant associations.

Table 2 contains information about themes and subthemes. We identified three main themes: environmental challenges leading to considerable time delays; interprofessional relationships interfacing with different disciplines, patients and family members; and patient and family beliefs and responsibilities affecting self-care decision making and understanding about medication effects. Table 3 shows the types of communication failure identified, various characteristics of patients and participating hospitals, as well as logistic regression modelling for communication failures.

Table 3 Characteristics of participants, hospitals and communication encounters

Characteristics of individuals involved		*n*	%
Health discipline			
	Doctor	30	35.2
	Nurse	46	54.1
	Pharmacist	9	10.6
Patients and family members			
	Patients	112	71.8
	Family members	44	28.2
	Age range	28–89 years	
	Female sex	64	57.1
Patients' principal medical condition		*n*	%
	Neurological	23	20.5
	Respiratory	19	17.0
	Cardiovascular	17	15.2
	Musculoskeletal	15	13.4
	Gastrointestinal and hepatobiliary	12	10.7
	Dermatological	11	9.8
	Haematological	6	5.3
	Endocrine	4	3.6
	Urogenital and renal	3	2.7
	Ear, eye, nose and throat	2	1.8
Hospitals		*n*	
Metropolitan hospital	No. of beds	390	
	No. of employees	5784	
	No. of ED visits/year	62 614	
Community hospital	No. of beds	99	
	No. of employees	646	
	No. of ED visits/year	30 829	
Organization of work tasks	Pharmacist situated at each hospital ED across 7 days per week.		
	Patients only able to spend up to 4 hours in the ED. Thereafter, they move to the ED short stay unit, move to an inpatient ward or are discharged.		
Characteristics of the 1009 communication encounters		*n*	%
Overlapping communication		429	42.5
Interruptions		514	50.9
Multitasking		210	20.8
Number of other people involved		*n*	%
	1 person	684	67.8
	>1 person	325	32.2
Communication channel		*n*	%
	Face-to-face	696	69.0
	Telephone	128	12.7
	Face-to-face and computer	62	6.1
	Face-to-face and medical record	47	4.7
	Face-to-face and telephone	38	3.8
	Face-to-face and whiteboard	38	3.8
Number of communication failures		*n*	%
		432	42.8
Type and frequency of 432 communication failures		*n*	%
	Purpose	156	36.1
	Content	142	32.9
	Audience	83	19.2
	Occasion	51	11.8

Table 3 *Continued*

Regression modelling: explanatory variables (baseline/comparator)	Odds ratio	95% CI	*P*-value
Patient and family involvement (yes/no)	0.631	0.455–0.875	0.006
Number of other people involved conversing (1/more than 1)	1.023	0.759–1.378	0.881
Location (medical ward/ED)	0.898	0.688–1.171	0.427
Number of communication channels (not continuous)	1.471	1.027–2.107	0.035
Overlapping communication (no/yes)	1.498	1.113–1.986	0.005
Interruptions (no/yes)	1.329	1.010–1.750	0.043
Multitasking (no/yes)	0.799	0.575–1.112	0.183

Environmental challenges

Transient nature of patients' emergency department stay

With assistance from nurses, hospital pharmacists spent considerable time tracking community pharmacists, general practitioners and medical specialists to determine what medications patients were prescribed just before presentation to the ED. Generally, there was an inconsistent approach to locating these individuals as hospital staff and health professionals in the community all had their own demanding time commitments. In the following observation excerpt, the ED pharmacist attempted to telephone the psychiatrist of an 18-year-old female patient who presented to the ED after ingesting 112 aspirin tablets:

> ED pharmacist: [to psychiatry clinic receptionist] I wish to get some information about a patient in your clinic. She has come into the emergency department with an overdose and we want to confirm the medications she was discharged home on . . . Is there no record of her discharge prescriptions anywhere? . . .
>
> ED pharmacist: [to ED doctor] The clinic does not have any record of her discharge medications. Her psychiatrist is not there. She keeps her files personally and she is not contactable today. I'll call back tomorrow. (ED_MetHosp_CommEnc_151)

