Investigating the effectiveness of communication taking place between hospital pharmacists and patients during medication counselling

Bernadette Anne Marie Chevalier

BSc (Hon), B Pharm

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School of Pharmacy
Abstract

Effective communication skills are necessary for the provision of high quality patient care by healthcare professionals. Poor communication exchanges have been associated with lower patient satisfaction, treatment nonadherence and negative clinical outcomes. Medication counselling opportunities are key times for pharmacists to speak with patients about their medications. Little has been published about the communication taking place between hospital pharmacists and patients with few details about what makes this exchange effective. Most papers’ methods are atheoretical. Effective pharmacist-patient communication may lead to improved clinical outcomes as described in physician-patient communication literature. However, before these relationships could be explored, it was essential to first investigate what was taking place in these pharmacist-patient interactions.

The overall aim of this thesis was to investigate the effectiveness of communication between hospital pharmacists and patients during medication counselling.

This theory-driven research employed qualitative, quantitative and mixed methods. Communication accommodation theory (CAT) was the theoretical framework invoked to study, analyse and interpret the pharmacist-patient communication exchanges. There are five CAT strategies which measure whether effective communication has occurred: approximation (speech tone, volume, rate, accent), interpretability (using easy-to-understand language, avoiding jargon), discourse management (asking open-ended questions or repairing conversations), emotional expression (appropriate reassurance to patients’ concerns) and interpersonal control (strategies to promote equality between speakers and encourage patients to take active roles in managing their healthcare). In this thesis, effective pharmacist-patient communication refers to the extent pharmacists accommodate, or not, to patients’ conversational needs based on accommodative behaviour described within CAT strategies.

There were two phases to this thesis. The first involved six focus groups (24 pharmacists) from two large metropolitan hospitals. Pharmacists shared their perceptions of their roles and goals in patient medication counselling, and barriers and facilitators in meeting their goals. Audio recorded transcripts were thematically analysed and goals identified by pharmacists were successfully mapped onto the five CAT strategies. Results of phase one helped inform the contents of the semi-structured interview guides utilised in phase two.
Phase two represented the major portion of this PhD, and took place at a large hospital with multiple specialities. Twelve pharmacists engaged four patients for a total of 48 medication counselling sessions. Each individual session took place first, followed by separate semi-structured interviews with pharmacists and patients. Counselling sessions and interviews were audio recorded and observational field notes were taken. Transcribed recordings were selectively coded for the five CAT strategies in pattern-based discourse analysis. Discursis software, as an adjunct to qualitative analysis, was used to visualise pharmacist-patient speech patterns, episodes of engagement and to detect CAT strategies employed by pharmacists. Patients completed two medication taking behaviour measures, Beliefs about Medicines Questionnaire (BMQ) and Morisky 8-Item Medication Adherence Scale (MMAS-8) prior to their conversation with the pharmacist and then again by telephone four weeks after leaving hospital.

Analysis of the pharmacist-patient counselling sessions revealed that most pharmacists effectively used all five CAT communication strategies during medication counselling sessions as they adapted to patients’ conversational needs. Non-accommodation occurred when pharmacists spoke too quickly, used terms not understood by patients, and did not include patients in the initial, agenda-setting phase. Discursis software identified pharmacist-patient engagement episodes, often revealing effectively applied CAT strategies.

Semi-structured interviews with pharmacists and patients about their medication counselling experience indicated many shared CAT related themes. However, when pharmacists’ and patients’ assessments of their interaction were compared with an Observer’s ratings, differences in assessment were noted, particularly between the Observer and pharmacists. Pharmacists assessed themselves higher for emotional expression and discourse management and lower for interpretability and interpersonal control behaviours.

Pharmacists and patients provided insights about what made pharmacist-patient conversations effective. An overarching shared goal was that patients need to be confident in managing their medications at home. To facilitate this, patients focussed on pharmacists’ delivery of medication information and interpersonal behaviours while pharmacists emphasised patient’s understanding and level of engagement.
Exploratory research was conducted to elucidate potential relationships between effective pharmacist-patient communication and patients’ medication taking behaviour measures. Almost all patient assessed pharmacist communication behaviours and levels of patient satisfaction were strongly correlated, but few correlations were detected with the BMQ or MMAS-8. This exploratory research is a valuable foundation for future work as it provides some preliminary process mapping of the pharmacist-patient communication to outcomes.

This thesis invoked theory (CAT) to investigate the effectiveness of hospital pharmacist-patient communication. The research demonstrated the dynamics that commonly occur in these types of interactions. Specifically, it showed how pharmacists successfully met patients’ conversational needs and how they did not. Many areas of strength were identified as well as communication skills that require improvement. The far-reaching training implications for both pharmacy practitioners and students are discussed and ways that they can learn and further develop effective communication skills through theory-based research informed training are proposed.
**Declaration by author**

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

I acknowledge that an electronic copy of my thesis must be lodged with the University Library and, subject to the policy and procedures of The University of Queensland, the thesis be made available for research and study in accordance with the Copyright Act 1968 unless a period of embargo has been approved by the Dean of the Graduate School.

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Publications during candidature

Peer-reviewed papers


**Chevalier B**, Watson B, Barras, M and Cottrell WN. Investigating strategies used by hospital pharmacists to effectively communicate with patients during medication counselling. Health Expect 2017; 00:1–12. doi.org/10.1111/hex.12558

Conference Abstract presented as an oral presentation


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Bernadette Chevalier, Bernadette Watson, Nazanin Falconer, Neil Cottrell. Rethinking how we speak with patients about their medicine - there's more than one way to skin a CAT. In Proceedings of the Monash Pharmacy Education Symposium; 2017 July 9–12; Prato, Italy.


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Invited Presentations
Investigating strategies used by hospital pharmacists to effectively communicate with patients during medication counselling. School of Pharmacy, The University of Nottingham, UK, Sept 7, 2016

Discursis visualisation of hospital pharmacist-patient communication during medication counselling. School of Clinical Sciences, Faculty of Health, Queensland University of Technology, Brisbane, Australia, April 7, 2017
Translation of research
Based on results obtained through this research invoking CAT to investigate the effectiveness of pharmacist-patient communication during medication counselling, I co-designed and co-delivered a well-received communication tutorial for final year pharmacy students, titled “Rethinking how we communicate WITH patients about their medications”. This experience will be shared at two conferences in Prato, Italy and Thessaloniki, Greece in 2017.

Publications included in this thesis

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|                           | Data collection and analysis (80%)
|                           | Responsible for concept (80%)                 |
| Bernadette Watson         | Edited manuscript (45%)
|                           | Wrote manuscript (10%)
|                           | Data collection and analysis (10%)
|                           | Responsible for concept (10%)                 |
| Michael Barras            | Edited manuscript (10%)
|                           | Data collection and analysis (10%)            |
| Neil Cottrell             | Edited manuscript (45%)
|                           | Wrote manuscript (10%)
|                           | Responsible for concept (10%)                 |

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Contributions by others to the thesis

The research for the thesis was undertaken under the supervision of Associate Professor Neil Cottrell, Professor Bernadette Watson, and Dr Michael Barras. Writing of the thesis was conducted by the candidate with regular feedback from Associate Professor Neil Cottrell (40%), Professor Bernadette Watson (40%) and Dr Michael Barras (20%). Data collection was conducted by the candidate (100%). The data analysis and interpretation was conducted by the candidate with guidance, input and supervision by Associate Professor Neil Cottrell (30%), Professor Bernadette Watson (60%) and Dr Michael Barras (10%).

Statement of parts of the thesis submitted to qualify for the award of another degree

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Inspiring me to study, in detail, the hospital pharmacist-patient communication interactions, and the patience to stay with the rich data, to sufficiently understand what was taking place - before considering next steps to improve the processes or dive into possible links between communication and patient outcomes:

*Without understanding relationship, action on any level will only breed conflict.*
*The understanding the relationship is infinitely more important than search for any plan of action.*

J Krishnamurti
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CHAPTER 1: Background, Rationale and Literature Review

This chapter provides background and rationale for investigating the effectiveness of hospital pharmacist communication with patients during medication counselling. Key points are highlighted such as the need for all healthcare professionals to possess effective communication skills for the provision of high quality patient care. Hospital pharmacy practice within healthcare teams has undergone considerable expansion to include more advanced clinical roles. These changes require pharmacists to interact more frequently with other healthcare professionals, and patients and their caregivers. Therefore, it is imperative that pharmacists are able to communicate effectively with all members of the healthcare team including the patient.

The importance of effective communication within healthcare settings will be discussed with comparisons made between biomedical and patient-centred models of care. The focus will then move to pharmacists’ communication with patients, background on the profession’s perspective about this role and the training associated with this competency. Changes in pharmacy practice from a dispensary “count and pour” role to a clinical role will be described in the context of research published over the past few decades. This review is intended to show that pharmacists’ development of communication skills for patient medication counselling may not have evolved to the same extent as their clinical roles.

The link between effective communication and medication adherence within healthcare provider-patient interactions will be discussed as well as the need for research that is specific to hospital pharmacist-patient communication and its relationship to medication adherence. Community and hospital pharmacy practices will be compared to show how differences in practice settings make it difficult to extrapolate research results from community to hospital pharmacy sites.

The review of hospital pharmacist-patient communication literature is intended to demonstrate the lack of research conducted in this area, and the few details about what makes these exchanges effective. Problems associated with the lack of theoretical frameworks used in healthcare and pharmacy communication research and an overview of the theories and models that have been applied in the literature will be discussed. The descriptions,
advantages and applicability of Social Identity and Communication Accommodation theories
to this project will be presented. This chapter concludes with the presentation of the overall
aim and research questions as well as the research plan intended to help answer these.

1.1 Healthcare Provider-Patient Communication
How well healthcare providers communicate with each other and with patients is imperative
for quality patient care. Effective communication between healthcare providers and patients
has been associated with positive health outcomes for patients. Conversely, communication
breakdown within healthcare teams has serious implications to patient safety and has been
linked to significant medical errors.

Effective communication between healthcare providers and patients takes place “when people
send, receive and understand messages. Such communication produces mutual understanding
and is essential for health professionals.” Mutual understanding is key to effective
communication and requires healthcare providers to continue discussions and negotiations
with patients until they both are satisfied that it has been achieved.

1.1.1 Biomedical Model and Communication
Traditionally healthcare professionals have adopted a biomedical model in which to
practice. MediLexicon defines the biomedical model as a “conceptual model of illness that
excludes psychological and social factors and includes only biologic factors in an attempt to
understand a person's medical illness or disorder.” The biomedical model is considered the
traditional model of illness in Western societies. Its origins are believed to be connected to
13th century religious leaders’ insistence on separation of mind and body in allowing the
study of human anatomy and physiology as well as later scientific developments including
the germ theory principles which further established the biomedical model in Western
culture. As such, disease within the biomedical model is seen to be the result of genetic
predisposition, invasion of microbial organisms or the body itself degenerating or
malfuunctioning. It has been the role of healthcare providers to review the signs and symptoms
of disease, determine a diagnosis, provide advice and instruction, prescribe and administer
treatment intended to remove the disease.

Healthcare providers within the biomedical model assume an authoritative role as medical
experts and purveyors of information and advice while the patient’s role as the recipient is a
passive one. Communication exchanges tend to be dominated by the healthcare professional who provides medical direction to the patient. The terminology describing the communication interaction between the healthcare provider and patient tends to reflect this concept. Patient counselling, instruction or education are frequently used terms to describe the communication that takes place.

1.1.2 Patient-Centred Care and Communication

Over the past few decades, there has been a growing realization that the biomedical model may not represent the best interests of the patient and instead tends to be provider or system-centric in nature. In its place a patient-centred approach that redefines the healthcare paradigm by placing the patient’s interests at the centre of the health care model has emerged. The patient-centred model differs mainly from the biomedical model in that it engages patients more fully in their care by encouraging their participation in medical decision making.

Many definitions of the patient-centred model and patient-centred care have been proposed. One commonly cited patient-centred care definition from the United States Institute of Medicine is “care that is respectful of and responsive to individual patient preferences, needs, and values…that patient values guide all clinical decisions.”

Numerous advantages of the patient-centred model have been described in the literature and include increased patient autonomy, improved continuity of care, increased interprofessional collaboration, learning and skill sharing as well as staff empowerment to act on behalf of individual patient needs and preferences. Practicing patient-centred care enhances communication skill development between healthcare providers and with patients and their families.

Although the philosophy of patient-centred care is widely accepted as a desirable approach to delivering healthcare, difficulties encountered at the level of implementation of patient-centred care have resulted in the persistence of traditional biomedical models. Robinson attributed the implementation problems to ambiguous definitions of patient-centred care and to not having methods of measurable behaviours and patient outcomes. Wagner recommended that a consensus definition was necessary to “accelerate the pace of research”
in patient-centred care.\textsuperscript{13} (p\textsuperscript{13}) It is difficult to determine healthcare outcomes related to patient-centred care without clarity around its definition.\textsuperscript{12}

Further work to identify dimensions and measures of patient-centredness is underway by Zill and colleagues who have outlined a three year, four stage research plan comprised of a systematic review,\textsuperscript{23} a Delphi survey of experts, an evaluation of measures used through a scoping review and then a final assessment of the previous phases.\textsuperscript{24} Fifteen dimensions of patient-centredness identified by the systematic review include several that are related to the communication occurring within the provider-patient interaction such as; essential characteristics of clinician, clinician-patient relationship and communication, patient empowerment and involvement in care, patient information, involvement of family and friends and emotional support.\textsuperscript{23}

Other limitations to implementing patient-centred care described in the literature are the required organisational and practice level structural changes.\textsuperscript{6} As well, the additional healthcare professional time required to practice patient-centred care may necessitate hiring extra staff and this may prove challenging for those institutions already facing staffing shortages.\textsuperscript{25-27}

The merits of the patient-centred model have been well recognised, but it is not without its critics. In a review article, Wagner compares and contrasts elements of the patient-centred model to those of a chronic illness model.\textsuperscript{13} He suggests overlap in how the models perceive patients as individuals with “important information, experience, and perspectives on their illness”.\textsuperscript{13} (p\textsuperscript{9}) However, Wagner’s main criticism of the patient-centred model is its focus on physician-patient communication and relationships to bring about these practice changes. He does not believe that the patient-centred model takes into account the larger systemic healthcare effects nor does he feel it considers the importance of patients’ competence in self-managing their illness. Whereas, he argues that the chronic illness model provides support for patient self-management by many different professionals working within healthcare teams. He suggests that well-designed practice systems enabled by dedicated healthcare organisations will create an environment that empowers and motivates healthcare professionals to support patients’ self-management.\textsuperscript{13} Interestingly, similar organisational dedication and supports are included as facilitators for the patient-centred model in other
The point may simply be that making any change to the traditional or biomedical model will require substantial organisational endorsement for it to take effect.

Wagner also comments that compared to the patient-centred care model, the chronic care model has its roots in evidence-based medicine “rather than values about desirable qualities of the doctor-patient relationship”. Healthcare systems need to be in place to effectively support healthcare providers and promote patient engagement and self-management; however, the evidence of quality provider-patient relationships and their link to positive patient outcomes cannot be so easily dismissed.

One key feature found in patient-centred care and quality provider-patient relationships is a process of shared decision making between the patient and healthcare provider. Here providers share with patients the risks and benefits of different therapeutic options while the patients communicate their preference based on their own values. Chewning posits that the level of involvement desired by the patient and the roles played by both the healthcare provider and the patient are affected by patient factors such as age, socioeconomic status, health condition, nature of the medical condition and the healthcare setting.

Our current research built on this patient-centred approach. It is imperative that pharmacists too must be able to engage in effective communication with patients in delivering patient-centred care. Murad et al investigated the extent to which pharmacist-patient communication reflects the patient-centred care model. These researchers conducted a meta-narrative review to study the recorded conversations between pharmacists and patients. Research was categorised as either biomedical or patient-centred depending on whether or not the pharmacist used specific elements of patient-centred care during their conversations. These included ensuring the patient’s perspective was included in the treatment discussion, using active listening techniques, engaging patients by asking open-ended questions, and verifying that patients understood information.

