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Research article

Communicating with patients, families and health professionals about managing medications in intensive care: A qualitative observational study

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ABSTRACT

Objectives: To explore communication between patients, families, and health professionals about managing medications in intensive care.
Design: A qualitative exploratory study was undertaken using participant observations. A thematic analysis of the data was performed.
Setting: The setting comprised an intensive care unit at a public, teaching hospital in Melbourne, Australia.
Findings: Three themes were identified: *provision of information*, *therapeutic relationships*, and *patient and family centred care*. Nurses and pharmacists communicated regularly about medications with patients and family members. Doctors were occasionally present at the bedside during medical ward rounds or in undertaking medical procedures and subsequently their patient and family interactions about managing medications tended to be minimal. Pharmacists spent time in clarifying patients' medication history prior to their admission to the intensive care unit. Nurses were at the forefront of communication with patients and their family members. However, nurses sometimes missed cues and valuable opportunities to respond to families' concerns during their interactions. Communication was commonly hampered by time constraints and competing responsibilities of health professionals.
Conclusion: Communication tended to involve clarification of patients' medication history and the ways in which medications affected patients' clinical status or medical condition. Attention is needed in attending to cues from families in communicating about medications.

Implications for clinical practice

- In communicating with family members, a proactive, iterative approach by nurses can assist in enhancing understanding about changes in the patient's conscious and haemodynamic state and of how these changes are affected by medications. Families may be reluctant to ask questions especially if nurses have several competing responsibilities of care.
- Nurses can support the inclusion of patients and family members into how medications are managed by actively seeking their views about making decisions about specific medications. Conscious patients and their families are more likely to feel informed about making decisions if health professionals provide them with details about the names of medications prescribed and administered, and the purpose of administration.
- A collaborative interdisciplinary approach to communicating with patients and families can be facilitated by having dedicated bedside conversations with nurses, doctors and pharmacists within and across disciplines. There needs to be greater realisation of the valuable role played by families in conveying medication information to health professionals, which in turn can lead to beneficial patient outcomes, such as ensuring medications for chronic conditions continue to be prescribed appropriately.

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Introduction

Communication about managing medications involves conveying information about treatment regimens and understanding patients' and family members' needs and preferences. Through communication, there are opportunities for health professionals to inform patients and families about medications, to examine why these medications are prescribed, to determine reasons for medication discontinuation and to accurately clarify the patients' medication history. In the intensive care setting, communication about medications is extremely challenging. Patients generally have an impaired ability to interact due to the presence of an artificial airway or assisted ventilation, and they are usually affected by sedation, fatigue and delirium (Bell et al., 2018). However, towards the end of their intensive care stay when plans are being made for patient discharge to a general ward environment, most patients are in a conscious state and are therefore able to participate in communication. For the most part; however, while critically ill patients are not able to communicate in intensive care (Happ et al., 2011), family members are in a position to be the voice or advocate for these patients (Brown et al., 2015; Hetland et al., 2018).

A dearth of research exists on how patients and family members communicate about medication management in the intensive care unit (ICU). In a retrospective clinical audit of intensive care medical records, generalised linear mixed modelling identified the odds of a prescribing incident increased 5.96 times for each additional ward transfer (95% CI 3.52, 9.99; $P < 0.001$) (Manias et al., 2014). This result demonstrates the importance of communication about medication decisions in relation to patients' movements across transitions of care from the intensive care environment. Interviews with families of critically ill patients conducted by Wong et al. (2015) indicated that health professionals interacted in supportive ways but families also experienced unsupportive interactions because of poor communication. In a scoping review, Olding et al. (2016) examined patient and family involvement in intensive care. Interview-based exploratory study designs were the most common approach used. Only three articles specifically explored relationships between health professionals, patients and family members in interpreting patterns of communication. Major areas of patient and family involvement comprised end-of-life care and palliative care decisions. No work was identified in relation to communication about medications.

Observational methods can provide useful information about the complexities involving social, environmental and organisational contexts that impact on communication processes (Moser and Korstjens, 2018). These methods can elicit novel understandings of interconnections between medication management and communication practices. New knowledge can be therefore illuminated on how communication occurs in real-life clinical situations, to generate strategies for improving patient care.

Methods

Aim

The aim of the study was to explore how communication occurs between patients, families and health professionals about managing medications in the intensive care unit.