Sometimes, numerous community-based health professionals needed to be contacted to obtain medication details. In a situation involving a male patient prescribed methadone in the community, the hospital pharmacist contacted the Department of Health officer, the general practitioner, the community pharmacist and the patient's spouse to obtain accurate and relevant information. Patients were asked the names of community pharmacists but they often only knew the general location of the pharmacies and they often did not have the resources to identify these names. Hospital pharmacists spent considerable time identifying which community pharmacists were attached to particular residential aged care facilities so that information could be conveyed to community pharmacists about patients discharged to these facilities.

Another concern was the lack of handover about medication changes when patients transferred to a medical ward. Handovers focused on describing patients' admitting diagnoses and assessment parameters, rather than identifying medication changes. No observed handovers involved pharmacists located in the EDs and those in medical wards. Patients' medications also often remained in the ED, which delayed medication administration following transfer. According to the following family member:

> Family member: [to pharmacist] My husband has been on pramipexol for restless leg syndrome, and I don't know what's happened to it. He has not been getting it since coming here. (ED_MetHosp_CommEnc_163)

Prioritization of patients' care

Hospital policy required all patients to be reviewed within 24 hours of arrival to the ED in order to identify the medications they were prescribed prior to hospitalization. However, if large numbers of patients presenting to the ED simultaneously, or in situations where patients required urgent treatment, health professionals prioritized this checking process towards patients with complex needs. As illustrated by the following pharmacist:

> ED pharmacist: I am looking at this lady because she has been in the longest and she is 93 years . . . This lady has come in from the nursing home with very little English . . . she last came in two days ago . . . for a gall bladder removal. (ED_CommHosp_CommEnc_287)

Patients and family members also recognized problems with prioritization:

> Family member: The nurses were very busy in emergency. They had lots of patients waiting around. I was concerned.
>
> MW pharmacist: I understand.
>
> Patient: The doctors needed to change my insulin dosage but the nurses needed instructions from the doctors. (MW_MetHosp_CommEnc_464)

Interprofessional relationships

Reliance on retrospective documentation from previous admissions

Health professionals relied heavily on patient documentation from past admissions. They regularly examined past general practitioner (GP) letters, medication order charts and discharge summaries to work out what should be prescribed. Information contained in documentation was not always accurate, correct or current. In some cases, patients' histories provided incorrect medical diagnoses, which led to incorrect use of medications. For example, a patient who had a single convulsion on a previous admission was misdiagnosed with epilepsy, which had carried into subsequent admissions. Yet, an ED doctor ordered anti-epileptic therapy that was unnecessary.

ED doctors scrutinized past medication orders, and were observed to order previous prescriptions for patients' current admission without checking their relevance to current circumstances. Hospital policy indicated that medications prescribed were required to have a rationale provided. Yet, these rationales were often missing. An example included a patient who was prescribed the antidepressant, mianserin, on alternate days with no explanation given about the odd dosing regimen. In another situation, the patient was previously ordered four antibiotics after discharge, and the ED registrar proceeded to order the same four antibiotics, without checking the purpose of the initial orders or whether the patient still needed them.

Prescription software programs used by GPs also caused documentation problems. In a commonly-used software program, all medications were itemized without discriminating the currency of orders. ED doctors responded by prescribing all medications following patient admission. As a result, health professionals were unsure if all orders were correct. Some patients and family members commented they were frustrated to be asked about medications on itemized lists that had long being ceased. As mentioned in the following observational transcript:

ED Pharmacist: I have just spoken to the patient's girlfriend. I will now tell the team so they know what to write him up for. He is supposed to just be on 15 mg of MS Contin [morphine]. The GP started him on Panadol [500 mg paracetamol], then he went to Panadol Osteo [665 mg controlled-release paracetamol], and then Panadeine [paracetamol and codeine] and then he went on MS Contin 10 mg and then moved to 15 mg.