While the need to focus research on how pharmacists communicate with patients has been identified by researchers, pharmacy literature tends to be dominated by studies investigating the clinical aspects of pharmacy practice. Changes in pharmacy practice over the past few decades have allowed pharmacists to move away from the technical aspects of dispensing
medication to more cognitive roles providing medication advice to healthcare colleagues and advanced practitioner roles such as immunisation and prescribing authority.\textsuperscript{43-46} However, while much attention has been given to advancing pharmacists’ clinical skills, less emphasis has been placed on honing their communication abilities. As pharmacists continue to work toward their full scope of practice, they will need advanced communication skills to interact effectively with patients and their families as well as other healthcare professionals. To provide patient-centred care, pharmacists’ ability to interact with patients must go beyond simply reinforcing the physician’s prescription instructions.

\textbf{1.2 Pharmacist – Patient Communication}

Pharmacists are considered the “medication experts” and their placement in both acute and ambulatory settings puts them in an advantageous position to interact with patients, address their concerns, answer questions and explore their beliefs about their medications. Historically, the goals of the patient-pharmacist interactions have been to reinforce the prescriber message and ensure patients’ compliance to their drug regimens by increasing patients’ knowledge and understanding of their medications. Communication was largely informational and primarily unidirectional from the pharmacist to the patient. Even the terminology used to communicate with patients implies and reinforces this type of exchange.

Communication between pharmacists and patients is described in the literature as the provision of patient education, counselling, instruction or consultation. These terms are rarely defined and often used interchangeably.

As part of an education session with patients about their medications, many pharmacists have been trained to assess patients’ knowledge of their drugs. Ascertaining a patient’s ability to recall the names, purposes, potential side effects and administration times of their drugs has been used as a measure of how well patients are educated about their medications.\textsuperscript{47} Interestingly, this method of gauging patients’ knowledge was questioned by researchers over 40 years ago who cautioned that “Reciting drug names and directions…may not serve as an appropriate indication of thorough understanding of drug therapy.”\textsuperscript{47} Yet decades later these methods continue and are reinforced by pharmacy educators and regulatory bodies publishing standards of pharmacy practice. If we are truly being “patient-centred” in our approach, should we not be assessing patients’ understanding of their medications in the
context of their individual needs and lifestyle? Does a patient need to know that the generic name of their drug is frusemide, that it is in a class of drugs called diuretics and it decreases blood pressure primarily by ridding the body of excess fluid? Being able to recite this information may not be important to the patient’s life. Would their knowledge be considered sufficient if they know it is for their heart, but they call it their “water” pill and they take it with breakfast so they don’t end up getting up at night to use the toilet? Or that they sometimes take it at midday, because they have to go out to the shops in the morning?

Patient education or counselling has long been considered a major role in pharmacists’ practices. Significant emphasis is placed on pharmacy student development of patient counselling skills while enrolled in undergraduate pharmacy degree programs. Enhancement of these communication skills once pharmacists graduate varies considerably depending on the work location and organisational expectations. Two groups of UK researchers have developed tools to specifically evaluate the consultation skills of pharmacists providing medication counselling and to evaluate clinical pharmacists’ competencies overall which has been adapted for use within Australia. Most hospital pharmacists working within Australian hospitals follow the Society of Hospital Pharmacists of Australia (SHPA) recommendations for annual clinical assessment using the SHPA clinCat tool. This tool assessing clinical pharmacy competencies of pharmacist practitioners also includes some criteria in which to evaluate patient consultation skills. Examples of these criteria listed on the form include the requirement to establish rapport with patients, the use of appropriate verbal and non-verbal communication techniques, not interrupting patients or using leading questions and using appropriate techniques such as open ended questions. However, there is some uncertainty about how these skills are interpreted by the evaluators and some concerns about the effectiveness of this checklist format in assessing these important interpersonal skills. Perhaps having a better understanding of the constituents of effective communication taking place between hospital pharmacists and patients would provide more direction to those evaluating clinicians’ skills.

While the pharmacy profession recognises patient counselling as an important activity for pharmacy students and pharmacists alike, there has been comparatively little research conducted in finding out how well pharmacists communicate with patients and how the
effectiveness of pharmacists’ communication skills might impact patients’ understanding of their medication or outcomes such as medication adherence.

1.2.1 Communication and Adherence
Medication adherence and other terms used to describe patients’ medication taking behaviour have changed over time. Historically, “compliance”, a term associated with the biomedical model, had been widely used. “Compliance” tends to focus on patients as the reasons for medication misuse rather than the multiple systems impacting medication taking behaviour.\(^1\) Within the last two decades, the term “adherence” has emerged and has been described as “the extent to which a person’s behaviour -taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations.”\(^1\) (p 3) The World Health Organisation (WHO) pointed out the main difference between compliance and adherence was that adherence requires that agreement be reached between the healthcare provider and patient about the treatment recommendation.\(^1\)

The WHO examined the multiple determinants linked to non-adherence and broadly categorised these as patient related, healthcare provider related or system related.\(^1\) Healthcare provider related determinants discussed included the importance of establishing good relationships and effective communication between patients and health care professionals.\(^1\) These were identified as facilitators of medication adherence for management of pain, diabetes, epilepsy, HIV/AIDS, tuberculosis, hypertension and tobacco cessation.\(^1\)

While much has been published about the pharmacist’s role in improving medication adherence,\(^1,58-68\) there is little or no detail in these publications about how effective communication taking place between pharmacists and patients might affect patients’ medication adherence. This is a substantial gap in understanding the role pharmacists play in patients’ adherence to their medications.

Conversely, numerous empirical studies have investigated the effect of good physician-patient relationships and effective communication on clinical outcomes including medication adherence.\(^30,32,37,69-77\) Results of these studies indicate a positive relationship between effective physician communication skills and patient adherence to treatment.
A meta-analysis conducted in 2009 by Zolnierek included 106 studies that correlated physician-patient communication with patient adherence as well as 21 experimental intervention studies evaluating the effect of physician communication training on patient adherence. Nearly 60 years of published literature were included in this comprehensive review. Patient adherence was defined as “the degree to which patients follow the recommendations of their health professionals” and this included adherence to medications, appointments, screening and lifestyle recommendations. Researchers defined physician communication behaviours broadly as either task-oriented which included use of effective questioning techniques and exchange of information or as psychosocial behaviour such as expression of empathy and concern and rapport building. Only two of 106 studies that correlated communication and adherence failed to show a positive effect between good physician communication skills and adherence. The authors reported that the odds of a patient being adherent to their treatment was 2.16 times better if their physician communicated well. In the 21 studies that reported patient adherence as an outcome measure for interventions where physicians received communication skills training, the effect of physician training on adherence was found to be positive and statistically significant (p<0.001). Researchers found that the odds of patients being adherent were 1.62 times better if their physician had received communication training compared to those patients whose physicians had not had communication skills training.

Research published more recently supports this link between effective physician communication and positive patient outcomes. A study of 891 patients with diabetes treated by family physicians was conducted to examine the relationship between their physicians’ empathy and laboratory indicators of clinical outcomes. Empathic engagement in patient care was described as a component of physician-patient communication and included both verbal and nonverbal communication, eye contact, appropriate touch, body posture and gestures. Researchers used the Jefferson Scale of Empathy to measure empathy while haemoglobin A1C and LDL-Cholesterol test results were markers of clinical outcomes. Patients who rated their physicians as having high empathy showed better haemoglobin A1C compared to those whose physicians had low empathy (56% versus 40%; p = 0.001). A similar finding was reported for LDL-Cholesterol where patients whose physicians received higher empathy scores demonstrated better cholesterol control than patients with physicians with low empathy scores (59% versus 44%; p= 0.001). The researchers conducted logistic
regression analyses controlling for patient’s health insurance status, gender and age of both patient and physician and found that empathy uniquely contributed to the prediction of positive clinical outcomes. However, while the authors acknowledged they could not prove a direct cause-and-effect of empathy on clinical outcomes, they posited that higher empathy may lead to increased trust, shared decision making and adherence. This research did not include the measurement of patients’ adherence as an outcome; however, adherence has been described by other researchers as an intermediary stage between an intervention to improve adherence and the desired clinical outcome.78 Therefore it is possible that better patient adherence led to more favourable haemoglobin A1C and LDL-Cholesterol control that was then found to be associated with empathy (a component of physician-patient communication) in this study.30

Kaplan and colleagues investigated aspects of patient and physician language that predict adherence to antidepressant medication.74 They conducted a randomised control trial to study the effect of physician motivational interviewing training on their patients’ adherence. Sixty-three of 160 enrolled patients received a prescription for an antidepressant and their physician consult was audio recorded. Researchers rated aspects of physicians’ language such as their use of adherent statements as part of motivational interviewing, making reflections on feelings/expressions made by patients, empathy, and “motivational interviewing spirit” (i.e. encouraging and collaborative behaviour). Patients’ using “change talk” or speech indicating readiness or inclination for change were also noted. Community pharmacy records were used to determine medication adherence by indicating whether or not a patient filled their first prescription as well as an estimate of the patient’s overall adherence (proportion of >180 days covered). The authors found a statistically significant correlation between physicians rated as using empathy and “motivational spirit”, patients who demonstrated change talk and patients filling the first prescription. A statistically significant positive correlation was reported between patient adherence (first prescription fill), patients who both demonstrated “change talk” and whose physicians used empathy and “motivational spirit” in their consultations. As well, in interactions where physicians showed empathy and patients made more than two change talk statements a higher proportion of days of adherence resulted.74

Patient perceptions of physician communication styles (affective or dominant) and their correlation to their satisfaction and adherence to treatment were studied in rehabilitation
clinics in Korea. Affective physician communication styles described were warm, caring, empathetic, honest, compassionate and non-judgmental. Dominant styles of physician communication emphasised the authority and control of the physician over the patient. The researchers interviewed 150 patients using a questionnaire composed of five latent variables of which three measured physician communication styles while the others measured patient satisfaction and adherence. Patients rating their physicians as highly affective in their communication styles indicated a significantly higher level of satisfaction than those with lower affective ratings (64.4% versus 28.2%). A similar finding for physicians demonstrating affective communication (empathy) and adherence was reported. Patients who rated their physicians as highly affective reported that they were highly adherent to treatment as compared with those who assigned a lower rating to their physicians’ affective communication style (40% versus 17.5%). Kim and colleagues also found that physician’s dominant communication style was negatively correlated with both patient’s satisfaction ($r = -0.53$) and adherence ($r = -0.18$). However, when regression analysis was conducted the researchers found that neither physician communication style (dominant or affective) was significantly related to patient adherence.

Although there are numerous physician-patient communication studies linking positive physician-patient relationships and communication with patient outcomes including adherence to therapy, this same research has been criticised as lacking sufficient understanding of which aspects of communication between clinicians and patients contributes to which health outcome. Street described how healthcare provider-patient communication research often fails to suggest pathways and processes to explain how effective communication could be associated with positive patient outcomes.

Many expanded pharmacists’ roles have resulted from pharmacists assuming clinical responsibilities that had once been restricted to medical practitioners. Therefore, based on the evidence supporting a positive association between effective physician-patient communication and adherence, it could be argued that similar associations may be observed in pharmacist-patient communications. In this research project, an exploratory approach was used to investigate a potential relationship between effective communication and medication adherence by establishing a process for these linkages based on Street’s research.
1.3 Evolution of pharmacy practice and communication

This section will describe how pharmacists’ roles have expanded over the past few decades while the development of their communication skills does not seem to have kept pace with these changes. The evolution of pharmacy practice from a primarily dispensing role to a broader clinical role providing direct patient care to patients and their families has occurred in a number of distinct stages. Guirguis adapts three pharmacy history eras included in Higby’s summary of American pharmacy history in the United States,79 the dispensing era (1910-1965), the clinical era (1965-1990) and the pharmaceutical care era (1990-2000) to categorise specific research conducted in pharmacy practice over these years.80 Although these eras described by Higby were intended to depict pharmacy practice changes in the United States, it could be argued that similar practice changes have occurred in many other developed countries including Australia over these time periods. An additional era from 2000 – to date, yet unnamed, represents a post-pharmaceutical care time period that will be referred to in this paper as the medication therapy management (MTM) era to reflect terminology used to describe current practice. While many pharmacy practice roles have changed over time, the role of communicator has not seen the same evolution.80,81

1.3.1 Dispensing Era

The dispensing era marked a time of pharmacy educational reform requiring pharmacists to hold degrees and be licensed in their professions. Yet as the name implies, pharmacists’ duties in the dispensing era consisted mainly of “count and pour” with very limited healthcare provider-patient interaction. At the same time, many pharmacists felt they were “overeducated and underutilised” professionals. With prodding from pharmacy scholars to become more clinically oriented and hospital pharmacists initiating the clinical pharmacy movement, researchers’ interest in studying how pharmacists could impact patient care was kindled.

1.3.2 Clinical Era

In the clinical era, De Young reports on research by hospital pharmacists in the 1970’s and 80’s that examined the feasibility and benefit of taking patient medication histories and compared pharmacist history taking abilities to those of physicians.81 De Young points out numerous method flaws in these early studies and there appeared to be little attention to the effectiveness of the pharmacist-patient communication taking place during the medication
In this time period, more than 30 studies were published investigating the effects of pharmacist-patient communication as both written and oral interventions in the community setting. Most of the studies focused on how patient counselling, education or instruction impacted patient medication knowledge and compliance. Communication interventions used in the studies ranged from reading the prescription label to patients to having pharmacists apply tailored communication strategies. More emphasis was placed on the minimal length of communication time required to achieve significant improvements in medication knowledge or compliance rather than on understanding the effectiveness of the exchange between the pharmacist and patient.

Positive impacts of a pharmacist on patient compliance had been suggested to be a “placebo” effect. De Young proposed that these studies “may have demonstrated that patient outcomes improve when pharmacists just talk to people” and that these beneficial effects were likely the result of having a patient perceive that “another human being (who incidentally is a pharmacist) care about their health and well-being, rather than the impact of pharmacist-provided patient counselling or education.” Most pharmacists reinforced the physician’s instructions and some used techniques to have patients recite information back to them in their own words. However, in two studies by the same author, pharmacists were trained to elicit and respond to patients’ beliefs, ideas and concerns.

Interestingly, a number of the researchers began to question the idea that the provision of information and increased medication knowledge would improve patient’s medication taking behaviours and compliance. Some pharmacist-patient communication research conducted during this era reported that up to 40% of patients who engaged in comprehensive interactions with pharmacists reported adverse effects. Researchers suggested that increased compliance to medications and therefore increased exposure to medications may actually lead to patients experiencing more adverse effects. The implication made by the authors was that not all medication prescribed might be completely beneficial to the patients.

De Young described the dominant communication approach of this era as being a “one–way transmission of information from the pharmacist to the patient”. He also notes that the pharmacist-patient communication research of the 1970’s and 80’s, with a few exceptions, implicitly assumed that patients who entered into these interactions with
pharmacists did so without their own drug related beliefs, concerns or preferences. In addition, De Young suggested that these pharmacists believed their role was to control patient behaviour rather than provide patient care. During this era, it seems that pharmacists assumed a position of professional authority while patient counselling, and focused on reinforcing the physician’s message.

1.3.3 Pharmaceutical Care Era

The pharmaceutical care era (1990-2000) marked a profound change in professional pharmacy practice and the concept of pharmaceutical care has been well entrenched in pharmacy literature since its inception. Hepler and Strand defined it as “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the patient’s quality of life”. One of the four criteria they outlined for the provision of pharmaceutical care included the need for pharmacists to be able to establish effective relationships with patients and other healthcare professionals.