Research design and ethical considerations

A qualitative exploratory research design was chosen comprising participant observations. The strength of this research design lies in its facilitation of providing insights through inductive discovery into key issues surrounding medication communication. This facilitation enables understandings of the social aspects of participants being investigated, and provides rich data depicting their experiences (Denzin and Lincoln, 2017). The study was approved by the Human Research Ethics Committees of the participating hospital and administering university (ethics approval number: H2010/03995). The work was undertaken between 2012 and 2017.

Setting

The study was conducted at a public teaching hospital in Melbourne, Australia with 980 beds. The ICU had 30 beds and comprised a closed unit of care. One nurse was allocated to care for each patient in the ward and two pharmacists were also employed in the unit to cover care during office hours from Monday to Friday and on Saturday mornings.

Participants

Participants involved three different groups and included patients, family members and health professionals. There were 73 participants in total, comprising 20 health professionals, 18 patients and 35 family members. Inclusion criteria involved admitted patients to the ICU who were prescribed at least one medication. Family members were individuals who could communicate in English and who played a major role in the patient's life. Eligible health professionals were registered nurses, doctors, and pharmacists who were employed in the hospital, and who provided care in the ICU. A purposive sampling approach was used to recruit participants. Health professionals recruited for observations were sampled based on their varying years of experience.

Data collection

Informal information sessions were held in the ICU, open to doctors, nurses and pharmacists, individuals were invited to participate based on sampling criteria. Recruited health professionals were informed that their privacy would be upheld, their participation was voluntary and the study's purpose was to gain data about the complexities associated with actual medication communication practices. There was no intent to make judgements about health professionals' skills in practice. Written consent to audio-record targeted health professionals in their interactions was initially gained and verbal consent from other health professionals who showed up during the data collection process was garnered.

Data collection comprised participant observations (Creswell, 1998). This approach enabled rich descriptions of how communication occurred in diverse situations in intensive care (Bolster and Manias, 2010; Liu et al., 2014). Observations focused on interactions between health professionals, patients, or family members. These interactions were audio-recorded by the observer, who followed a targeted health professional for a designated observation period. Audio-recordings of observations enabled the integrity and actual phrasing of participants' conversations to be maintained. The observer also documented their reflections in field-notes immediately following an observation.

One health professional was observed for up to two different observations comprising about four hours on each occasion. It was expected that 9–18 observations would be conducted until repeated patterns in communication activities emerged. In the initial stages of organising participant recruitment, it was found that doctors rarely spent time at the bedside communicating with patients or families. Most of their time involved working in the central office area, conversing with their colleagues during medical ward rounds clinical handovers or conducting medical procedures. As the intent of the study was to capture medication communication at the bedside

involving patients and family members, targeted individuals were nurses and pharmacists with direct clinical responsibilities in the ICU. Observations comprised these targeted nurses' and pharmacists' interactions with patients and families at the bedside, as well as interactions with other health professionals, including other nurses, pharmacists, and with doctors.

Information captured in observations included: with whom the targeted health professional was communicating; interaction purpose; type of interaction and who initiated the communication. Audio-recordings were undertaken of communication interactions using an audio digital recorder with a lapel microphone. The observer only interacted with participants if clarification of a particular situation or event was required after it had occurred or to make participants feel more comfortable with the observation process (Shah, 2017).

Data analysis

Audio-recorded observations were transcribed verbatim. All transcripts were checked by the observer against the audio sound files to ensure they were transcribed accurately. The Framework Method was used to analyse data using a five-step approach (Ritchie and Spencer, 1994). These steps included familiarisation of the data, identifying a thematic framework, indexing, charting, and mapping and interpretation.

Familiarisation involved immersion in the data, repeatedly listening to recordings, reviewing observational notes and reading over transcripts to determine key ideas. Identifying a thematic framework comprised making judgements about meanings, the relevance and importance of connections between ideas, and examining recurring patterns. Indexing or assigning labels to data entailed identifying where sections of data corresponded with a specific theme. Once the thematic framework was applied, the research team developed a picture of the data, by considering the range of experiences for each theme. Data were taken from their original context and rearranged, ordered and grouped, which was a process involving charting. Finally, mapping and interpreting involved drawing together key characteristics, by comparing and contrasting participants' experiences and searching for patterns and connections. Three members of the research team independently examined the transcripts to conduct data analysis, and remaining members reviewed the transcripts and themes, to ensure a consistent approach to data analysis occurred in deriving the themes.