ED Nurse: This GP program charts everything he has been on. It doesn't state when he has started or stopped anything. (ED_MetHosp_CommEnc_281)

Discharge summaries also influenced the medication activities of health professionals. As a way of prospective planning, doctors in medical wards often wrote discharge summaries a few days in advance of patients' discharge. By the time that patients were discharged, these discharge summaries were no longer current or accurate.

Gatekeeping activities

Health professionals participated in gatekeeping in an effort to provide safe medication practices as patients moved across settings. Gatekeeping involved health professionals guiding access to certain information in order to encourage particular behaviours to be exhibited and for specific outcomes to occur. Nurses and pharmacists demonstrated these activities if they were not entirely satisfied with medication decisions made by doctors.

In the following observation excerpt, the patient admitted with chronic back pain stated that he attempted to reduce his oxycodone and tramadol doses at home because he did not like their adverse effects. In hospital, the anaesthetic register charted relatively high doses of oxycodone and tramadol for breakthrough pain. After the pharmacist asked the register whether she would consider reducing the doses, the registrar confirmed that she was satisfied for the patient to continue to receive these doses. Through gatekeeping, the pharmacist collaborated with the nurse in effort to control the amount received by the patient:

MW pharmacist: I spoke to the anaesthetic registrar. She was happy for him to have tramadol 50 to 100 mg prn [as required] and Endone [oxycodone] 10 to 30 mg 3-hourly.

MW nurse: But [patient] told us that he wouldn't use that much at home.

MW pharmacist: Well, I think we need to be very careful with the doses . . .

Patient: It's true – I don't use that much at home.

MW pharmacist: [To MW nurse] He has already had 200 mg regular tramadol. He can only have another 200 mg of tramadol. (MW_MetHosp_CommEnc_208)

Patient and family beliefs and responsibilities

Self-care decision making about managing medications

Where a medication list was available, the pharmacist went through this list with patients, but often found patients made their own decisions about self-managing their medications. They did not always follow what was indicated on the lists. Patients made decisions about when to reduce doses of medications because of adverse effects they experienced. They made these decisions without speaking with their GP.

Some patients used self-care inappropriately in attempting to resolve symptoms themselves before presenting the ED. In one situation, a patient consumed an unfinished antibiotic he found around the house to try to treat a penetrating skin infection. In another situation, a patient decided not to take his acamprosate tablets to treat alcohol withdrawal, attempting to wean off alcohol himself. Another patient who presented with an unrelenting nosebleed and an overdose of warfarin, stated that he found chloramphenicol ointment helped to stop his nosebleeds. However, it did not work for him on this occasion.

Health professionals believed that patients would be able to identify the medications they consumed. However, this perception was not always true. Patients often did not have their medication lists or medications with them, and they relied on their memories for recalling medication names and doses, which sometimes led to inaccurate recollection of details. As indicated in the following interaction between the ED pharmacist and a patient presenting with a severe migraine:

ED pharmacist: I need to have a chat with you about your medicines to see if you are still on them . . . are you taking Maxalt [rizatriptan], which is kind of like a wafer?

Patient: No, I'm taking a tablet, and it is expensive to buy.

ED pharmacist: . . . Is it sumatriptan?

Patient: Yes.

ED pharmacist: Would you know how long you got that one for?

Patient: For years.

ED pharmacist: Have you tried anything more recently?

Patient: No . . . I used to take Imigran but once I got to a certain point, it didn't work.

ED pharmacist: So Imigran is sumatriptan. It's the same thing. (ED_MetHosp_CommEnc_127)

Often, health professionals encouraged patients to use dose administration aids following discharge. The aims of using these aids were to increase medication adherence and reduce errors. However, sometimes tensions arose between a patient's desire to

take medications directly from a container, and a health professional's desire to organize medications with an aid:

MW pharmacist: I know you have been looking after your own medications but the doctors would like you to go on a Webster pack . . .