The concept of pharmacist-patient therapeutic alliances or therapeutic relationships arose during the establishment of pharmaceutical care practices in pharmacy. Berger described the need for pharmacists to develop and utilise a vast array of interpersonal skills in order to engage in these close relationships. Pharmacists must engage with patients in ways that are non-judgemental, allow patients’ issues to be heard and legitimised, and tailor medication regimens to meet patient’s needs. He suggested that pharmacists must utilise a vast array of interpersonal skills to take on this active role in patient’s medication therapy. In order for pharmaceutical care to occur, Berger recommended that an ethical covenant be established between pharmacists and patients to define the mutually shared responsibilities and actions of each. He drew on the parallels with the psychology concept, therapeutic alliance, to further describe this therapeutic relationship. Optimal therapeutic alliance is said to occur when “patient and therapist share beliefs with regard to the goals of the treatment and view the methods used to achieve these as efficacious and relevant.”

An effective therapeutic pharmacist-patient alliance requires the pharmacist to be competent, trustworthy and caring. It is not enough that the pharmacist possesses significant drug knowledge and be able to discuss the many details about the medication which may include its purpose, benefits, directions, potential side effects, refill information and any special
storage requirements. The pharmacist must also tailor the discussions about the medications to ensure the treatment fits into the patient’s daily living as well as meets the patient’s need for information and level of understanding. To ensure their trustworthiness pharmacists must act in ways consistent with their agreement with the patient. Berger noted that pharmacists can best demonstrate a caring commitment by being attentive to a patient which allows them to feel their concerns have been legitimised. Although the pharmaceutical care model assumed pharmacists would develop therapeutic relationships while engaged in the process of identifying and resolving drug related problems, very few researchers from this pharmacy era actually included information in their studies about how the pharmacists established therapeutic relationships with patients either by implicit reference to the term or through explicit description of the process. It is therefore uncertain if this aspect of the model was even routinely included as part of pharmacy research or even incorporated into pharmacists’ practice.

During the pharmaceutical care era, researchers studying pharmacist-patient communication investigated the effects of patient counselling on a broad range of outcomes such as physician or clinic visits, rehospitalisation, emergency room visits, post-operative pain control and associated adverse events such as nausea and vomiting, resolution of medication related problems, costs, polypharmacy as well as patient medication knowledge and compliance. Pharmacist counselling was shown to have mixed effects on these outcomes. Polypharmacy, hospital readmission rates, emergency room visits and unscheduled clinic visits were decreased. While pain control measures were unchanged with counselling, those who received this intervention reported less nausea and vomiting. The authors suggested that these patients may have been less anxious and therefore less susceptible to these events as a result of pharmacist counselling.

Investigators studied the effects of a pharmacist consultation at hospital discharge on the medications use, compliance, and healthcare service usage of 706 geriatric patients. Patients in the intervention group received in-person consultations before discharge to discuss the purpose, directions and possible adverse events. Compliance was assessed using five dimensions to ascertain patient knowledge and medication taking behaviours such as frequency, regularity, volumes and missed doses. Although the study aimed to look at the impact of pharmacy consultation on various outcomes, no details were provided about how
the pharmacist-patient interaction took place. The researchers did not appear to consider the pharmacist’s ability to communicate as a factor in their outcome assessment.

Communication between patients and pharmacists in primary care clinics was explored a little further by Chen and colleagues who conducted a qualitative study investigating the receptivity of 25 patients to discuss their medication taking behaviour.96 Researchers learned that patients gave rich detail about how they took their medications that reflected their concerns and beliefs.96 Chen suggested that this patient information may influence adherence and therefore could be shared with other healthcare providers in the clinic with the patients’ permission. They attributed the “unhurried, private, assessable and credible environment” of the clinic in facilitating the patient’s acceptance of sharing medication information with pharmacists.96 (p 482) While the researchers suggested that certain environmental conditions were conducive for improved communications, they did not delve into the actual characteristics of the communication taking place.

Limitations about studies were identified by the researchers of this era and included the preference for single intervention study design over a more robust study of multiple pharmacist-patient interactions.81 De Young also noted that throughout the 1970’s, 80’s and into the 90’s most researchers did not identify and provide details of the communication model or theory that pharmacists followed when they interacted with patients.81,97

1.3.4 Medication Therapy Management/Medicines Management Era

The Medication Therapy Management (MTM) or Medicines Management (MM) era represents a time period following the pharmaceutical care era from about 2000 to the current time. MTM is derived from the Medications Therapy Management Services described in the 2003 United States legislation, the Medicare Prescription Drug Improvement and Modernization Act (MMA). Three keys goals of MTM were to provide education and counselling to improve patients’ understanding of their medications, to improve medication adherence and to detect adverse drug reactions and monitor patterns of inappropriate prescription use.97 MM originates from the United Kingdom and although its beginning is not well defined, its principles and goals are similar to those of MTM.98
Compared to the pharmaceutical care model with its emphasis on caring for the patient, both MM and MTM had focused on the management of medications from the organisational perspective with the rationale for improved efficiency or reduced waste and cost. Barber argued that holding the organisational perspective while ignoring the patients’ could not be sustainable. He believed that over time the patient-centred care perspective from the pharmaceutical care model and the organisational focus have merged to create a MM or MTM model that became more inclusive of the patient’s perspective.

Pharmacy practice research exploded in this post 2000 era using a variety of research designs and methods to study the impact of pharmacist interventions on a huge array of clinical outcomes. Interestingly, few researchers recognised the effect of the pharmacist performing the study’s intervention as potentially being a distinct intervention tool. As with the research conducted in previous eras, most did not provide information about the nature of the pharmacist-patient interaction or the communication process that took place as part of the interventions. Instead the majority of the studies emphasised quantitative measurements such as time spent communicating, content or types of information provided to or requested by patients, while others investigated pharmacist consultations using programs, tools or techniques to enhance patient understanding.

In comparison, smaller numbers of qualitative research studies have been published exploring or detailing pharmacist-patient communication interaction. The majority of this communication research has been conducted in community pharmacy practices, while less attention having been placed on hospital pharmacists’ interactions with patients.

### 1.3.4.1 Differences between Hospital and Community Pharmacy Practice

This subsection is intended to show that differences in community and hospital practice settings exist that make it difficult to extrapolate research findings from one practice area to the other. While studies conducted in community pharmacy settings provide valuable information about how patients and pharmacists communicate in this setting, their results may not necessarily be generalizable to hospital or even ambulatory clinic situations. Differences between hospital and community pharmacy practice have been outlined by the Pharmaceutical Society of Australia. Hospital pharmacists tend to have more direct contact with other healthcare professionals and frequently operate as part of a healthcare team where
they are involved in monitoring medication usage, providing drug information and advice to health professionals, counselling patients, and conducting clinical trials. Community pharmacists are highly accessible to patients and are often the first healthcare professionals sought out by patients. In addition to dispensing duties, community pharmacists also provide advice on medications to physicians and other healthcare professionals and education to patients on the proper use of their medications.

Pharmacists practicing in both settings frequently self-identify as belonging to a “caring” profession having been drawn to the profession originally by their own desire to help people. It is likely that these intrinsic factors motivate both hospital and community pharmacists to develop good provider-patient relationships. Community pharmacists are also motivated to establish and grow these relationships to ensure business interests through customer satisfaction and improved medication adherence.

Patient counselling by pharmacists working in hospital settings occurs most often at transition points in a patient’s hospital stay. Admission to hospital, transfers within the hospital or discharge from hospital to the community or to other healthcare facilities mark important transitions in care for patients. These transitions have been identified as times when patients may be at a higher risk of experiencing medication errors and adverse events and are key times for a pharmacist to speak to patients about their medications and the changes made to their therapies. Failure by a hospital pharmacist to communicate effectively with patients may negatively impact a patient’s ability to understand medication issues contributing to medication non-adherence.

1.3.4.2 Hospital pharmacist-patient communication literature
Several papers published by social scientists have explored the concept of patient-pharmacist interactions from the perspective of either the patient and/or the pharmacist and through the analyses of video or audio recordings.

However, while these studies utilise qualitative methods to capture information about the pharmacist-patient interaction occurring in either hospital or ambulatory clinic settings, most are atheoretical, some lack detail about the methods used and most do not directly address our project’s aim to examine aspects of effective communication.
A study by Babalola and Erhuna (2001) analysed videotaped and audio recordings of pharmacists conducting medication history reviews to assess their communication effectiveness. Few results were provided from the questionnaire reports completed by the pharmacists and their patients. Although the authors did note that 60% of patients felt that pharmacists did a good job communicating, 15% of patients felt pharmacist reassurance and empathy was lacking. The paper’s discussion focused mainly on the socio-linguistic analysis applied to study the communication patterns taking place and to identify areas of pharmacist miscommunication. The authors utilised a socio-linguistic approach in categorising aspects of pharmacist and patient conversations and while they appeared to triangulate their results with patient and pharmacist feedback after the interaction, details of this process were lacking and reported results were sparse.

Two papers published by Pilnick, a social scientist from the UK, examined the interaction of hospital pharmacists with patients or their caregivers in ambulatory oncology clinics to better understand how they communicate. In the first paper, audio-recorded patient and caregiver conversations with pharmacists were transcribed and analysed to study the sequencing taking place in pharmacist-patient consultations. In a later publication, Pilnick outlined her analysis of patient-pharmacist conversations in a paediatric outpatient clinic where she categorised different approaches used by pharmacists and caregivers in initiating patient counselling interactions. Both studies lacked a theoretical framework and while they recorded and analysed the pharmacist-caregiver interactions, they did not identify aspects of effective communication nor did they seek patients’ or pharmacists’ perspectives about the exchange. However, the author acknowledged this gap and cautioned that the profession of pharmacy cannot expand in “isolation from its clients”. As well, Pilnick pointed out that understanding sequencing in conversations between pharmacists and patients was only the first step in research that helps pharmacists move toward an expanded role in patient counselling. The author suggested that pharmacists further develop their patient counselling communication skills to be able to step into a more advanced advisory roles. Pilnick remarked that there is an assumption that “pharmacists’ advice giving is a skill that all pharmacists already possess and which can be automatically utilised when appropriate.”
Several papers from a South African research group outlined studies of pharmacist communication with patients and their caregivers visiting antiretroviral (ARV) pharmacies located within four paediatric and adult HIV/AIDS clinics of provincial hospitals. Collected data included patient stories, interviews, focus group discussions, recorded interactions between patients and healthcare providers as well as their field notes from their observations. Three of these publications are described below to illustrate some different aspects of communication explored by this research group. The authors incorporated multiple data sources to triangulate their results and they highlighted some interesting aspects of communication between pharmacists and patients; however, they only partially addressed how well pharmacists communicated through the use of conversational analysis techniques. In addition, their work was not theory based.

Watermeyer and Penn studied the cross-cultural interaction of pharmacists with patients in an antiretroviral (ARV) pharmacy in South Africa. They aimed to determine how patients understand their ARV dosage instructions and how pharmacists verify patients’ understanding of their medications with an overall goal that this may lead to improved medication adherence. Data collection involved the video recordings and semi-structured interviews with both patients and pharmacists in addition to observations made by the researchers. Conversational analysis techniques were used to analyse the transcription of the video recordings which evaluated the quality of the communication on the basis of responses, turn-taking behaviours, repair of conversation break down and topic management. Resulting themes from the thematic analysis of the interviews and observations were triangulated with the interaction analysis. This research does provide some insight into the communication processes undertaken by clinic pharmacists to ascertain patients’ understanding of how to take their medication, and although the authors imply this will lead to improved medication adherence, this was not measured. As well, the study was conducted in a specialised ARV ambulatory clinic in South Africa and may have limited generalisability.

Watermeyer used data collected in the earlier study to investigate how pharmacists communicate with patients about their ARV therapy in the context of life and death. Positive communication skills are vital in allowing healthcare professionals such as pharmacists to be able to engage in these difficult conversations. In addition to the
conversation analysis techniques used in the first paper, discourse analysis was also utilised to account for the sociocultural and disease impacts on the conversations taking place. Pharmacists most often employed one of three approaches in attempting to persuade patients to be adherent to their ARV medications. These included that ARV therapy needed to be taken “for the rest of your life”, that ARV therapy was “saving your life” and that ARV therapy would be “making you better”. While pharmacists conveyed a sense of urgency and a need to make patients more comfortable by normalising their disease, Watermeyer also found that pharmacists were reluctant to discuss the possibility of death with their HIV/AIDS patients and instead tended to offer optimism and hope, even for patients with poor prognoses. Watermeyer stressed the importance of communication skill training for pharmacists working with HIV/AIDS patients and cautioned against the application of a “one-size-fits-all” approach to patient counselling as different diseases and practice sites may require specialised skills.

Penn and colleagues have focused on communication issues in the context of HIV/AIDS and found that the theme of medication adherence was prevalent throughout their data set. Data highlighting medication adherence was extracted and further studied showing that themed barriers and facilitators could be grouped according to specific disease, drug and pharmacy issues, lifeworld issues specific to patients’ personal experiences as well as interactional and communication issues. Barriers and facilitators related to communication issues were reviewed according to the different data sources including patients’ or pharmacists’/healthcare provider perspective as well as researchers’ observations. Penn noted that communication related barriers to adherence were mainly around patients’ understanding of medication and medical terminology as well as interprofessional communication issues. Facilitators to adherence included the development of honest, open, trusting and supportive relationships with healthcare providers who listened to patients and checked their understanding of their medications. Researcher observations were in agreement with the patient and pharmacist/healthcare provider perspectives. The researchers suggested that an important unanswered question in their study was the patient’s view of the pharmacist’s role in communicating with them about their medications. In addition, Penn and colleagues recommended that given the variable effects of different medication adherence strategies, future studies should take into consideration “enhanced communication …an important strategy for promoting adherence and should direct our research questions and
In two recently published reviews, a meta-narrative\textsuperscript{11} and a scoping review\textsuperscript{99} the authors collected pharmacy practice research in an attempt to better understand medication counselling taking place between pharmacists and patients. A meta-narrative review of 41 studies was conducted to determine whether the audio or video recordings of medication counselling by pharmacists were patient-centred or biomedical in nature.\textsuperscript{11} Seven of these quantitative, qualitative and discourse analysis studies occurred in a hospital setting. The authors noted that researchers did not consistently analyse the pharmacist-patient interaction as a dyad and did not typically attribute positive patient counselling to pharmacists’ skills in patient-centred communication.\textsuperscript{11} Future research recommendations made by the authors were to study the pharmacist-patient exchange in dyad, to find out how pharmacists organise their interactions with patients and how this affects their medication taking behaviour, to learn how pharmacists assess patients’ preferences in communication and how they then tailor their communication to meet patients’ needs; and to make connections between the effectiveness of pharmacists’ communication and patients’ outcomes.\textsuperscript{11}

Babinec et al conducted a scoping review of pharmacists’ interventions involving patients with diabetes to determine whether or not authors had assessed communication between pharmacists and patients as an outcome measure.\textsuperscript{99} Only four of the 16 randomised controlled trials reviewed took place in ambulatory clinics and none in hospitals. No studies reviewed or evaluated transcripts of audio/video recorded pharmacist-patient counselling sessions. The authors summarised that a gap in pharmacy practice research exists where investigators do not “appear to acknowledge the importance of social interaction between pharmacists and patients as relevant to outcomes.”\textsuperscript{99 (p 189)} While the practice sites were varied and included only small numbers of hospital or ambulatory pharmacy studies, the reviewers’ work identified the need for additional research in the field of pharmacist-patient communication focused on this dyad interaction\textsuperscript{12} and recommended multidisciplinary research teams with expertise in communication for future research.\textsuperscript{99}

Three recent and related studies conducted in Australian hospitals examined family member and patient communication with healthcare professionals including pharmacists about their medications.\textsuperscript{153,172,173} Manias (2015) explored how family members or caregivers interacted
with patients and healthcare professionals about how medications are managed in hospital. When family members were asked about how they communicated with pharmacists, most indicated that they rarely spoke to the pharmacist about the patient’s medications. It appeared from the family members’ perspective that pharmacists provided information only when asked, but pharmacists did not approach families and patients to speak to them about patients’ medications. Instead, family members observed pharmacists or pharmacy staff to mostly be delivering and stocking medication supplies.