Research rigour

The study employed time triangulation, which comprised participant observations being carried out at different times during morning and afternoon shifts (Denzin, 1989). Data collection was undertaken by two members of the research team, who had extensive experience in the conduct of observations in clinical practice. Research credibility was maintained through selecting health professionals according to their diverse work experiences (Graneheim and Lundman, 2004). The research team was fully cognisant of the possibility of participants performing activities in ways that may not have reflected actual practices (Mulhall, 2003). Prolonged engagement of the observers in the research setting developed familiarity and reassurance among participants, which facilitated health professionals to carry out their activities as they would in actual practice. Dependability of the research occurred by ensuring data collection was traceable and clearly documented. Data auditability was demonstrated through transparency of the data collection process. Data transferability was facilitated through purposive sampling to ensure variability of participant characteristics and by continued observations till repeated patterns of communication encounters occurred (Denzin and Lincoln, 2017).

Findings

Sample and observation characteristics

A total of 50 hours of observations were undertaken. Observations were carried out at different days from Monday to Friday and at various times during the day, ranging from 8 am to 6 pm. Each observation was approximately four hours in duration. Twenty health professionals comprising 18 nurses and 2 pharmacists were shadowed as they interacted with patients and family members and with other health professionals. Their years of experience as a health professional ranged from 4 to 25 years. Fourteen female and six male health professionals participated. Positions held by health professionals observed included clinical nurse specialists (n = 5), clinical nurses (n = 13) and clinical pharmacists (n = 2). Eighteen patients were included, whose ages ranged from 53 to 69 years and who were prescribed a mean of 12 medications. Nine patients were women and nine were men. In all, 35 family members visited these patients in ICU, including spouses, siblings, adult children and grandchildren.

Three themes were identified from observations: provision of information, therapeutic relationships, and environmental characteristics of intensive care. The three themes and sub-themes are shown in Table 1.

Theme 1: Provision of information by families

The first theme identified was provision of information by family members. Sub-themes involved contribution about patients' past medication history and current medication regimen, and recognition of changes in patients' condition and care.

Contribution about patients' past medication history and current medication regimen

Family members contributed to providing information to pharmacists about the patients' past medication history and current medication regimen. They also assisted pharmacists' requests for information when the patients' medication history was gathered or clarified. This communication involved pharmacists asking family members to determine accurately the regular medications taken by patients and any allergies they may have had to certain medications. As mentioned by a pharmacist to a family member, "*what I was hoping to clarify was the medications that your grandfather was taking before he came into hospital*." (ICU-AM-71-1,2:54 pm). Family members alerted health professionals to important facts such as allergies to medications, which in some cases, were not documented in medical records.

Some family members managed patients' medications at home, by packing them in a dose administration aid, such as a 'Dosette' box. Use of dose administration aids by patients at home helped them to manage their medications themselves. Family members showed intimate knowledge of the patients' medication regimen, by using statements such as, "*he's on a Transderm 50 Patch*" (ICU-AM-71-1,3:10 pm). Concise communication about medication details ensured that health professionals were aware of regular medications consumed by patients prior to hospital admission, and that patients received their regular medications during their ICU stay.

Nurses made links between patients' clinical manifestations with the regular medications that could have resolved these manifestations. A nurse identified that a patient was "*struggling with a dry mouth*" (ICU-KC-55-1,11:13am). This patient usually took a glycerine (Biotene) mouth spray daily. The nurse took the initiative to ask the patient's family member to "*bring in her Biotene spray*"

Table 1
Overview of Themes and Sub-Themes.