Patient: No, I have a list and a good memory. I don't need a pack . . . I like my tablets in a jar . . .

MW pharmacist: . . . But you seem to have some confusion about your tablets and we just want to make sure you are getting the right ones at the right time. It means your doctor can keep track of what's happening with your tablets.

Patient: I don't want this pack. My doctor is too busy. I often cannot get to him and he doesn't worry about my tablets. (MW_MetHosp_CommEnc_484)

Decision making about therapeutic and unwanted symptoms

Patients made independent decisions about their medications based on balancing therapeutic and adverse effects. These decisions involved stopping prescribed medications outside of hospital if they experienced unpleasant side effects. Patients' decisions to change their medication regimens were not usually relayed to their GPs. Following patients' admission to hospital was the first time that health professionals were aware of these decisions. In questioning a patient in the ED, a pharmacist found out that the patient stopped his oxybutynin for urinary retention because he was voiding very frequently. Patients were also observed requesting nurses not to administer opioid medications such as morphine and oxycodone because they would rather experience severe pain than the adverse effect of nausea.

Outside of hospital, patients also manipulated doses based on their experiences of adverse effects or their perceptions about the severity of their chronic condition. In patient counselling sessions in hospital, pharmacists identified that patients regularly changed analgesic doses of opioids because they did not wish to experience drowsiness and confusion. Some patients also made changes to their dosing regimen for antidepressants by consuming these medications every couple of days because they did not feel their depressive symptoms warranted daily administration. A patient admitted for exacerbation of idiopathic thrombocytopenia purpura (ITP) debated with the medical ward doctor about the delicate balance involving weaning prednisolone and dealing with the symptoms of her chronic condition:

Patient: It is great not having symptoms but I am worried about the prednisolone.

MW doctor: . . . You do have low platelets, and that's not good. And you can get infections with the prednisolone. (MW_MetHosp_CommEnc_494)

In some cases, patients recommenced a medication that had been previously discontinued by a doctor. Health professionals discovered this situation when patients were admitted on a subsequent occasion and were found to be still taking the medication. As demonstrated:

MW pharmacist: This patient says he knows his medications, but last time he was in, he was on atenolol, and we stopped that and it was replaced with metoprolol. And he has brought in atenolol again. (MW_CommHosp_CommEnc_985)

Family members' involvement about patients' medication-taking behaviours

Family members were instrumental in conveying patients' medication-taking behaviours before patients came to hospital and in supporting patients following discharge. Family members contributed enormously in clarifying understandings about patients' medications. This contribution occurred in cases where patients came from non-English speaking backgrounds, or were drowsy or unconscious, or had a passive approach to their care, medication lists were unavailable, and community-based health professionals were inaccessible. If family members were not present in hospital at the time when information was sought, health professionals regularly telephoned them to obtain the details required. Occasionally, confusion occurred about actual doses consumed by patients:

Family member: I have just rung my husband, and he says our granddaughter is on fluoxetine, 160 mg each day.

ED pharmacist: I will need to check that because it does seem a little high. (ED_MetHosp_CommEnc_162)

At times, health professionals conveyed complex information to family members at patient discharge. These details included clarifying changes with using insulins and hypoglycaemic oral medications, and conveying weaning protocols for prednisolone. As the following observation excerpt illustrates, communicating this information could be confusing:

MW pharmacist: Your mum will have 4 tablets tomorrow morning, with breakfast, 4 tablets the next day, and then half it to 2 tablets for two days, and then back to her 1 tablet once a day.

Family member: So, 4 tablets tomorrow for two days, and then 2 tablets for two days?

MW pharmacist: No, 4 tablets for two days, then 2 tablets for two days, and then 1 tablet once a day. (MW_CommHosp_CommEnc_500)

Before patient discharge, family members were informed about ceased medications. One commonly ceased medication was oxazepam because of its problems with confusion and falls. Family members were reluctant to have these medications disposed:

MW nurse: I can get rid of these oxazepam tablets for you if you like.