Researchers interviewed physicians, nurses, pharmacists as well as patients and their families in specialty hospital settings to find out the barriers and facilitators in engaging patients and their families in conversations about managing medications. Family members and patients stated that they were often hesitant to request information and to discuss issues about their medications as they observed that healthcare professionals often appeared very busy. Pharmacists described privacy issues with the transition rooms that patients were often placed in to free up hospital beds while they were awaiting discharge counselling. Pharmacists did not find these noisy, busy environments to be conducive to having effective conversations with patients about their medications. Pharmacists noted that being able to provide medication teaching at different times in the patient’s hospital stay facilitated patient engagement in medication discussions.

An in-depth study of communication taking place between hospital pharmacists and patients about medications during admission and discharge was conducted at a large Australian hospital. The authors made some interesting observations about pharmacist-patient exchanges where pharmacists were very task oriented, and procedure driven using medication lists to direct one-way conversations. Minimal patient engagement was encouraged, and pharmacists’ language used was sometimes ambiguous and confusing for patients. Descriptions of semi-structured interviews with patients and pharmacists were included in the methods used; however, no separate account of these interviews was presented in the study, only the analysis of the observational data. Although all three studies provided detailed descriptions of aspects of communication with inpatients and their families about medications, none of the research was theoretically based, and only one study was focussed on pharmacist-patient communication.
This literature review demonstrates the paucity of studies that examine the effectiveness of communication and the characteristics of effective communication taking place in hospital pharmacist-patient interactions. Those studies reviewed had focused on skill assessment only, had flaws in their methods and most lacked theoretical frameworks.

1.4 Theoretical frameworks used in pharmacy practice research

Theoretical frameworks provide a valuable structure in which to plan and organise research, interventions, analysis and evaluation of healthcare behaviour and education. Yet, much of the healthcare communication research published to date has been conducted without the use of theories or is a-theoretical relying instead on anecdotal reports.

The rationale for using theory in healthcare communication research has been “…to understand, explain and predict health beliefs, attitudes, intentions, and behaviours of individuals, dyads, groups, and mass audiences.” Bylund also recognised the limitations of applying interpersonal theories that were originally used in social settings to the provider-patient setting in healthcare. While she agreed the provider-patient relationship is inherently personal, she acknowledged there were marked differences compared with relationships that take place between friends and families. The healthcare provider-patient relationship has its unique issues of power balance and equality as well as its own agenda directed by interests, and expected tasks and outcomes.

The WHO noted that effective healthcare communication was a key strategy for improved medication adherence and recommended that future medication adherence research adopt wider social and cultural theoretical frameworks and models to study surveillance, monitoring and evaluation of interventions. WHO advised that models could offer broader explanations of the complex interplay between healthcare behaviours and the factors that influence them.

Theoretical frameworks are not commonly used in research studying aspects of the pharmacist-patient relationship including the communication that takes place within these interactions. In fact, only seven of 39 summarised studies in a review paper used a theoretical framework to examine how communication between pharmacists and patients was
conceptualised, defined and measured. This is a serious gap in the pharmacist communication research literature.

Instead specific methods have been used in the analyses of pharmacist-patient communication that include narrative, conversation and discourse analyses. Other examples include Segue framework, a checklist of steps to be included within a pharmacist-patient exchange and Roter Interaction Analysis System (RIAS) framework, a coding method used widely in communication analysis. As well, some pharmacy practice publications evaluating pharmacists’ communication skills include specific tools or frameworks such as the Calgary-Cambridge guide or the, Medication-Related Consultation Framework. Although these are well-conducted communication research studies with rigor in their methods used, they are not theory based. Theoretical frameworks used in communication research provide a model in which to analyse results explain findings and provide further predications.

Additional approaches used in pharmacy practice research that characterise the nature of the pharmacist-patient relationship include patient satisfaction, interpersonal perception, PRECEDE-PROCEED, and health communications.

One theoretical framework, self-regulatory model, was used to inform the development of interventions to improve medication adherence. According to the authors, the theory allows the assumption that health behaviours such as adherence can be influenced by symptoms or beliefs about health and treatment unique to each patient.

Examples of theories and models that have been applied to study pharmacist-patient communication include socio-linguistic model, social cognitive theory, self-regulatory model, and role theory. Babalola and Erhuna utilised the socio-linguistic model and analysis in their exploration of communication patterns between Nigerian hospital pharmacists and elderly patients during medication history interviews. This model categorised miscommunication that occurred into one of six areas based on speech sound, vocabulary, meaning, misunderstandings. The authors claimed this model could be used to identify problems with miscommunication and provide feedback to pharmacists to further their communication skill development. However this model does not account for the
many psychological factors that shape these communication encounters and individuals’
goals or expectations for the interactions.

Young and colleagues employed social cognitive theory (SCT) in exploring factors affecting
pharmacists’ communication with Spanish speaking patients.\textsuperscript{189} Since SCT accounts for how
environmental, cognitive and behavioural factors interact, this model was used in examining
the relationship between the pharmacy environmental factors, the pharmacists’ cognition and
communication behaviour with patients.\textsuperscript{189} SCT, often used as model for behavioural change,
tends to focus on emotional or motivational factors related to an individuals’ past experience.
This model would have limitations in studying pharmacist-patient communication as this
theory does not facilitate the observation and understanding of the underlying emotional or
motivational factors taking place in a two-way communication exchange.

Role theory proposed that individuals take on specific parts or identities in their interactions
and, there is an expected way in which the interaction unfolds that is adhered to by all
participants.\textsuperscript{193} Role theory is based on a theatre or performance metaphor where the
individuals involved in the story are the actors playing a role. For example, a pharmacist may
assume the role of educator, counsellor, healthcare professional or other roles such as an
employee or manager. Biddle also suggested that the pharmacists as “actors” playing the role
of the healthcare professional can also appreciate the role and perspective of the patient.
However, to do so, the pharmacists need to possess adequate self-awareness and be
sufficiently engaged in the interaction in order to take on the role of the patient.\textsuperscript{193} This would
mean that the pharmacist has the ability to anticipate what the patient might need to allow for
an effective interaction to occur.\textsuperscript{80} Guirguis observed that pharmacy practice is amenable to
the role theory as the pharmacist’s roles are ritualized, predictable behaviours which are
reinforced through legislated scopes of professional practice.\textsuperscript{80}

Schommer used data from six surveys administered from 1995 to 2010 to 1278 patients and
1518 community pharmacists and analysed the groups in terms of their “perceptions of the
pharmacists’ role in serving as an advisor on medication use” using a Counsellor Role
Orientation (CRO) measure.\textsuperscript{191 (p.508)} CRO is defined as the perceived role (an attitude) toward
patient medication counselling by a pharmacist\textsuperscript{194} while the CRO measure is a previously
modified eight-item tool used to make comparisons between pharmacists’ and patients’ responses to each item. Past research by Schommer has shown positive associations between CRO scores and pharmacist-patient interaction time, the amount of verbal instruction provided, and the degree of pharmacist approachability.

Role theory may be used to describe the rationale for behavioural interactions that take place during pharmacist-patient conversations, but it may be limited in its ability to explain the dynamics of communication and to provide insight into the effectiveness of the communication taking place. Social Identity (SIT) and Communication Accommodation (CAT) theories described below may be the most appropriate theoretical frameworks to use in studying the nature of communication between hospital pharmacists and patients taking place during medication counselling sessions. SIT can be used to understand how the pharmacist’s professional identity affects interactions. CAT focuses on how and why language is used in the pharmacist-patient exchange. Both SIT and CAT have been used as theoretical frameworks in healthcare research.

1.4.1 Social Identity Theory
Social identity theory (SIT) developed in the 1970’s by Tajfel focuses on how individuals often relate to their group identities rather than their individual ones. SIT explains how individual behaviour is influenced by group affiliation or membership. Members in a group are often from a similar social category and possess a strong affiliation to their group where members share mutual understanding of the group’s status and requirements for inclusion. Individuals possess both personal and social identities. At times one identity may become more salient depending on the circumstances. When individuals who are aligned with one social group (in-group) perceive threat or conflict from another social group (out-group), they may behave in ways to enhance their in-group distinctiveness and demonstrate allegiance to their own social group.

SIT has been used in pharmacy practice research to demonstrate how pharmacists may choose to associate or identify themselves as members of a particular pharmacy chain as a means of improving staff retention during times of pharmacist shortages. SIT was also included in a qualitative study exploring professional identification within pharmacists immigrating to Canada. Numerous studies using SIT have included pharmacy students in
their examination of how healthcare students associate with their professional identities while engaged in interprofessional education opportunities.203-207

Although SIT has been applied in research examining healthcare professional identities208-212 as well as examining healthcare provider-patient interactions studies,213,214 this theory has not yet been used in studies involving pharmacist-patient communication. There are some limitations in using SIT alone to study communication taking place during pharmacist-patient interactions. While SIT focuses on group identities or behaviours, it does not address the process of communication or explain how language can be used to communicate. CAT has been used to study communication between healthcare providers and patients in this manner.198

1.4.2 Communication Accommodation Theory
Communication accommodation theory (CAT) developed in the 1970s presents a psychosocial framework that describes the behavioural, motivational and emotional processes underlying communication exchanges.215 CAT posits that individuals who take part in interactions with others bring their own opinions, beliefs, concerns, prejudices, goals, often based on their past experiences, to the upcoming interaction. These preconceived perceptions set the tone and direct the way in which they engage in the conversation. CAT has been applied to various research conducted in social science,216-220 business,221-223 law224 225,226 as well as to study communication that takes place between healthcare providers and patients175,227-237 and between healthcare professional groups.175,209,237

CAT proposes that speakers in an exchange make adjustments (consciously and unconsciously) to the way they communicate with each other based on each speaker’s individual goals for that communication interaction as well as their desire to develop and maintain their personal, social or professional identity.238 An interaction between speakers may shift from each individual’s social or personal identity depending on which identity is most salient at a given time.215 In communication with others, CAT proposes (based on SIT) that it is our group identities that are most often salient. Depending on the context of the conversation and the speaker’s goals in conversation, one group identity can become more important to the speaker than another and this will be emphasised in their conversation. For some, social identity can be more salient in conflictual intergroup situations.198 However, in
the healthcare setting, professional group salience was observed where hospital doctors emphasised their different specialties.\textsuperscript{209}

CAT based research typically dichotomises the outcomes as being either accommodative or nonaccommodative.\textsuperscript{238} Accommodation is a process concerned with reducing communication barriers between those interacting.\textsuperscript{239} It is “… driven by interpersonal motive of gaining social acceptance and building social connections, ultimately leading to solid relationships and even life satisfaction.”\textsuperscript{239 (p 167)}

Giles outlined four key principles of accommodation that demonstrate how communication is conceptualised within CAT.\textsuperscript{240} First speakers are positively motivated to use accommodation methods, because they desire to validate a recipient’s concerns and demonstrate empathy, seek approval, respect, understanding, trust, compliance and cooperation, deepen a relationship, avoid or defuse a difficult situation or identify common social identities.\textsuperscript{240}

Secondly, speakers who demonstrate positive intent in accommodative tactics may enhance their own or the speech partners’ self-esteem.\textsuperscript{240} The third principle is that speakers, who intentionally use nonaccommodation tactics, do so to diverge or separate themselves linguistically from the recipient to show relative dissatisfaction or dislike of the recipient and disrespect for their character, manner or social identity.\textsuperscript{240} Finally, speakers who intentionally use nonaccommodation tactics may be perceived by recipients as unfriendly, impolite, or socially incompetent or lacking empathy and trust.\textsuperscript{240}

Two types of nonaccommodation tactics described in the medical literature include underaccommodation and overaccommodation. An example of underaccommodation occurring is a situation where a healthcare provider uses technical medical terminology in their discussions with patients who will not understand the meaning. Overaccommodation may occur when a healthcare provider uses oversimplified terms and mannerisms and assumes their partner in conversation requires simple speech. An example of this behaviour has been demonstrated in studies examining communication exchanges between health professionals and elderly patients.\textsuperscript{231,232,238}
Researchers examining healthcare provider-patient interactions have described five strategies that can be used for effective communication to take place. Conversely, ineffective use of these strategies may lead to interactions that patients find unsatisfactory, confusing or a combination of both. These strategies include approximation, interpretability, discourse management, emotional expression and interpersonal control and are described below.\textsuperscript{241, 242}

Approximation refers to the way individuals adjust their speech patterns such as their pitch, tone and rate of speech or use of dialect to converge, diverge or maintain their conversation.\textsuperscript{243, 244} Convergence takes place when one speaker alters their speech and communication patterns to match those of the other while divergence occurs when speakers accentuate differences between themselves and others in their communication to create a distance or separateness. Speech maintenance can be viewed in more neutral terms as being neither convergent nor divergent in nature.\textsuperscript{244} Divergent strategies may be used in a nonaccommodative manner to promote intergroup distance between speakers. An example of a convergent strategy used by a pharmacist in a medication counselling session occurs when the pharmacist slows down their speech to match that of a patient to ensure they understand information about their medications. There are times when a speaker may intentionally use a speech pattern different from the one used by the other speaker in order to improve the communication exchange and their understanding. For example, a pharmacist may deliberately attempt to slow down the conversation tempo to gain better understanding of a patient’s needs in situations where a patient is speaking too rapidly.

Interpretability strategies are used by speakers to adjust the language used and words chosen in their speech to make it easier for the other person to understand them. Underaccommodation may take place in a conversation between a pharmacist and a patient when the pharmacist uses complicated pharmacological phrasing when explaining how a medication works to a patient with limited medication knowledge. For example, a pharmacist describing that the antihypertensive properties of metoprolol linked to beta receptor blockade will likely be using terminology that most patients will not understand (inappropriate interpretability). Instead, a pharmacist might tell a patient that this medication is taken to treat their high blood pressure and it works by lowering their heart rate (appropriate interpretability). However, in situations where a pharmacist is speaking to another healthcare
professional about their medications, it would be appropriate to use medical terminology in their discussion.

Discourse management strategies focus on the other person’s conversational needs and examples may include turn-taking and conversation promoting, changing the topic as needed, asking questions, adjusting the conversation for understanding, paying attention to non-verbal cues, and using conversational repair such as back-channelling or face-maintenance. Back-channelling involves the use of words to portray good listenership such as “mmm” and “yeah”. Face-maintenance involves conversational tactics to help the other person maintain a positive self-image. Underaccommodation may occur when a pharmacist with a well-meaning intention to educate a patient about their medications dominates the conversation and does not allow the patient time to absorb the information and ask questions.

Emotional expression takes place in the medical context when a healthcare practitioner provides an appropriate level of reassurance and empathy in response to a patient’s emotional concerns. An example of underaccommodative emotional expression might take place within a pharmacist-patient interaction where the pharmacist appears to be impatient or frustrated in response to a patient’s concern about potential side effects of medication prescribed for a serious medical condition. The patient may be worried that the side effects will seriously affect their quality of life while the pharmacist may trivialise these concerns as they focus on the benefits of the medication only. Given this situation, the patient might choose not to take the medication. Perhaps a more accommodative approach for the pharmacist would be to explore the patient’s concerns more fully and seek solutions or strategies more acceptable to the patient and their lifestyle.