Themes and Sub-Themes with Explanatory Information
Theme – Provision of information by families.
Sub-theme – Contribution about patients' past medication history and current medication regimen.
- Families assisted with health professionals' requests for information.
- Families alerted health professionals about important facts about medications.
- Families managed patients' medications at home.
- Families' uncertainty relating to contradictory or inaccurate medication information being given.
Sub-theme – Recognition of changes in patients' condition and care.
- Families' awareness of incremental changes in the patient's conscious or haemodynamic state.
- Families compared patients' progress across different time periods.
- Families recognition of whether medications were effective in stabilising patients' symptoms.
- Nurses carrying out routine tasks without informing family members.
Theme – Therapeutic relationships between health professionals, families and patients.
Sub-theme – Decision making and involvement in patients' care.
- Nurses' lack of involvement of family members or patients in decision making of why certain medications were prescribed.
- Doctors wrote medication orders without explaining their reasoning for prescribing these medications.
- Passive involvement by families where nurses explained medication activities that were undertaken.
Sub-theme – Information conveyed by health professionals.
- Probing by families elicited an invitation to in-depth conversations with nurses.
- Lack of attention on generic names of medications and their purpose.
- Opportunistic encounters between doctors, patients and families at the bedside.
- Pharmacists educating families about avoiding adverse effects of medications.
Theme – Environmental characteristics relating to intensive care.
Sub-theme – Prioritisation of activities and time constraints.
- Nurses' prioritisation of certain activities, which had a time-based component.
- Nurses' communication to families about medications occurred when nurses were undertaking medication-related activities.
Sub-theme – Lack of visibility of doctors at the bedside.
- Doctors were largely absent from the bedside for very long periods.
- Doctors consulting with patients or families without ensuring nurses were present.
- Occasional lack of clarity of medical notes.
Sub-theme – Setup of the bed area and space utilisation within the healthcare environment.
- Nurses seeking not to be disruptive in presence of families when attending to medication administration activities.
- Nurses communicated with families when directly asked questions.
- Nurses' lack of using families' bedside presence as opportunities to explain medication activities and seek input.

(ICU-KC-55-1,11:13am) because it was not available in the hospital pharmacy. This interaction enabled continuation of the patient's regular medication whilst in hospital.

Sometimes, family members were uncertain about the patients' previous medication history. This uncertainty led to contradictory or inaccurate medication information being given. Statements such as, "*he was on something else for his diabetes, something else, like Lexa something* [I don't know]. *Lomotil* (diphenoxylate)? *and Coveram* (perindopril arginine/amlodipine)*. . .or something like that*" (ICU-AM-71-1,2:58 pm). Lomotil and Coveram were medications used to treat diarrhoea and blood pressure respectively – they were not used for diabetes. At times, pharmacists and nurses had to contact community pharmacists and primary care doctors to obtain clarification about past medications consumed by patients.

Recognition of changes in patients' condition and care

Aside from providing information about medications, family members recognised changes in the patients' condition and sought confirmation from nurses about the changes observed. Nurses primarily were the health professionals present during these interactions where family members noted incremental changes in the patients' conscious or haemodynamic state.

Due to their extended presence at the bedside, family members often compared the patient's progress between consecutive visits.

Nurses were forthcoming if interested family members questioned them about the patients' condition. Family members often asked what medication was being administered, why the patient was receiving a certain medication, and how it affected the patient. Nurses provided information regarding the names of medications they were administering, and the route through which these medications were being administered. However, nurses did not generally offer information about medications' actions, unless family members asked them. Family members commonly asked nurses about their relatives in a generalised context of "*how's she going*" (ICU-KC-55-1,11:13am), and receiving simple responses of "*she's still quite unwell*" (ICU-AM-58-1,08:05am), "*stable*" *or "unchanged*" (ICU-AM-58-1,08:23am).

Family members constantly compared their relative's progress across different time periods. They recognised whether medications were effective in stabilising patients' symptoms. This recognition was demonstrated when a patient's daughter questioned the effectiveness of an intravenous sedative that her mother was receiving, "*while she's sedated it's been a bit more stable, hasn't her blood pressure?*" (ICU-JV-68-1,07:57am). The nurse confirmed this was the case.

Ineffective communication was highlighted when nursing staff carried out routine tasks without informing family members. These tasks involved disconnecting intravenous lines for infusions that were completed or flushing intravenous lines. Some observations showed family members' disinterest in the task at hand by continuing conversations with other family members present and not engaging with nurses, whereas other family members questioned nurses' actions. In one instance, a nurse turned off a pump alarm of a completed medication infusion. The patient's son showed immediate concern about the alarm noise, asking whether the patient was "*alright or not?*" (ICU-MB-53-1,11:54am). The nurse responded by reassuring that the patient was "*okay*" (ICU-MB-53-1,11.54am), rather than explaining that the noise was from completion of an intravenous infusion.

Theme 2: Therapeutic relationships between health professionals, families and patients

Therapeutic relationships were central to medication management in the ICU environment. Sub-themes included decision making and involvement in patients' care, and information conveyed by health professionals.