MW pharmacist: We just want to make sure that she does not get them accidently.

Family member:. . . I'll just take them away. Just in case if she needs to take half-a-tablet a month or something like that. (MW_CommHosp_CommEnc_438)

Discussion

This paper provides novel insights into patterns of communication involving managing medications, and on the types and prevalence of communication failure as patients moved across transition points of care within the ED and medical wards. Many instances of communication failure occurred relating to the purpose, content, audience and occasion of communication encounters. Medication communication across transition points was associated with environmental challenges, interprofessional relationships, and blurriness about patient and family beliefs and responsibilities.

Communication failure occurred in nearly 50% of observed communication encounters involving medications. In terms of purpose, doctors tended to make medication decisions without considering patients' views. Commonly, doctors did not ask and were unaware of patients' attempts to alter their medication-taking behaviours and their reasons for these alterations. This lack of awareness had the effect of dismissing patients' efforts in managing their medications, and alluded to problems of not including patients as active participants [14]. In relation to content, crucial information related to allergy status was omitted. It was therefore apparent that the best possible medication history could not be developed for patients [18]. Problems relating audience manifested as the absence of interpreters and community-based medical specialists, which led to delays in documenting accurate medication details. Communication failure relating to occasion was associated with not having medication information when it was required. This type of communication failure manifested when patients arrived in the ED with incomplete or missing medication lists, and when pharmacists had to seek out this information from community based health professionals or family members. Past research has shown that when patients present a medication list or the medications themselves on hospital admission, the risk of medication errors and harm is reduced [19].

As patients moved between environments, there was insufficient tracking of verbal and written information relating to medication changes. Deficits in medication changes propagated, as evidenced by problems associated with clinical handovers and medication orders. Clinical handovers between health professionals rarely contained details about medication alterations. In addition, medication orders moving from the EDs to medical wards were often incomplete, inaccurate or left behind in the EDs. Past research has also demonstrated deficiencies in medication changes in verbal or written communication as patients move between environments [20–23]. In the current study, health professionals dealt with deficits by referring retrospectively to previous admissions, rather than trying to ensure information was correct as patients moved forward.

Pharmacists and nurses participated in gatekeeping activities in effort to control how doctors implemented medication decisions. In some situations, doctors preferred to use their own judgements about what patients should be prescribed rather than consider patients' perspectives. Gatekeeping activities were considered important because of their impact on medication safety. Past research has demonstrated that nurses are the gatekeepers for the flow of information regarding patient care and they choose what information upon which to impart and act [24]. In our study, doctors remained oblivious to gatekeeping decisions, which enabled interprofessional relationships between the various disciplines to remain harmonious.

Before coming to hospital, patients participated in self-care medication activities, which did not always involve exemplary behaviours or match the medications that doctors prescribed for them to consume. Patients did not always feel compelled to contact their GP or specialist when confronted with a medication problem. Past research has shown insufficient coordination exists between health professionals of various disciplines, which leads to irregular review of patients' health status and medication needs [25]. In this study, the onus was on patients to follow up with health professionals if they experienced medication problems. Instead, patients assumed responsibility for changing medication regimens, in an attempt to resolve unwanted symptoms and address therapeutic needs. Patient self-care should not be interpreted as merely shifting responsibilities onto patients to manage their medications. Patients who do not receive positive reinforcement from health professionals may feel their participation is neither necessary nor valued.

There are many implications arising from this study. Results showed counselling patients about medications concentrated on patient discharge, while at patient presentation in EDs, health professionals focused on identifying what medications patients had taken. Little counselling occurred between these points of care. Instead, if health professionals can incrementally inform patients about medication changes during their stay, patients are more likely to comprehend how decisions are made. Such involvement may assist in facilitating positive medication-taking behaviours upon discharge. While the EDs and medical wards were busy clinical settings, there were many situations where health professionals gathered with patients during bedside handover and ward rounds. During these gatherings, opportunities for medication counselling should be better utilized.