Accommodative interpersonal control strategies in the healthcare setting would seek to promote equality between healthcare providers and patients, without regard to their professional roles or social positions. These communication strategies emphasising shared decision making would be consistent with a patient-centred model. Appropriate interpersonal control strategies, used by pharmacists, promote equality between themselves and the patient, not constraining patients to passive patient roles. However, the extent patients want to be involved in healthcare decisions can vary greatly, and it is important that pharmacists first understand patients’ preferences before making assumptions.
about their desired level of involvement. In addition, power imbalances between patients and pharmacists will always be inherent, because pharmacists hold specialised knowledge and information not always assessable to patients. These relationships between healthcare providers and patients have been described by researchers in healthcare communication as intergroup.\textsuperscript{175,229} Specifically, pharmacists self-identify as members of a “healthcare professional” group while those they counsel belong to the “patient” group. CAT proposes that although healthcare professionals may move between these intergroup identities (social and professional) and personal identities (individual likes and dislikes), it is often their intergroup identities that are most salient.\textsuperscript{215} An example of nonaccommodative interpersonal control strategies by a healthcare provider might be to try to emphasise their authority over that of a patient’s through interrupting or patronising speech.\textsuperscript{228,245,249}

SIT and CAT would be appropriate theoretical frameworks to examine communication taking place between hospital pharmacists and patients. SIT would provide insight into pharmacists’ rationale for behaviour observed when communicating with patients. For example, pharmacists may choose to emphasise their professional identity and authority when engaged in conversation with patients. This behaviour would effectively create a distance between them and the patient and could impact the effectiveness of that conversation. CAT will allow interpretation of the detailed patterns and flow of pharmacist-patient conversations and help identify occasions of accommodative or nonaccommodative approaches in their communication with patients. The multiple strategies described within CAT (approximation, interpretability, discourse management, emotional expression and interpersonal control) will permit a detailed analysis of the hospital pharmacist-patient interaction and the identification of aspects of effective communication. Using CAT within the pharmacist-patient medication counselling context will build on previously conducted health communication research demonstrating how appropriate communication has led to improved healthcare provider-patient relationships and clinical outcomes.\textsuperscript{29-38,117,250-253} CAT was chosen as the theoretical framework for this research as it is highly applicable to the health context, it assumes a two-way communication between speakers, and facilitates a detailed study of interactions by considering the emotional, motivational and behavioural processes that underlie communication exchanges.
1.5 Summary
This first chapter provides the background and rationale for this research investigating the effectiveness of the communication taking place between pharmacists and patients during medication counselling sessions. Review of the hospital pharmacist-patient communication literature has revealed that there are few studies published about the nature of the communication taking place between hospital pharmacists and patients, and fewer still that include details about what makes this exchange effective. Most of the papers’ methods lack a theoretical basis and do not study the patient and pharmacist as a dyad to account for both participants’ perspectives of the interaction. This research will address the gaps identified in the pharmacist-patient literature, by invoking CAT as the theoretical framework, to examine the details of the pharmacist-patient interactions.

1.6 Aims and Research Questions
Overarching Aim
To investigate the effectiveness of communication taking place between hospital pharmacists and patients during medication counselling (based on Communication Accommodation Theory (CAT) strategies).

Aim #1
To investigate how well hospital pharmacists communicate with patients during medication counselling.

Aim #1 Research Questions:
1. How do hospital pharmacists perceive their roles and goals in patient medication counselling?
2. How well do hospital pharmacists utilise CAT strategies in their communication with patients?
3. How are pharmacist-patient speech patterns, episodes of engagement and CAT strategies employed by pharmacists during medication counselling visually represented by the Discursis software?
4. How well does the pharmacist communicate from the patient’s perspective, how does the pharmacist’s perspective of that interaction compare to the patient’s (Insiders’ perspectives), and to that of an Observer (Outsider’s perspective)?
5. How do pharmacists’ and patients’ opinions compare about what constitutes effective pharmacist-patient communication exchanges?

**Aim #2**
To explore relationships between effective communication and patient satisfaction, and patient’s medication taking behaviour.

**Aim #2 Research Questions:**
1. What is the relationship between patient reported effective communication and patient satisfaction?
2. How is patients' medication taking behaviour related to patient reported effective communication and satisfaction?

In the next chapter, the methods used to investigate the effectiveness of communication taking place between hospital pharmacists and patients during medication counselling will be described.
CHAPTER 2: Methods used (Phase 1 and Phase 2)

The previous thesis chapter highlighted the need for theory based hospital pharmacist-patient communication research that examines in detail the emotional, motivational and behavioural processes that underlie the pharmacist-patient exchanges. In this research, effective communication refers to the extent to which pharmacists accommodate, or not, to patients’ conversational needs based on accommodative behaviour described within CAT strategies. This research mainly utilised qualitative methods to investigate the effectiveness of communication between hospital pharmacists and patients during medication counselling which was the primary focus of this research as very little had been published on this topic. It was necessary to first study and understand these exchanges taking place between pharmacists and patients before exploring possible relationships with patient outcomes such as satisfaction or medication adherence.

This methods chapter begins by describing the epistemological approach underpinning this research and outlines the overall research plan. Then, details are provided of the methods used to investigate how well hospital pharmacists communicate with patients during medication counselling in Phase 1 and Phase 2 (Aim 1) and to explore relationships between effective communication and patient satisfaction, and patient’s medication taking behaviour in Phase 2 (Aim 2).

2.1 My Approach

The epistemological approach underpinning the methods used in this PhD research to address the research aims and questions most closely aligns with social constructivism. Constructivism states that reality is socially constructed and assumes that “the way we see the world is tied to the social world in which we live.” From this philosophical stance, we construct our reality from our life experiences, perceptions, and interactions with others. In contrast, positivism takes the philosophical position that true knowledge can only be gained through observable and measurable facts. Positivism believes there is a singular underlying reality that provides the foundation for truth whereas constructivism assumes there are multiple truths and no single reality.
Methods used in this PhD include: qualitative (focus groups, observation and analysis of pharmacist-patient interactions, and semi-structured pharmacist and patient interviews), quantitative (two medication taking behaviour questionnaires and Likert responses to pharmacist communication behaviours), and mixed methods (semi-structured interviews and Likert responses; medication taking behaviour questionnaires with follow up questions providing qualitative responses).

I propose that all methods used in this research are aligned with a social constructivist approach. In addition, the theoretical frameworks (CAT and SIT) invoked to investigate the pharmacist-patient interactions are based on assumptions consistent with social constructivism.

In Phase 1, focus groups sought pharmacists’ perceptions of their roles and goals in medication counselling and the barriers and enablers to achieving their goals. I chose this method over individual interviews in order to gain pharmacists’ shared experience as opposed to their individual responses. These focus groups allowed the pharmacists to be observed in conversations with their peers and in a more natural setting within their place of employment. Pharmacists shared their perceptions and examples of their medication counselling experiences with patients. This method involved data collection, analysis and interpretation consistent with a social constructivist approach as “truths” were based on how the pharmacists perceived and made sense of their interactions with patients in the context of their hospital environment.

In Phase 2, my observation and interpretation of the audio recorded pharmacist-patient exchanges were framed within the theories of CAT and SIT. The communication behaviours observed taking place between pharmacists and patients were influenced by their individual goals for each conversation. These in turn were likely based on their values, experiences and their interpretations of their interactions with others. These assumptions were integral to the analysis and interpretation of the data, and also positions my method with the social constructivist approach.

In the semi-structured interviews, participants’ perspectives of their shared interactions were sought through their responses to statements measured by a Likert scale, and then their
responses were followed up with questions to better understand participants’ rationale for their responses. While Likert responses to statements might be argued as being measured responses consistent with positivism, a counter argument can be made for social constructivism. Firstly, the nature of the statements drew upon participants’ perceptions and experiences. Next, the context in which the questionnaire was conducted was conducive to this approach. The participants did not respond to statements on their own, rather the researcher was present to read out the statement, ask each participant for their level of agreement, and then to prompt them for their reasons. This method sought to understand how participants interpreted their shared interaction in accordance with a social constructivist approach.

For similar reasons cited above for the quantitative and qualitative aspects of the semi-structured interviews, the methods used to elucidate patients’ medication taking behaviour could be considered to be aligned with both positivist and constructivist approaches. The two different questionnaires measure medication taking behaviours using Likert scales and dichotomous responses, and therefore could be interpreted as positivist approaches. However, these questionnaires asked participants to report on their perceptions, experiences and behaviours around taking medications and were administered by the researcher in the same way as the statements in the semi-structured interviews. Participants often offered unsolicited verbal comments to indicate how they were interpreting the question in their own context. As well, after the second administration of these two questionnaires, additional questions with prompts were asked about the patients’ medication taking behaviour and experience. In this way, these methods probed patients about they viewed and interpreted their behaviours which could be argued as being more congruent with constructivism.

2.2 Research Plan
This research explored the effectiveness of communication between hospital pharmacists and patients using the lenses of Social Identity and Communication Accommodation theories as frameworks to understand the processes occurring within these interactions.

Phase 1 aimed to better understand current practice followed by hospital pharmacists. This was accomplished through focus group discussions with hospital pharmacists to ascertain
their perceptions of their roles and goals in medication counselling and identify the barriers and facilitators that affect their ability to meet their goals.

In the Phase 2, pharmacist-patient conversations were audio recorded and analysed, and the results triangulated with those from semi-structured interviews held separately with the participating pharmacist and patient. The audio recordings of the interactions were also analysed by Discursis, a software developed to recognise speech patterns indicative of speakers’ level of engagement in the conversation, and to graphically present the results in chronological sequence. To explore the possible relationship between the effectiveness of communication in pharmacist-patient interactions and that of patients’ medication taking behaviours, patients were administered a Beliefs about Medicines Questionnaire and a Morisky 8-Item Medication Adherence Scale at the time of consent and again four weeks after leaving hospital.

In this research, the effectiveness of hospital pharmacists’ communication skills was identified through their appropriate use of the five behavioural strategies described within Communication Accommodation Theory (CAT). Pharmacists’ communication skills were not assessed against a checklist of specific communication criteria. Instead, pharmacists were observed to see how well they adapted to patients’ conversational needs through the application of the five strategies within CAT. Observations of pharmacist-patient interactions were triangulated with results from the semi-structured interviews, conducted immediately after their shared medication counselling session to gain both participants’ perspective of the effectiveness of their exchange.

2.3 Aim 1:
To investigate how well hospital pharmacists communicate with patients during medication counselling, the following research questions were addressed:

1. How do hospital pharmacists perceive their roles and goals in patient medication counselling? (Phase 1)
2. How well do hospital pharmacists utilise CAT strategies in their communication with patients? (Phase 2)
3. How are pharmacist-patient speech patterns, episodes of engagement and CAT strategies employed by pharmacists during medication counselling visually represented by the Discursis software? (Phase 2)

4. How well does the pharmacist communicate from the patient’s perspective, how does the pharmacist’s perspective of that interaction compare to the patient’s (Insider’s perspective) and to that of an Observer (Outsider’s perspective)? (Phase 2)

5. How do pharmacists’ and patients’ opinions compare about what constitutes effective pharmacist-patient communication exchanges? (Phase 2)

2.4 Methods for Phase 1 (Aim 1)

This was a qualitative study using a focus group approach to obtain rich detail and an in-depth understanding of how hospital pharmacists perceive their role and its value in counselling patients at discharge about their medications. A theoretical framework was not explicitly used in the first focus group study (Chapter 3). However, it could be argued that Chapter 3’s aim demonstrated high level principles of the CAT model where individuals who take part in interactions with others bring their own opinions, beliefs, concerns, prejudices, goals, often based on their past experiences, to the upcoming interaction. From a CAT perspective, each interactant brings their own socio-historical context and accommodative orientation. This study sought to understand how hospital pharmacists perceive their roles and goals in patient medication counselling. The focus group setting allowed pharmacists to share their stories and experiences that shape the way in which they engage with patients. Understanding pharmacists’ perceptions of their roles and goals is an implicit use of CAT’s overarching concepts and established the need for more detailed CAT analysis in Chapter 4.

Research ethics approval for this Phase 1 study was received from the Human Research Ethics Committee (HREC/14/QRBW/546), participating hospitals, and The University of Queensland (2015/1). Refer to Appendices 1 and 2 for the research ethics approval letters.

2.4.1 Study Tools

A focus group guide of questions and prompts was developed and piloted with input received from hospital pharmacists independent of the study. The focus group guide used for this study is shown in Table 2-1.
## Table 2-1. Hospital pharmacists' focus groups guide

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>10-15</td>
</tr>
<tr>
<td>• Welcome, thank participants for coming, introduce self</td>
<td></td>
</tr>
<tr>
<td>• Brief rationale for focus group (first stage of my PhD project to explore the nature of the communication that takes place between hospital pharmacists and patients during discharge mediation counselling; before this can proceed, need to understand hospital pharmacists’ perspectives about the process of discharge counselling)</td>
<td></td>
</tr>
<tr>
<td>• Ask participants to introduce themselves by providing their first names and their clinical practice area. (Say one brief thing about yourself - something that your colleagues are unlikely to know about you!)</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Group Agreements (Rules of Engagement) – on flip chart</strong></td>
<td>3-5</td>
</tr>
<tr>
<td>• No right or wrong answers – really interested in your opinions and perspectives</td>
<td></td>
</tr>
<tr>
<td>• Feel free to confidently speak your thoughts, listen to others with attention – be respectful of each other</td>
<td></td>
</tr>
<tr>
<td>• Confidentiality (to each other) – what is said in this room, stays in this room. Want you to feel this is a safe space to provide your opinions</td>
<td></td>
</tr>
<tr>
<td>• Confidentiality (my role) – All participants’ names will be coded before matched to the voice recordings and all identifiers will be removed</td>
<td></td>
</tr>
<tr>
<td>• Any other points you would like to add to our group agreements?</td>
<td></td>
</tr>
<tr>
<td><strong>Questions for Discussion</strong></td>
<td>35-40</td>
</tr>
<tr>
<td>• What do you typically do in your practice to prepare patients for discharge from the hospital? (Prompts: Do you routinely meet to speak to them about their medications? Is this part of your usual clinical practice? When would you contact their GP/community pharmacist to speak to them about the patients’ medications?)</td>
<td></td>
</tr>
<tr>
<td>• How do you decide which patients you meet with at discharge? (Prompts: What criteria would you use to decide who receives discharge counselling? Do you get referrals from other healthcare professionals? Patients themselves?)</td>
<td></td>
</tr>
<tr>
<td>• How do you think patients benefit from taking part in a discussion with you? (Prompts: What’s in it for the patient? How can you tell if you’ve been successful?)</td>
<td></td>
</tr>
<tr>
<td>• What do feel your role as a hospital pharmacist is in discharge counselling? (Prompt: Do you feel you are able to achieve this? Would you like to do this differently? Do more? Do less?)</td>
<td></td>
</tr>
<tr>
<td>• What would you say your own professional goals or purposes are in counselling patients at discharge? (Prompts: Do you think it is a valuable clinical activity for hospital pharmacists? If so, why?)</td>
<td></td>
</tr>
<tr>
<td>• What do you need to help meet your goals in counselling patients at discharge? What makes this process work? What gets in the way? How would you describe an ideal discharge counselling session?</td>
<td></td>
</tr>
<tr>
<td><strong>If no one mentions “medication adherence” – Is medication adherence an important concept to discuss with patients?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Summary &amp; Closing</strong></td>
<td>5</td>
</tr>
<tr>
<td>• Provide a short summary of what has been said to ensure correct interpretation; Ask for further information</td>
<td></td>
</tr>
<tr>
<td>• Encourage participants to send feedback and any further opinions or information by email</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL:** 60 min
2.4.2 Inclusion criteria

Eligible participants were hospital pharmacists who had provided discharge or medication counselling in the previous 6 months in either an acute ward or ambulatory clinic.