Decision making and involvement in patients' care

Nurses regularly informed patients, regardless of their conscious state, and family members about the medication activity they were performing. Nursing staff were observed to speak about the activity they were carrying out such as, "*I'll just turn it* [the intravenous pump] *off*" (ICU-MB-53-1,11:53am) and "*I'm just going to flush through the meropenem* [an intravenous antibiotic]" (ICU-MB-53-1,11:58am).

Nevertheless, nurses were not observed to include family members or patients in the decision making of why certain medications were prescribed over others. Indeed, nurses were sometimes not present when doctors explained their decisions for prescribing certain medications. There were also times when doctors wrote medication orders without informing nurses and without explaining their reasoning for prescribing these medications. Most communication about medication involved simple sentences by nurses regarding actions that were undertaken. Examples involved patients being "*given some antibiotics*" (ICU-MB-53-1,11:54am) and nurses stating, "*that's your second antibiotic*" (ICU-CN-54-1,12:03am), rather than mentioning the actual medication name, the reason why it was being administered or how they would likely feel while on the medication.

Information conveyed by health professionals

Some family members were interested in medication administration activities, such as a patient's son asking, "*what are you giving her now?*" (ICU-MB-53-1,11:21 am). This type of questioning elicited an invitation to in-depth conversations between the family member and nurse regarding the medication's purpose and timing of administration. The nurse identified that antibiotics were being used to treat a "*bug in her phlegm.*" She also commented that the patient was due to receive multiple antibiotic doses but she did not clarify whether these doses related to the same antibiotic or different antibiotics. The patient's son continued to question the nurse regarding the duration of the antibiotic therapy and the nurse revealed that the doctors had restarted a previously-ceased antibiotic as well as started a new one. The nurse never referred to the antibiotics by their generic names and did not clarify the specific types of micro-organisms being treated.

In situations where family members perceived they required further clarification about the intent of using particular medications, they sought out this information by inquisitive probing. This level of questioning showed an active interest by family members about how medications affected patients. For example, a patient's daughter specifically referred to the purpose of the medication that her mother was receiving by asking the nurse, "*has* (the medication) *brought her blood pressure down or not?*" (ICU-JV-68-1,09:45am). One conversation was noted between a nurse and a patient's relative, "*so that's your* [the patient] *second antibiotic. . .that we're giving him. That's the new one that we were talking about*" (ICU-CN-54-1,12:03 pm), which suggested prior conversations regarding the intravenous antibiotic plan for the patient. In another observation, a nurse explained to a patient's father by telephone that the patient had a "*very stable night*" based on the nurse's assessment. The nurse reported "*he* [the patient] *was in no pain or anything which was good, so yeah, he looks quite comfy*" (ICU-ED-67-1,08:25am). Later in the day, the nurse disclosed the patient was "*going okay*," when asked by the patient's father. However, upon further probing by the patient's father, the nurse revealed that the patient's blood pressure dropped that morning and the medical staff had to prescribe intravenous inotropes to maintain a stable blood pressure.

There were opportunistic encounters between doctors, patients and families at the bedside. These encounters identified what information that doctors relayed about medications. In the following exchange, a doctor who was the head of the liver transplant unit, consulted with the patient who was sitting up in bed and the patient's wife (ICU-MR-65-1,10.01am). In this exchange with the patient and his wife, the doctor provided no information about the names of medications prescribed for the patient's blood clot, nor about how he evaluated whether the medications had worked.

Doctor:	*Things are looking good* (first name of patient). *I think we just keep treating this blood clot with some medications.*
Patient:	*We didn't know about the blood clot.*
Doctor:	*Well, it probably broke off and went up there* [the brain]. *You've been sick for a little while since your liver transplant. You've been at home resting and lying around a bit so. . .we're treating it, it should just get better. That's what (I think.) We're hoping to get you upstairs today once we have finished your treatment here and we have checked out how it all worked. We got a bed. Looks good* (first name of patient's wife).
Wife:	*Thank you* (first name of consultant).
Patient:	*Thank you.*

Pharmacists were frequently observed providing information to family members about how to avoid problems in administering medications. A pharmacist informed a patient's granddaughter about how the tolerance effect of a glyceryl trinitrate patch could be prevented by using the intravenous form.

Pharmacist:	*With the patch, if it's on for 24 hours, it actually stops working because the body gets used to it. The body needs a break from the patch in order for it to keep working.*
Granddaughter:	*Oh.*
Pharmacist:	*So, because of that, we've got him on a similar medication as intravenous at the moment. But we'll confirm with that when he gets seen by the cardiologist if he's going to stay.*
Granddaughter:	*Okay.* (ICU-AM-71-1,2.58 pm).