Limitations

Health professionals may have had a raised awareness of being observed and changed their behaviour accordingly. However, previous research shows that participants' awareness of being observed decreases significantly over time, especially when attempts are made to promote trust, reassurance and familiarity [26]. Since we observed situations where communication was not completely optimal, it is likely that health professionals did not change their behaviour. We observed over a 4-hour period, and it was impossible to determine the consequences of communication failure on medication activities. Follow-up interviews were not performed with patients and family members, which could have enabled additional depth to the study. Medication activities occurring in rural and regional hospitals could be different from what happens in metropolitan hospitals.

Conclusion

Managing medications at transitions points of care extended beyond hospital environments as patients moved between clinical settings. Complexities associated with the environment, interprofessional relationships, and patient and family involvement indicated a dynamic interplay of communication processes. Extensive challenges exist in addressing these complexities in effort to improve medication safety at transition points.

Health professionals spent considerable time attempting to identify what medications patients were taking. The availability of electronic medication lists that update as patients' medications change may help to provide dynamic data about medications prescribed at any time point and in any location. Greater attention is needed on encouraging patients to make medication decisions in collaboration with GPs in community-based care. Better use should be made of opportunities to counsel patients about medication changes during hospitalization, rather than waiting until hospital discharge.

Acknowledgements

This research was supported by an Australian Research Council Linkage Project Grant (number: LP0990334), and Alfred Health provided financial and in-kind support for this research.