2.4.3 Enrolment

Interested pharmacists responded electronically to an expression of interest email, completed a demographic questionnaire and consent forms, and returned these to the first author (BC). Two reminder emails were sent out at two-week intervals to recruit pharmacy staff. Refer to Appendix 3 for the participant information and consent forms used in this study. The goal was to include four to six participants in each focus group. Participant numbers were intentionally capped at a maximum of 6 pharmacists to allow sufficient opportunity for all participants to contribute and engage in the conversations. A total of 24 pharmacists participated in six, one-hour audio recorded focus groups in February and March 2015. In four of the focus groups, there were four participants. One focus group included five while another only included three participants. No new ideas or concepts were introduced by the fourth focus group and it was determined that saturation of information had occurred.

2.4.4 Data Collection

Focus groups included pharmacists from two teaching hospitals in Brisbane. A purposive sampling of participants was utilised to ensure inclusion of pharmacists from different levels of training, experience and practice areas.

One-hour, audio recorded, focus group discussions were led by BC who followed the prepared guide of questions and prompts. At the conclusion of each focus group, a member check was conducted in which participants’ discussion points were summarised and their feedback was requested to ensure appropriate interpretation. Participants were encouraged to contact BC electronically with any further input.

2.4.5 Coding

Audio recordings were transcribed verbatim. Focus group transcriptions were verified by comparing the written documents with original audio recordings to reconcile the contents of the two data formats wherever possible.
To ensure an appropriate and consistent method in coding and theming, the first focus group transcript was coded manually by BC, and then checked by the investigator’s advisors (WNC and BW). The remaining five focus group transcripts were then coded using NVivo® software to assist in their organisation. Refer to section 2.4.6 for details about the coding process part of the thematic analysis.

2.4.5.1 Reliability testing of codes
To minimise investigator bias affecting the selection and application of codes, reliability testing of the coding assignment was conducted. A process previously described by other qualitative researchers was followed where evaluators coded the same 20% sample of data and achieved greater than 80% agreement through consensus.259,260

Three hospital pharmacists independent of the focus groups were involved in the reliability testing. Each pharmacist was supplied with transcript samples and instructed to apply codes using a code description guide. Results were entered into an Excel spreadsheet for ease of comparison and to identify areas of discrepancy that were later discussed at a consensus meeting.

2.4.6 Notation conventions
Pseudonyms were assigned to pharmacists and chosen rather than using a numerical system to identify the source of exemplar provided. The reason for this choice was that using people’s names would better facilitate the flow of the written text and the story narrative. The use of “…” connecting text within an exemplar implies that a portion of the quote has been removed. Additional information intended to enhance the understanding and context of an exemplar has been contained within square brackets “[ ]”.

2.4.7 Analyses
Demographic questionnaire results were descriptively analysed. A process of inductive thematic analysis as described in the literature was applied to the focus group data.254,261 An adaptation of the rigorous multi-step process outlined by Braun and Clarke261 (p 87) was followed in this research:
“1. Became familiar with the data: ensured that sufficient time was spent becoming familiar with the data by re-listening to audio recordings, reviewing and re-reading the transcripts, and jotting down some initial pattern observations across the data set.
2. Began assigning codes: Started with one part of the data set (i.e. one focus group) and then continued systematically coding across the data set; developed and refined descriptions of the codes as coding progressed
3. Looked for themes: Grouped codes into possible themes and defined each possible theme
4. Re-examined themes: Verified that the themes were aligned with the codes and that they could be found across the data set; checked that themes were aligned with the research questions
5. Further refined themes: Continued examining initial themes, collapsed/combined themes and created sub-themes where appropriate; named and defined each theme and sub-theme.
6. Wrote the paper: Further analysis completed at this last stage; chose exemplars to illustrate themes and sub-themes; completed additional check to ensure themes and sub-themes address research questions.”

Field notes and reflexive journaling were undertaken throughout the study. Having been practising as a hospital pharmacist for more than 20 years, BC felt invested in the study topic with strong opinions about best practice and professionalism. As a researcher, BC was aware of the potential influence her experience and professional goals may have had on her perception and interpretation of data. Pharmacist participants knowing that BC was an experienced pharmacist may also potentially influence their responses in the focus groups. Some may have felt a professional connection or comradery and be more comfortable to contribute openly in the discussions while others may have felt as their actions were being judged or scrutinised.

2.5 Methods for Phase 2 (Aim 1)
Qualitative methods were used to gather in-depth communication exchanges between pharmacists and patients during medication counselling, and through semi-structured interviews with patients and pharmacists to gather details about each participant’s perspective of their shared medication counselling experience. Quantitative methods were employed in the data collection and analysis of statements included in the semi-structured interviews.
Research ethics approval for Phase 2 was received from Royal Brisbane and Women’s Hospital Human Research Ethics Committee on September 25, 2015 (HREC/15/QRBW/433) and from University of Queensland, School of Pharmacy Ethics Committee on October 8, 2015 (2015/13). Refer to Appendices 4 and 5 for the research ethics approval letters. Permission and a signed license agreement was obtained to use the Morisky 8-item Medication Adherence Scale. The School of Pharmacy, The University of Queensland has been given approval to use the Beliefs about Medicines Questionnaire in research studies.

2.5.1 Recruitment
This study took place at a large 1000 bed quaternary teaching hospital with multiple specialty services including inpatient wards and outpatient clinics. Refer to Appendices 6 and 7 for the participant information and consent forms used in this Phase 2 study.

2.5.1.1 Participant numbers
Initially, it was anticipated that 15 pharmacists would be recruited to take part in the study. Each pharmacist would engage in medication counselling with four patients for a target of 60 patients and 60 pharmacist-patient interactions. These patient numbers were chosen to provide an opportunity for participating pharmacists to interact with different individuals and allow the researcher to observe how pharmacists use and adjust their communication skills.

2.5.1.2 Inclusion criteria
Pharmacists: Interested hospital pharmacists whose current professional duties included the provision of clinical pharmacy services in an inpatient and/or outpatient setting.
Patients: Interested patients admitted to either an inpatient or outpatient setting in which clinical pharmacy services were provided by a participating pharmacist; Patients who had been prescribed three or more medications to manage a chronic disease.

2.5.1.3 Recruitment process
Pharmacists were recruited first. An electronic invitation was sent to approximately 50 departmental pharmacists. Eight pharmacists expressed interest initially, and the remaining four pharmacists responded following a reminder email sent three weeks later. Pharmacists’ demographics were examined and compared to those from a national demographic survey to ensure an accurate representation. Because the pharmacists’ ages, qualifications,
experience and practice site reflected demographics from within the hospital and nationally, further purposive sampling was not required. A convenience sample of interested patients meeting the inclusion criteria were first identified by their nurse, and then approached by BC who provided study details, obtained consent, and gathered patient demographic data.

2.5.2 Data Collection
The steps involved in data collection for Phase 2 are displayed in Figure 2-1, and detailed descriptions for these steps are provided in 2.3 (Aim 1) and 2.4 (Aim 2).

![Data collection flow chart (Phase 2)](image)

2.5.2.1 Pharmacist-Patient medication counselling session
Participating hospital pharmacists and patients were audio recorded while engaged in medication counselling. Each pharmacist counselled four different patients to observe how
they used and adjusted their communication skills to meet the conversational needs of unique individuals. BC observed the pharmacist-patient interactions in-person and out of the direct view of the participants to record non-verbal communication taking place between the participants and to make notes about environmental conditions that might have affected the quality of their exchange. Prior to conducting audio recorded medication counselling sessions, BC accompanied pharmacists interacting with patients on their ward. This was an attempt to normalise BC’s presence and minimise its effect on pharmacists’ performances during audio recorded sessions. As well, pharmacists were told that the study’s aim was to investigate whether effective communication takes place between hospital pharmacists and patients; however, pharmacists were intentionally not informed about CAT behaviours to be observed during medication counselling.

### 2.5.2.2 Semi-structured interviews with pharmacists and patients

**Semi-structured interview guide development**

The semi-structured interview guides were developed to collect quantitative information about pharmacists’ and patients’ perspectives of their exchange and to provide a framework for the interviews held with pharmacists and patients. The guide consisted of 13 statements in which 10 were based on the five CAT strategies. Results of the focus groups (Chapter 3) provided the pharmacy practice context for these statements which reflected aspects of communication that occur between hospital pharmacists and patients. The last three statements were focussed on participants’ overall satisfaction with their shared conversation.

Pharmacist and patient semi-structured interview guides were almost identical with slight wording changes to make them relevant to either the pharmacist or patient responding to the statements or questions (Tables 2-2 and 2-3).

Face and content validity of the statements was provided by the three pharmacists on the research team who ensured the pharmacy related content accurately reflected hospital pharmacy practice. The statements’ relevance to CAT strategies was verified by the psychologist on our team. Cronbach alpha reliability testing was conducted to provide assurance of internal consistency within the ten CAT based statements. This test measures how well test statements within a domain are inter-related whereby strong correlations between statements increase the internal consistency and result in higher Cronbach alpha.
Reported acceptable Cronbach alpha values vary from 0.60 or greater\textsuperscript{264} to 0.70 or greater.\textsuperscript{263} Cronbach alpha values calculated for the 10 CAT statements used in the semi-structured interview guides were within the acceptable reported ranges: patients (0.75), pharmacists (0.67), and Observer (0.84). The CAT statement scale was unidimensional and all items contributed to the overall alpha. Details of the Cronbach alpha process are included in Appendix 8.

**Semi-structured interview process**

Following the medication counselling session, individual audio recorded semi-structured interviews were conducted with the patient and the pharmacist about their perspectives on their experience. All semi-structured interviews with patients took place immediately after their conversations with pharmacists in either the patient’s room or at a location close to their hospital ward. Semi-structured interviews with the pharmacists occurred within the same day of their pharmacist-patient exchange in private areas either on the hospital ward or within the pharmacy department.

Participants responded to a series of statements about their views by indicating their level of agreement using a 7-point Likert scale with the following descriptors: Strongly Disagree, Disagree, Slightly Disagree, Neither, Slightly Agree, Agree and Strongly Agree. One of the patients’ statements was reversely worded. BC prompted participants for more details about their responses as appropriate. Examples of prompts used included: “How did that go? Tell me more about that. What happened?” Pharmacists read each statement, indicated their level of agreement and stated their rationale for choosing each score. In situations where patients or pharmacists appeared to misinterpret the intent of the statement, BC would clarify the statement’s meaning and then ask the participant to respond once more.

The final interview statement “This was an effective conversation with the pharmacist/patient.” was included to elicit participant’s views about effective pharmacist-patient conversations. Further questions and prompts unique to this statement included: “What aspects of a conversation make it effective for you? What's important to you? What makes it a good conversation? Why do you think it was effective?” Because pharmacists engaged in four pharmacist-patient interactions, additional questions such as “What would have made this particular conversation more effective?” were asked. Results are described in Chapter 8.
### Table 2-2. Patient semi-structured interview guide

<table>
<thead>
<tr>
<th>Think about the conversation you just had with the pharmacist about your medications:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The pharmacist spoke clearly - and I understood what they were saying.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. The pharmacist used medical terms that I couldn’t understand.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. The pharmacist explained how my medication works in a way I could easily understand.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. The pharmacist gave me enough time to think about the medication information given to me so I could ask any questions I had.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. The pharmacist paid attention and listened to my concerns about my medications.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. The pharmacist allowed me to interrupt to ask questions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. I felt the pharmacist thought my worries and questions about my medicines were important.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. The pharmacist spoke to me in a respectful and courteous manner.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9. The pharmacist encouraged me to talk to my doctor and/or community pharmacist about different medication options available to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10. The pharmacist encouraged me to take responsibility for managing my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11. The pharmacist did a good job helping me understand my medicines.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>12. I was satisfied with my experience I had with the pharmacist.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>13. This was an effective conversation with the pharmacist. (I got what I needed from the conversation.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

**Additional questions:**
- Is there anything else you’d like to say or add about the conversation you had with the pharmacist about your medications?
- Was this the first time you spoke with this pharmacist about your medications?
### Table 2-3. Pharmacist semi-structured interview guide

<table>
<thead>
<tr>
<th>Think about the conversation you just had with the patient about their medications:</th>
<th>Pharmacist Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I felt that I spoke clearly to the patient so that they could understand what I was saying.</td>
<td>Strongly Disagree ▼ Disagree ▼ Slightly Disagree ▼ Neither ▼ Slightly Agree ▼ Agree ▼ Strongly Agree ▼</td>
</tr>
<tr>
<td>2. I avoided the use of medical terms that the patient wouldn’t understand.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>3. I explained to the patient how their medication works in a way they could easily understand.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>4. I allowed the patient enough time to ask me any questions they had.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>5. I paid attention and listened to concerns the patient expressed about their medications.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>6. I allowed the patient to interrupt me with any questions they had.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>7. I felt that the patient’s worries and questions about their medicines were important.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>8. I spoke to the patient in a respectful and courteous manner.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>9. I encouraged the patient to talk to their doctor and/or community pharmacist about different medication options available for them.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>10. I encouraged the patient to take responsibility for managing their health.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>11. I felt I did a good job in helping the patient understand their medicines.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>12. I was satisfied with the experience I had with the patient.</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
<tr>
<td>13. This was an effective conversation with the patient. (I feel we both got what was needed from our conversation.)</td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
</tbody>
</table>

**Additional questions:**

- Is there anything else you’d like to say or add about the conversation you had with the patient about their medications?
- Was this the first time you spoke with this patient about their medications?
2.5.2.3 Comparison of pharmacists’ and patients’ assessments of the pharmacist-patient exchange with Observer’s ratings