Theme 3: Environmental characteristics relating to intensive care

Environmental characteristics affected communication and the possibility of active partnerships between patients, their families and health professionals. These characteristics influenced how patients and their families could self-determine their level of control and involvement in managing medications. Sub-themes included prioritisation of activities and time constraints, lack of visibility of doctors at the bedside and the setup of the bed area and space utilisation within the healthcare environment.

Prioritisation of activities and time constraints

Nurses had competing priorities and time constraints, which affected their ability to communicate with patients and families about medications. Nursing staff prioritised certain activities, which had a time-based component. These activities included administering medications at scheduled times and taking drug levels. Communication about medications was observed only when nurses were undertaking medication-related activities.

One nurse identified to the family member how she sought to prioritise her morning tasks, "*so I'm just doing all my medications now and then I'm going to do the wash and things*" (ICU-ED-67-1,08:25am). Another nurse recognised that a blood test for tacroli-

mus was required prior to administering the medication. The nurse advised the patient of this blood test and the rationale for its use. She also emphasised the importance of timing the blood test before administering the medication to determine if the level was outside the therapeutic range.

Nurse:	*Yeah. Um, so, um*, (first name of patient), *I've got your tacrolimus to give you. At 10 o'clockish. Well it's five to ten.*
Patient:	*Yep.*
Nurse:	*Nearly 10 o'clock. I need to do a tac* [tacrolimus] *level so I'll take some blood before I do that as well* (ICU-MR-65-1,09:56am).

Lack of visibility of doctors at the bedside

Lack of visibility of doctors at the bedside contributed to constant pressures in the healthcare environment. Doctors were not at the bedside for very long, or were not considerate of ensuring the nurse was there when they consulted patients or family members. One nurse commented to a family member, "*they* [doctors] *came so quickly and left so quickly, it didn't give me a chance and I was busy*" (ICU-RH-63-1,10:50am) to clarify the medication order. This nurse also reported to the family member that the medical notes were unclear. The doctors had prescribed multiple medications for the patient to take through the naso-gastric tube, but they had not explained these medications to the family members and the nurse was unclear about how and in what order the medications should be administered.

Setup of the bed area and space utilisation within the healthcare environment

The setup of the bed area and the utilisation of space had the ability to influence communication. This communication often involved health professionals asking family members to move so that medications could be safely administered. In addition, due to the way in which the bedside area was set up in intensive care, family members were often in close proximity to nurses.

Nursing staff tried not to be disruptive in the presence of family members when attending to medication administration activities, often quietly moving around the bed area to perform necessary nursing tasks. They communicated with family members when directly asked questions. Nurses spoke with the family members regarding their medication activities, which created opportunities for providing information about the medication being administered.

Nurse:	*Excuse me. I'm just going to give her some Ventolin.* (The nurse administers Ventolin to the patient)
Husband:	*So, it was Ventolin?*
Nurse:	*Yeah.* (ICU-CN-54-1-11:20am).

There were also situations where despite the family member's presence at the bedside, the nurse did not use these times as opportunities to explain medication activities and seek input about their understandings. On one occasion, the nurse rearranged the bedside area as the medical registrar was washing his hands outside the room. He was preparing to come in to insert a central line in the patient. In the meantime, the nurse quickly explained to the patient's husband and son that a central line was about to be inserted to allow multiple medications to be given (ICU-RH-63-1, 10:50am). In this situation, the family members sought out information about what a central venous catheter entailed, but the nurse did not identify their knowledge gap about this route of administration.

Husband:	*Is there another line or…?*
Nurse:	*Another line yeah.*
Husband:	*Meaning?*
Nurse:	*Uh like a central line. So that way it goes into your - one of your main veins and we can give drugs through it and it allows us to do extra monitoring.*
Husband:	*Oh okay.*
Nurse:	*Yeah. But most of our patients in ICU have one of those.*
Hus:	*So what does that mean? Through her* (mouth or…?)
Nurse:	*Uh no, it goes in through the neck usually.*
Husband:	*Oh okay.*
Nurse:	*Yeah. Usually through the neck sometimes in the groin but preferably in the neck. Yeah.*
Husband:	*And that goes into the artery?*
Nurse:	*Vein.*
Husband:	*In the vein. Oh okay.*
Son:	*It's a CVC* [central venous catheter], *wasn't it?*
Nurse:	*CVC yeah.*

Discussion

This observational study provided new knowledge about communicating about medications in intensive care. Themes identified were the provision of information by family members regarding patients' medications and their clinical condition; the therapeutic relationships between health professionals, patients and family members; and the environmental characteristics of intensive care. Patients and families influenced medication management by making important links with the patients' treatment regimen prior to their ICU admission. Their input also helped to prevent adverse events by identifying and rectifying discrepancies in the medication regimen.