References

1. Coleman, E. & Boult, C. (2003) Improving the quality of transitional care for persons with complex care needs. *Journal of the American Geriatrics Society*, 51 (4), 556–557.
2. British Medical Association (BMA) (2004) Safe Handover: Safe Patients: Guidance on Clinical Handover for Clinicians and Managers. London: BMA.
3. Blank, L. J., Benyo, E. M. & Glover, J. U. (2012) Bridging the gap in transitional care: a closer look at medication reconciliation. *Geriatric Nursing*, 33 (5), 401–409.
4. Manias, E., Gerdtz, M., Williams, A. & Dooley, M. (2015) Complexities of medicines safety: communicating about managing medicines at transition points of care across emergency departments and medical wards. *Journal of Clinical Nursing*, 24 (1–2), 69–80.
5. Sanchez, S. H., Sethi, S. S., Santos, S. L. & Boockvar, K. (2014) Implementing medication reconciliation from the planner's perspective: a qualitative study. *BMC Health Services Research*, 14 (290). doi: 10.1186/1472-6963-1114-1290.
6. Vogelsmeier, A., Pepper, G. A., Oderda, L. & Weir, C. (2013) Medication reconciliation: a qualitative analysis of clinicians' perceptions. *Research in Social & Administrative Pharmacy*, 9 (4), 419–430.
7. Vogelsmeier, A. (2014) Identifying medication order discrepancies during medication reconciliation: perceptions of nursing home leaders and staff. *Journal of Nursing Management*, 22 (3), 362–372.
8. Behara, R., Wears, R. L., Perry, S. J., *et al*. (2005) Advances in patient safety: a conceptual framework for studying the safety of transitions in emergency care. In Advances in Patient Safety: From Research to Implementation, Vol. 2, Concepts and Methodology (eds K. Henriksen, J. B. Battles, E. S. Marks & D. I. Lewin). Rockville, MD: Agency for Healthcare Research and Quality.
9. Vogelsmeier, A. A., Scott-Cawiezell, J. R. & Pepper, G. A. (2011) Medication reconciliation in nursing homes: thematic differences between RN and LPN staff. *Journal of Gerontological Nursing*, 37 (12), 56–63.
10. Meguerditchian, A., Krotneva, S., Reidel, K., Huang, A. & Tamblyn, R. (2013) Medication reconciliation at admission and discharge: a time and motion study. *BMC Health Services Research*, 13 (485). doi: 10.1186/1472-6963-1113-1485.
11. Laugaland, K., Aase, K. & Waring, J. (2015) Hospital discharge of the elderly-an observational case study of functions, variability and performance-shaping factors. *BMC Health Services Research*, 14, 365. doi: 10.1186/1472-6963-1114-1365.
12. Storm, M., Siemsen, I. M. D., Laugaland, K. A., Dyrstad, D. N. & Aase, K. (2014) Quality in transitional care of the elderly: key challenges and relevant improvement measures. *International Journal of Integrated Care*, 14 (e013). doi: URN NBN NL UI 10-11-114780.
13. Yu, K. T. & Green, R. A. (2009) Critical aspects of emergency department documentation and communication. *Emergency Medicine Clinics of North America*, 27 (4), 641–654.
14. Cawthon, C., Walia, S., Osborn, C. Y., Niesner, K. J., Schnipper, J. L. & Kripalani, S. (2012) Improving care transitions: the patient perspective. *Journal of Health Communication*, 17 (Suppl. 3), 312–324.
15. Chevalier, B. A. M., Parker, D. S., MacKinnon, N. J. & Sketris, I. (2006) Nurses' perceptions of medication safety and medication reconciliation practices. *Nursing Leadership (Toronto Ontario)*, 19 (3), 61–72.
16. Ritchie, J. & Spencer, L. (1994) Qualitative data analysis for applied policy research. In Analyzing Qualitative Data (eds A. Bryman & R. G. Burgess), pp. 173–194. London: Routledge.
17. Lingard, L., Espin, S., Whyte, S., *et al*. (2004) Communication failures in the operating room: an observational classification of recurrent types and effects. *Quality & Safety in Health Care*, 13 (5), 330–334.
18. Thompson, A. (2014) Improving drug chart documentation in elective surgical patient admissions. *BMJ Quality Improvement Reports*, 2 (2). doi: 10.1136/bmjquality.u1591.w1893.
19. Gleason, K. M., McDaniel, M. R., Feinglass, J., *et al*. (2010) Results of the Medications at Transitions and Clinical Handoffs (MATCH) study: an analysis of medication reconciliation errors and risk factors at hospital admission. *Journal of General Internal Medicine*, 25 (5), 441–447.
20. Aldridge, V. E., Park, H. K., Bounthavong, M. & Morreale, A. P. (2009) Implementing a comprehensive, 24-hour emergency department pharmacy program. *American Journal of Health-System Pharmacy*, 66 (21), 1943–1947.
21. Bridgeman, P. J. & Rynn, K. O. (2008) Medication reconciliation in the emergency department. *American Journal of Health-System Pharmacy*, 65 (24), 2325–2326.
22. Hayes, B. D., Donovan, J. L., Smith, B. S. & Hartman, C. A. (2007) Pharmacist-conducted medication reconciliation in an emergency department. *American Journal of Health-System Pharmacy*, 64 (16), 1720–1723.
23. Manias, E., Gerdtz, M., Weiland, T. & Collins, M. (2009) Medication use across transition points from the emergency department: identifying factors associated with medication discrepancies. *Annal of Pharmacotherapy*, 43 (11), 1755–1764.
24. Poletick, E. & Holly, C. (2010) A systematic review of nurses' inter-shift handoff reports in acute care hospitals. *Joanna Briggs Institute Library of Systematic Reviews*, 8 (4), 121–172.
25. Spinewine, A., Claeys, C., Foulon, V. & Chevalier, P. (2013) Approaches for improving continuity of care in medication management: a systematic review. *International Journal for Quality in Health Care*, 25 (4), 403–417.
26. Alvarez, G. & Coiera, E. (2006) Interdisciplinary communication: an uncharted source of medical error. *Journal of Critical Care*, 21 (3), 236–242.