In addition to asking pharmacists and patients to quantify their level of agreement about the 10 pharmacist communication behaviours and three satisfaction statements, an Observer (BC) also rated the pharmacist-patient interactions. The rationale for including both the Insiders’ (pharmacist and patient involved in the interaction) and an Outsider’s (Observer/Researcher) perspective was to provide a more comprehensive analysis and interpretation of the pharmacist-patient exchange. The nomenclature, “Observer” has been intentionally capitalised to make their role as the “Outsider” stand out. Observer assessments were made using CAT criteria for accommodative and non-accommodative communication behaviour (Table 2-4). These assessments of the 13 statements were based on the audio recordings, transcripts, and observational notes made during the exchanges. The Observer ratings were made in the chronological order in which the exchanges occurred.
<table>
<thead>
<tr>
<th>CAT Strategy</th>
<th>Accommodative Behaviours</th>
<th>Non-Accommodative Behaviours</th>
</tr>
</thead>
</table>
| Approximation | Pharmacist matches patient’s speech production.  
- Watches patient for non-verbal (nods) to indicate they are hearing/following.  
- Adjusts their rate of speech/volume to match the patient’s  
- Adapts common colloquialisms used by patient  
- Uses a shared dialect or accent when speaking with patient | Pharmacist does not adjust their speech production to match that of the patient.  
- Speaks much faster/slower/louder/quieter than patient |
| Interpretability | Pharmacist adjusts their language level and terminology used to ensure they are understood by the patient.  
- Explains medication/diseases in easy-to-understand language and simple phrasing  
- Avoids using medical terms that the patient does not understand  
- Asking patient whether speech rate and volume used are adequate for the patient to follow the conversation  
- Pays attention to non-verbal cues responses to indicate patient understanding (E.g. nods) or non-understanding (E.g. blank or quizzical look/tilted head) | Pharmacist has not considered the patient’s ability to understand the information discussed.  
- Uses medical terminology not understood by patient  
- Does not pay attention to non-verbal cues to indicate patient does not understand sufficiently. (E.g. quizzical look on face/tilting head/straining to hear/leaning in to pharmacist to try to hear better/adjusting their position) |
| Discourse management | Pharmacist engages patient and keeps conversation flowing.  
- Asks open-ended questions  
- Uses pauses appropriately to give patient opportunity to interject  
- Demonstrates active listening by maintaining eye contact/nodding head; paraphrases patients’ statements as appropriate to indicate they are paying attention  
- Uses non-verbal communication (nods) and responds to non-verbal cues from patient (E.g. arms folded/resisting engagement)  
- Changes topics as needed (to repair conversation)  
- Allows patient to save face (to repair conversation) by reacting to patients’ errors or misinterpretation of information in a manner that acts to preserve patients’ dignity and avoids awkward pauses or delays in the conversation  
- Uses conversation maintenance such as backchanneling (E.g. says hmm/yeah) | Pharmacist does not engage patient in conversation.  
- Asks mostly closed-ended questions  
- Does not pick up on or respond to patient cues  
- Rushes patient; does not allow for pauses after questions to give patients a chance to formulate a response or ask further questions |
| Interpersonal Control | Pharmacist promotes equality between themselves and patients.  
- Pays attention to how and where they sit/stand when speaking to a patient (attempt to be on the same level and not standing above/hovering over them in bed)  
- Invites patient to take part in agenda setting phase of conversation; encourages patient to share goals for conversation | Pharmacist’ behaviour does not promote equality between themselves and patients.  
- Does not position themselves physically on an equal level to the patient for the conversation. (E.g. Remains standing/stands over patient) |
| Emotional expression | Pharmacist demonstrates an appropriate level of reassurance and empathy in response to a patient’s emotional needs.  
- Demonstrates caring and kindness in both the words chosen and nonverbal actions (E.g. smiling/concerned facial expression, nodding, leaning in to patient, touching patient’s arm/hand)  
- Uses softer tones/appropriate inflections in responding to patient’s concerns  
- Advocates for patient by voicing patient’s concerns/issues to other healthcare professionals  
- Validates patient’s concerns (E.g. provides supportive words to patients feeling overwhelmed with many new medications) and demonstrates reassurance (E.g. encourages patients to contact them before leaving or telephone them after leaving hospital to ask any further questions)  
- Attempts to build rapport with patient (E.g. with empathy and humour) | Pharmacist does not demonstrate appropriate reassurance and empathy in response to a patient’s emotional needs.  
- Does not respond to verbal and non-verbal cues from the patient indicating their distress (I.e. does not “hear” the patient)  
- Uses brusque or impatient tones in response to patients’ concerns  
- Dismisses patient identified issues/worries |
| --- | --- |
| • Appropriately handles patients’ interruptions to ask questions, relay concerns or seek clarification by addressing these interruptions respectfully and as they arise in the conversation  
• Positively reinforces patients’ correct understanding of their medications and effective medication management strategies; responds to the patient with encouraging words such as “You’re absolutely right!”, “Good for you – for being so on top of that.” and “What a great way to remember to take your medications.”  
• Encourages patients’ autonomy in making appropriate healthcare decisions (E.g. self-monitor for side effects & when to seek medical attention)  
• Assists patients in identifying other healthcare resources in the community to seek out if needed  
• Gauges patient’s confidence in ability to manage medications at home by asking them whether they look after their medications themselves, how well they are managing, and offer options to assist them. | • Responds to interruptions with impatience/annoyance  
• Abruptly steers conversation (by interrupting/speaking over patients) to ensure it stays on track  
• Seems mainly focussed on own goals in conversation and does not attempt to find out what the patient’s goals are for the exchange  
• Appears to intentionally use language/medical terminology to demonstrate their professional knowledge and exert authority over patient  
• Does not seek to understand patient’s confidence in self-managing their medications at home |
2.5.3 Qualitative Data Analysis and Coding

2.5.3.1 Theoretical frameworks

This research investigated the effectiveness of communication taking place between hospital pharmacists and patients using the lenses of two psychosocial theories, Communication Accommodation Theory (CAT) and Social Identity Theory (SIT). CAT was the predominately used framework invoked to help explain and understand the processes occurring within these interactions. Aspects of SIT such as intergroup behaviour were incorporated into analysis of some data coded for the CAT interpersonal control strategy. Further discussion of these theories is provided in Chapter 1, pages 27-32.

2.5.3.2 Data analysis and coding

Both patient and pharmacist demographic information and questionnaire results were descriptively analysed. The actual names of participants were not used, but were replaced by pseudonyms that appear in exemplars provided (discussed in section 2.4.6).

All audio recordings were transcribed verbatim and verified by comparing transcripts with original audio recordings to reconcile any discrepancies, wherever possible. Transcripts of the pharmacist-patient conversations were selectively coded for the five CAT strategies in pattern-based discourse analysis as described in the literature. Transcripts of the semi-structured interviews with patients and pharmacists were selectively coded for the five CAT strategies and then further subcoded to identify specific elements within each CAT strategy.

In addition to selectively coding the pharmacist-patient exchanges for CAT strategies, these interactions were also coded for pharmacists’ references made to medication adherence in their conversations with patients. These will be discussed further in section 2.6.2 and in Chapter 9. As well, the sections of the semi-structured interview transcripts that related to pharmacists’ and patients’ opinions of effective pharmacist-patient exchanges (as described previously on page 47) were also analysed using a process of inductive thematic analysis and then mapped to the CAT strategies. (Refer to section 2.4.6 for more details about the thematic analysis process.)

Samples of selectively coded (CAT) pharmacist-patient conversation transcripts and their corresponding audio recordings were checked by co-researcher (BW) to ensure appropriate
Transcripts were coded twice, initially grouped according to study pharmacist and then rechecked and recoded, if necessary, in the order of patient enrolment into the study. Samples of coded pharmacist and patient semi-structured interview transcripts and their corresponding audio recordings were checked by co-researchers (BW and WNC). Audio recordings were referenced to verify correct interpretation of tone and intent of dialogue. NVivo® software was used to assist in code organisation. Observational field notes were collected during audio recorded medication counselling sessions and reflexive note taking occurred throughout the study.

2.5.3.3 Reflexivity
The main researcher (BC) conducted reflexive note taking throughout the study. BC is a Caucasian female with more than 20 years’ experience as a hospital pharmacist in Canada. She holds strong opinions about best practice and professionalism and is aware of how these could possibly influence her perception and interpretation of the data as a researcher. As well, being aware of BC’s experience as a hospital pharmacist may have made pharmacists more conscious or nervous having a colleague observe their practice, and some may have felt that their skills were being judged or critiqued. BC had not previously worked with any of the participating pharmacists.

2.5.4 Discursis analysis
In Chapter 6, Discursis, a software developed to recognise speech patterns indicative of speakers’ level of engagement in the conversation, was used to further analyse the transcripts from the pharmacist-patient conversations (Chapter 5). Discursis has the capability to graphically present results in chronological sequence. The software is not intended to replace, but to augment qualitative analysis. In this research project, Discursis was used to confirm speech patterns where both speakers are effectively engaged, identify the points of time in which these are occurring and provide a visual representation of the exchanges. Discursis software was not intended to replace qualitative analysis, but to be used as an adjunctive tool that enhances qualitative interpretation. A more in-depth discussion of Discursis is provided in Chapter 6 (Section 6.2.1).
2.5.5 Quantitative Analysis of Pharmacists’, Patients’ and Observer’s Likert Responses

In Chapter 7, pharmacists’, patients’ and Observer’s responses to the 10 pharmacist communication behaviours and three satisfaction statements were compared and analysed quantitatively.

All pharmacist, patient, and Observer responses to the statements were recorded in a Microsoft Excel database. Pharmacist and patient responses to statements included in the semi-structured interviews and transcribed audio recordings were verified with the original documentations, discrepancies were documented on the original forms and corrections were made in the appropriate databases. Because the numerical response “4” or “neither” was used by pharmacists and patients as both "neither" or "not applicable", all “4” responses were clarified to ensure their intended meaning by reviewing the actual transcript. In situations where “4” was not relevant to the pharmacist-patient exchange, and therefore "not applicable", these responses were excluded from the analysis. For the retained "4" responses, the transcripts confirmed that the interviewee intended their response to lie mid-way on the 7-point scale. For the one reverse worded statement in the patient semi-structured interview guide, the number values for the responses were reversed prior to analysis to ensure consistency with the other statements.

All data were analysed using SPSS (Version 24). A p-value of less than 0.05 was considered statistically significant. Mean rank scores were tabulated from the statement responses given by the Observer (BC), pharmacists and patients, and tested for differences using the Kruskal-Wallis test. For all statistically significant results, post-hoc analysis was conducted to identify which groups of respondents differed significantly in their responses.

2.6 Methods for Phase 2 (Aim 2):

To explore relationships between effective communication (as per CAT) and patient satisfaction, and patient’s medication taking behaviour, the following research questions were addressed:

1. What is the relationship between patient reported effective communication and patient satisfaction?
2. How is patients' medication taking behaviour related to patient reported effective communication and satisfaction?
2.6.1 Data collection

Prior to the medication counselling sessions, all enrolled patients were administered a questionnaire composed of: two validated tools; Morisky 8-Item Medication Adherence Scale (MMAS-8) to ascertain their medication taking behaviour and Beliefs about Medicines Questionnaire (BMQ). The BMQ and MMAS-8 were then administered again (by telephone) four weeks after the patient left the hospital. These points of time were chosen to allow sufficient time to elapse after the initial pharmacist-patient interaction and not to be too excessive as to challenge patients’ recall of their experience.

The BMQ is a validated instrument made up of two domains with five items each that assess patients’ beliefs about the necessity of prescribed medication as well as those that assess their concerns about the potential dangers or disruptive effects about their medications. Patients with strong beliefs about the value of their medications and few concerns about their medicines are more likely to be adherent to their medications. Possible BMQ scores range from 5 to 25 for each of two domains where a higher score indicates a stronger belief in that domain.
The MMAS-8 medication adherence tool relies on patients’ self-report of their medication taking behaviour where patients are asked to respond to eight questions and statements linked to medication adherence. (Figure 2-3) Scores of eight on the MMAS-8 are indicative of high adherence, 6-8 reflects moderate adherence while scores less than 6 are considered to be low adherence.\textsuperscript{258,268} The MMAS-8 measure was chosen over other more objective measures such as prescription refill counts, because the MMAS-8 is a convenient, easy-to-use research tool that has been validated and widely applied worldwide in a variety of health conditions.\textsuperscript{258,269}
MMAS-8 was selected over other self-report measures of adherence, because it addressed a range of adherence issues in more detail compared to other tools. As well, refill prescription numbers may not be a useful measure for this project since medication adherence information will only be captured while in hospital and one-month post discharge.

<table>
<thead>
<tr>
<th>Question</th>
<th>Patient Answer (Yes/No)</th>
<th>Score Y=1; N=0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you sometimes forget to take your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People sometimes miss taking their medicines for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When you travel or leave home, do you sometimes forget to bring along your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you take all your medicines yesterday?*</td>
<td></td>
<td>Y=1; N=0</td>
</tr>
<tr>
<td>When you feel like your symptoms are under control, do you sometimes stop taking your medicine?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you have difficulty remembering to take all your medicines?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___A. Never/rarely</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___B. Once in a while</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___C. Sometimes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___D. Usually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___E. All the time</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL SCORE</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adherence Results of Scores: <6 = low adherence; 6 to <8 = medium adherence; 8 = high adherence

*Note:* This question will not be included in the in-hospital interview (for inpatients), but will be asked at the four-week post discharge interview.

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Figure 2-3. Morisky 8-Item Medication Scale (MMAS-8)*

* Use of the ©MMAS is protected by US copyright laws. Permission for use is required. A license agreement is available from: Donald E. Morisky, ScD, ScM, MSPH, Professor, Department of Community Health Sciences, UCLA School of Public Health, 650 Charles E. Young Drive South, Los Angeles, CA 90095-1772, dmorisky@ucla.edu.
Quantitative responses from pharmacist and patient semi-structured interviews were used to assess pharmacist communication behaviours. This method has already been described earlier in section 2.5.5. Additional field note observations were made during the four-week post discharge telephone interview with the patient which was not audio recorded.

In the semi-structured interview immediately following their interaction with the pharmacist, patients were asked whether they had spoken to the pharmacist on at least one other occasion. The purpose of this question was to see how a previous relationship with a pharmacist might affect patients’ rating of pharmacist communication behaviours and patient satisfaction. Then, during the four-week post discharge telephone call, patients were asked three additional questions to gain further information about their medication taking behaviours:

1. Have you made arrangements with your GP, since you’ve been home, to get refills for your hospital prescriptions?
2. Have you refilled your prescriptions yet?
3. Did you feel the conversation you had with the pharmacist before you left the hospital helped you in being able to take your medicines regularly? (This question was followed by prompts to encourage the patient to elaborate on how the pharmacist helped or did not help the patient to be adherent.)

### 2.6.2 Qualitative Analysis and Data Coding

Transcripts of the audio recorded pharmacist-patient medication counselling sessions had been previously coded for pharmacists’ references made to medication adherence in their conversations with patients. (This was completed at the same time when the transcripts were selectively coded for the five CAT strategies.) These segments of dialogue related to medication adherence were analysed using a process of inductive thematic analysis.\(^{254}\) Samples of coded transcripts were checked by co-researchers (BW and WNC) to ensure appropriate and consistent interpretation. NVivo® software was used to assist in code organisation.

### 2.6.3 Quantitative Analysis

Patients’ responses to both sets of BMQ and MMAS-8 questionnaires, the semi-structured interview statements, and medication taking behaviour questions at the four-week post discharge telephone call were recorded in a Microsoft Excel database. All data were analysed.
using SPSS (Version 24.0). A \( p \)-value of less than 0.05 was considered statistically significant. Because all data was not normally distributed, non-parametric tests were used to analyse the data. This exploratory study was not designed or powered to detect differences in medication taking behaviours over time. However, this exploratory work intends to lay the foundation for the future research through the development of pathways that may demonstrate important links between pharmacist-patient communication and patient outcomes such as medication adherence.

The BMQ and MMAS-8 scores for questionnaires administered to patients prior to the pharmacist-patient conversation were compared to the four-week post discharge scores using Wilcoxon Signed Rank test to detect changes in scores over time. The effect size (\( r \)) for any significant differences was calculated by dividing the test statistic (\( Z \)) by the square root of the number of observations. Therefore based on Cohen (1988) criteria, 0.1 = small effect size, 0.3 = medium effect size, and 0.5 = large effect size.

The relationship between CAT behavioural statements and patient satisfaction statements was tested using Spearman’s correlation. Associations between CAT and patient satisfaction statements with the four-week BMQ and MMAS-8 results were investigated using Spearman’s correlation.

The Mann-Whitney U test was conducted to test the effects of multiple factors (prescriptions filled after discharge, finding conversation with pharmacist helpful to adherence, and having spoken with pharmacist in past) on patients’ medication taking behaviour scores (post MMAS-8, post Necessity, post Concern and post Necessity-Concern Differential).

The four-week post discharge scores were chosen for comparison, because in this study population, there were many moderately and highly adherent patients identified prior to their conversation with the pharmacists, and therefore there was little or no room for a change to occur in their adherence scores.

This chapter has outlined the methods used to address the research questions related to Aims 1 and 2 of this research, and these results are presented in Chapters 3 to 9.
CHAPTER 3: Hospital Pharmacists’ Perceptions of Medication Counselling: a Focus Group Study (Phase 1)


In Chapter 1, the rationale for conducting research to investigate hospital pharmacist-patient communication was described. Before embarking on research studying pharmacist-patient interactions, it was necessary to understand how hospital pharmacists viewed their roles and goals in medication counselling as this might inform the next phase of this research. This chapter addresses Aim 1: Research Question 1, “How do hospital pharmacists perceive their roles and goals in patient medication counselling?” This phase one study, a modified version of the publication, provided information about the context in which Australian hospital pharmacists practiced and conducted patient medication counselling.