This study found that nurses regularly communicated with patients, despite the fact that patients were sedated and not able to respond. Nurses' communication involved non-specific statements of the task that they were performing. Past work has shown that communication using non-specific statements may be a source of distress and dissatisfaction for patients (Happ et al., 2011) and family members (Ekwall et al., 2008). If nurses can check if family members have questions and provide reassurance about patients' medications, family members would have better understanding about the medication decisions occurring in intensive care. There were many situations where family members asked questions about how various medications affected patients, which contributed to their need for reassurance relating to the changing dynamics of the therapeutic regimen and unwanted effects of medications. Nurses could have preempted this need by providing iterative and evaluative responses about the effects of medications.

In the intensive care setting, communication generally involved nurses' broad statements of the medication name or the drug class, with little further clarification. There may have assumptions by nurses that patients and family members had low health literacy, and therefore more information was provided only to the people who asked for it. Nurses rarely included family members or patients in the decision-making process of why certain medications were prescribed over other medications. Furthermore, insufficient communication about managing medications involved health professionals

undertaking tasks, without prior explanation to the patient or family member to gain their consent. This situation was compounded by lack of visibility of medical staff at the bedside and the competing responsibilities of nursing staff, which have been identified as common characteristics associated with intensive care environments (Alexanian et al., 2015; Jones et al., 2015; Bell et al., 2018).

While nurses administered medications, family members present at the time frequently asked for an update on the patient's condition. Family members who had developed rapport and trusting relationships with nurses felt more comfortable to openly and informally discuss how the patient was and recalled prior information such as the medication's action to determine if it was helping the patient. There was an interest by family members in posing questions and in contributing information, thereby encouraging opportunities for the patient to receive safe care. While nurses supported the inclusion of family members into the routine care and interactions with patients, there were no instances where family members or conscious patients were consulted regarding their thoughts about receiving a specific medication over another. Very little research has studied the relationship between health professionals' decision making with family members specifically related to medication management. Research generally has focused on interprofessional communication between health professionals such as doctors, nurses and pharmacists (Costa et al., 2014; Rixon et al., 2015).

Limitations

This study was conducted at an Australian single-site ICU in a metropolitan tertiary referral hospital that may not have appropriately reflected the practices of other healthcare facilities, those in regional areas, or in other countries. As observations were undertaken at the patients' bedside, there was relatively little involvement from doctors. Doctors were noted to discuss patient information at the central computer station. They undertook medication prescribing activities in this central area where they referred to policies and procedures, and discussed prescribing decisions with their colleagues. Their interactions at the bedside largely comprised undertaking patient procedures and early morning ward rounds, which were times when family members were absent. Observations may have potentiated the Hawthorne effect, whereby participants altered their behaviour in response to their personal awareness of being observed during the study (Merrett, 2006; McCambridge et al., 2014). Strategies used to overcome this effect included prolonged engagement of the observers in the research setting and being responsive to participants' concerns, thereby increasing the participants' familiarity with the observers' presence.

Conclusion

Family members played an important role in communicating about patients' medication regimen before admission to intensive care, which helped to prevent and resolve medication problems in intensive care. While patients had complex medication regimens, family members sought out clarification about the changing dynamics of how medications affected patients. However, there was only limited inclusion of families or of conscious patients in decision making. Communication was commonly hampered by time constraints of all health care disciplines and missed opportunities by nurses situated at the bedside. Targeted, preemptive communication by nurses is likely to facilitate enhanced understanding and enable opportunities for active participation and decision making.

Ethical statement

Appropriate ethical approval for the conduction and dissemination of this study was obtained from the ethics committee of the participating hospital in Melbourne, Australia. The reference number is: H2010/03995.

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Declaration of Competing Interest

None declared.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.iccn.2019.05.001.

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