3.1 Introduction
Discharge from hospital to community or to other healthcare facilities marks an important transition in care for patients. Discharge and other transitions such as admission to hospital or transfers within a hospital have been identified as particular times when patients may be at risk of experiencing medication errors and adverse events.\(^\text{160-162}\) Medication counselling opportunities are key times for pharmacists to speak to patients about their medications and the changes made to their therapies during their hospital stay.\(^\text{160,163-166}\) Failure by a hospital pharmacist to communicate effectively with patients may negatively impact a patient’s ability to understand medication issues contributing to medication non-adherence.\(^\text{167-170}\) The literature indicates patient benefits with hospital pharmacist involvement in discharge counselling and the practice has been incorporated into national pharmacy professional standards.\(^\text{279}\) However, little has been published about hospital pharmacists’ perceptions about their role in this process and how they believe their practice impacts patients.\(^\text{153,280-283}\) The authors were interested in exploring how hospital pharmacists view their professional role and their individual goals in medication counselling as well as the factors that enable and prevent them from meeting these goals.
Learning more about how hospital pharmacists perceive their roles and goals in interacting with patients at discharge will provide a better understanding of the current practice followed by pharmacists working in Australian hospitals. This may also help identify gaps in professional practice on which to focus pharmacist education and training as well as some potential areas for expanded professional scope.

3.2 Aims
To explore hospital pharmacists’ perceptions of their roles and goals in patient medication counselling, and perceived barriers and facilitators to achieving their goals.

3.3 Methods
This was a qualitative study using a focus group approach to obtain rich detail and an in-depth understanding of how hospital pharmacists perceive their role and its value in counselling patients at discharge about their medications. Refer to Chapter 2, section 2.4 for methods regarding participant recruitment, inclusion criteria, data collection and analysis.

3.4 Results
3.4.1 The Focus Groups
The pharmacists’ demographic characteristics (Table 3-1) were generally representative of the majority of those working in Australian hospitals. Pharmacists in this study had more postgraduate training compared to those reported by O’Leary (54% versus 26%), but fewer pharmacists had greater than 10 years’ hospital experience (33% versus 44%).

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Table 3-1. Hospital pharmacist demographics

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>19 (79)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>11 (46)</td>
</tr>
<tr>
<td>31-50</td>
<td>11 (46)</td>
</tr>
<tr>
<td>&gt;50</td>
<td>2 (8)</td>
</tr>
<tr>
<td><strong>Highest level education (Pharm)</strong></td>
<td></td>
</tr>
<tr>
<td>B Pharm</td>
<td>10 (42)</td>
</tr>
<tr>
<td>B Pharm (Hon)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Graduate Diploma (Clinical Pharm)</td>
<td>9 (38)</td>
</tr>
<tr>
<td>Masters (Clinical Pharm)</td>
<td>3 (12)</td>
</tr>
<tr>
<td>PhD</td>
<td>1 (4)</td>
</tr>
<tr>
<td><strong>Years’ experience as pharmacist</strong></td>
<td></td>
</tr>
<tr>
<td>1 to 5</td>
<td>5 (21)</td>
</tr>
<tr>
<td>6 to 10</td>
<td>8 (33)</td>
</tr>
<tr>
<td>11 to 15</td>
<td>6 (25)</td>
</tr>
<tr>
<td>16 to 20</td>
<td>3 (13)</td>
</tr>
<tr>
<td>&gt;21</td>
<td>2 (8)</td>
</tr>
<tr>
<td><strong>Years’ experience clinical pharmacist</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>1 (4)</td>
</tr>
<tr>
<td>1 to 5</td>
<td>6 (25)</td>
</tr>
<tr>
<td>6 to 10</td>
<td>9 (38)</td>
</tr>
<tr>
<td>11 to 15</td>
<td>6 (25)</td>
</tr>
<tr>
<td>16 to 20</td>
<td>1 (4)</td>
</tr>
<tr>
<td>&gt;21</td>
<td>1 (4)</td>
</tr>
<tr>
<td><strong>Clinical practice area</strong></td>
<td></td>
</tr>
<tr>
<td>Inpatient</td>
<td>18 (75)</td>
</tr>
<tr>
<td>Outpatient</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Both</td>
<td>4 (17)</td>
</tr>
</tbody>
</table>

*“Clinical pharmacist” refers to a pharmacist assigned to a specific patient care area (s) who provided clinical pharmacy services as part of an interprofessional team.*
3.4.2 Coding
A total of 25 codes were assigned to the six transcripts (Table 3-2).

Table 3-2. Final 25 codes applied to all transcripts

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
</tr>
</thead>
</table>
| Roles    | Assessor  
|          | Educator  
|          | Information Resource  
|          | Liaison  
|          | Interpreter  
|          | Transition Enabler  
|          | Problem Solver |
| Goals    | Build rapport with patients  
|          | Empower patients  
|          | Improve patients’ experience and health  
|          | Establishing/ maintaining effective relationships (healthcare team) |
| Barriers | Interprofessional collaboration challenges  
|          | No formal follow-up process  
|          | Poor communication skills  
|          | Financial issues  
|          | Cultural /language issues  
|          | Drug procurement logistics  
|          | Patient related factors  
|          | Hospital system related factors  
|          | Pharmacy system related factors |
| Facilitators | Effective interprofessional collaboration  
|          | Professionalism  
|          | Effective counselling/ communication training  
|          | Recommend expansion of professional scope  
|          | Advanced planning |

3.4.2.1 Reliability testing of coding conducted
Greater than 80% agreement among the raters and investigator (BC) was achieved for all “barrier”, “facilitator” and “goal” codes prior to the meeting whereas only three of seven of the “role” codes exceeded 80% agreement. There were 4/25 codes (roles: transition enabler, educator, assessor, and interpreter) that had 80% or less consensus within the group prior to the consensus meeting. Once these codes and contexts were discussed within the group at the consensus meeting, greater than 80% (85-100%) consensus was achieved for all 25 codes.

3.5 Thematic Analysis and Discussion
Hospital pharmacists identified a number of patient-centred goals in participating in medication counselling with patients. Their goals were to build rapport with patients, to
empower patients and to improve patients’ experience, health and safety. These goals could be accomplished through specific roles described by the pharmacists such as assessor, educator and problem solver. Pharmacists frequently cited time pressures caused by systemic hospital as well as pharmacy and patient related issues as key challenges to achieving their goals. While factors that enabled pharmacists to meet their goals were those related to effective interprofessional collaboration, advanced preparation for discharge and professional practice changes (such as training and expanded roles).

Table 3-3. Themes and subthemes by category

<table>
<thead>
<tr>
<th>Category</th>
<th>Theme</th>
<th>Subtheme (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles</td>
<td>Assessor</td>
<td>Information resource</td>
</tr>
<tr>
<td></td>
<td>Educator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Problem Solver</td>
<td>Liaison, Interpreter, Transition Enabler</td>
</tr>
<tr>
<td>Goals</td>
<td>Build rapport with patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empower patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve patients’ experience, health and safety</td>
<td></td>
</tr>
<tr>
<td>Barriers</td>
<td>Hospital system related</td>
<td>Interprofessional challenges</td>
</tr>
<tr>
<td></td>
<td>Pharmacy system related</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient related</td>
<td>Financial issues, Language/Cultural barriers</td>
</tr>
<tr>
<td>Facilitators</td>
<td>Effective interprofessional collaboration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced preparation for discharge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professional Practice Changes</td>
<td>Communication skills training, Expanded pharmacist roles</td>
</tr>
</tbody>
</table>

3.5.1 Roles

Study pharmacists’ roles in medication counselling identified in the focus groups tended to mirror those described within standards of practice and held collectively by the profession.279 By fulfilling these roles, participating pharmacists aimed to help patients better understand their medications. The three themes around pharmacists’ roles in medication counselling that
emerged were the role of assessor, educator and problem solver (Table 3-3). Additional subthemes were associated within the educator and problem solver roles.

3.5.1.1 Assessor

The role of assessor included information gathering by pharmacists to help them prepare for upcoming medication counselling sessions with patients and caregivers. Pharmacists assessed patients’ ability to understand their medications either directly or by consulting with nursing or medical staff to ascertain their mental or cognitive status or hearing or sight issues. Pharmacists’ decisions to include caregivers in medication counselling sessions was based on patients’ ability to communicate, understand and manage their medications at home.

This pharmacist role in determining patients’ ability to understand information about their medications was assessing aspects of a patient’s health literacy. Patients with poor health literacy have difficulties understanding written or spoken information about their medications, especially if the information is provided as complicated medical jargon or at a level requiring high comprehension. Many patients are challenged in trying to understand their medication therapies and navigate the healthcare systems to manage their own health. Therefore, the role of assessor is a valuable activity for hospital pharmacists to assume.

3.5.1.2 Educator

The role of educator was the primary activity identified for pharmacists participating in medication counselling sessions. This role encompassed a wide range of educational points to ensure patients understood their medication plan: purpose for medication, length of treatment, how and when to take their medications, what to expect, when to expect changes, how to manage side effects, how to obtain new supplies and where to store medications.

It is not surprising that the focus group pharmacists recited these points as these are included in the computer generated medication lists (eLMS) given to patients by pharmacists when providing discharge counselling. Ensuring the transfer of this information to patients in medication counselling sessions is also reinforced in most pharmacy schools’ curriculum. In addition, most pharmacists working within Australian hospitals follow the Society of Hospital Pharmacists of Australia (SHPA) recommendations for annual clinical assessment using the SHPA clinCAT tool. This tool aids the assessment of the clinical pharmacy competencies of pharmacist practitioners and includes criteria in which to evaluate patient consultation skills.
Interestingly, in most focus groups, pharmacists emphasised the importance of patients having understood the rationale or reason for the medication over many of the other educational points. Anna repeats the educational point of having patients understand “why” they are prescribed a medication three times in her response.

“Understanding of what they’re taking, *why they’re taking it… Why they’re taking it…* otherwise if they don’t know that, they go home, it’s not working, stop taking it. So, it’s a thorough understanding of medicines and *why they’re taking it*…”

Pharmacists often connected the outcome of improved medication adherence with patients having a good understanding of their medication’s rationale. Beth makes this link:

“…I would hope that they would understand why they’re needed… there’s some pretty startling evidence around low rates of adherence for our patients…if we can have that conversation and increase their belief of the need of the medicine, then that might help…”

The literature supports this pharmacist’s suggested association between patients’ medication adherence and their beliefs about the need and value of their medication. The Beliefs about Medication Questionnaire (BMQ), an instrument to assess patients’ beliefs about the necessity of prescribed medication as well as their concerns about potential effects about their medications, has been used in studying medication adherence in many chronic disease settings.\(^2\) Patients with strong beliefs about the value of their medications and few concerns about their medicines are more likely to be adherent.\(^2\)

### 3.5.1.3 Information Resource

The educator role also included the subtheme role of information resource in which pharmacists apply their medication knowledge expertise in researching medication information as well as in the provision of written materials or tools to aid patients’ understanding of their medications.
3.5.1.4 Problem Solver

The problem solver role in medication counselling encompassed a broad range of activities undertaken by pharmacists to optimise patients’ medication therapy, facilitate medication adherence and enable a smooth transition from hospital to home. This required pharmacists to work collaboratively with members of the healthcare team to provide patient care.

Pharmacists helped optimise patients’ medication therapy by clarifying the medication plan and clearing up confusion or ambiguity around medication issues, and preventing medication misadventures. Ava described how overwhelmed oncology patients can miss important information such as using anti-emetics to prevent nausea and vomiting and how this could have been prevented by having pharmacists speak to patients.

“…people that haven't coped …come in because they've had vomiting post-chemo… when you sit and talk to them, they'll pull their bag out and all their anti-emetics are still in the boxes that they got given!...That's really the best possible thing of being counselled by pharmacists…“

Pharmacists provided a number of examples where they supported patients’ medication adherence through the use of administration aids or Webster-Paks®, by simplifying patients’ medication regimens, by working with patients to find solutions that better fit the patient’s life schedule, and through the use of technological devices. Brianna explained how she supported a patient’s adherence to key therapy by using technology:

“…he’s going home on nimodipine. He’s had a subarachnoid haemorrhage and that’s every four hours religiously, so I’ve just been sitting in the transit lounge with him programming his iPhone with an alarm system…to go off for the next six days to help him to take his nimodipine...every four hours.”

At times, pharmacists would negotiate with patients about which medications should be given priority. These pharmacists recognised that many patients with chronic illnesses prescribed multiple medications had difficulty in remembering to take all their medications as directed. A pharmacist working with renal patients described her approach:

“A lot of it is negotiating- what the patient will and won't take. Renal patients are on a gazillion meds. They're expensive and they're unpleasant and taste yucky. So, we
bargain - so this is the size of the tablet. It's going to taste minty, I need you to chew it. But if you take this one, we will save you from having to take the other one that you don't like that makes you constipated…”

A number of additional subthemes within the Problem Solver role include Liaison, Interpreter and Transition Enabler.

3.5.1.5 Liaison
The pharmacist may seek to problem solve medication issues that arise in medication counselling by acting as a liaison between the patient and other healthcare professionals. Sometimes patients raised concerns about their medications that needed to be addressed with the team prior to discharge. Anna provided an example where this occurred in a conversation she had with a patient about their medications:

“…it has happened where you talk to a patient and finally something will click and then, yes, you're like, ‘Hang on a minute!’… Go and talk to the prescriber again and get them to fix it…”

Ethan described how pharmacist and patient conversations offers the opportunity for pharmacists to act as a liaison between patients and the healthcare team:

“… You spend time counselling…sitting down and communicate with a patient, there’s an awful lot of information comes back the other way as well. So, you get a better understanding of where they're at and what's bothering them and that in some ways, you can act as a bit of a liaison between the patient and the rest of the medical team.”

3.5.1.6 Interpreter
A number of pharmacists made reference to occasions when they helped patients understand their diagnosis in order to comprehend the rationale for their prescribed medications. In these situations, the diagnoses may have been poorly explained where the healthcare professional used medical terminology the patient could not understand or the information had been misinterpreted by patients. In some medication counselling sessions, the pharmacist became an interpreter for the patient.

A pharmacist working in cardiology provided an example where a patient had not been told
their diagnosis in terms they could easily understand.

“[Patient asks] “Have I had a heart attack? When did that [happen]?” … No one has said to them the words, heart attack. They've heard they've had a non-STEMI. They don't know what a non-STEMI is…”

Effective communication between healthcare providers and patients has been associated with positive health outcomes for patients. Conversely, misunderstandings about their health conditions and treatment has negative health implications for patients. How well healthcare providers communicate with each other and with patients is imperative for quality patient care.

3.5.1.7 Transition Enabler
Pharmacists described their role of transition enabler in medication counselling as preparing patients for a smooth transition from hospital to home. To achieve this, pharmacists were required to work collaboratively with other healthcare professionals in both the hospital and community. In this example, an acute care pharmacist explained the process to ensure the patient had appropriate follow up and tests.

“…Like warfarin for example, you go and talk to a patient and say, “Your dose for this afternoon is this. Has the doctor spoken to you about when your next blood test is or when to go and see your GP?” Often times they haven’t and then we go back to the [hospital] doctor and say, “You need to call [pathology] or you need to call their GP and make sure they have an appointment tomorrow…”

Pharmacists routinely dispensed a one-month supply of medications or less to patients upon discharge and expressed the need for patients to understand next steps in their care and the procurement of their ongoing medication supply.

“… to remind us of the importance to explain [to patients]… “We’re only giving you a month and we’re doing that for a reason, because we want you go back to your primary health care provider and link in with them. That’s where you can arrange further supply…” (Beth)
Some pharmacists asked patients to act as messengers to ensure that patients’ GP received information about the changes made to patients’ medication while in hospital. Pharmacists explained that the transfer of discharge summaries from hospital to community did not always occur in a timely manner and they were concerned that the primary care physician may not be aware of medication changes made in hospital. This is critical as poor communication and inadequate transfer of patient information after discharge from hospital can have serious implications to patients’ health.\textsuperscript{290-294} The pharmacist’s role as a transition enabler is well described in the literature. Hospital pharmacists have been key players in providing continuity of care from hospital to community settings communicating with and transferring information to community pharmacists and primary care physicians about patients’ medications.\textsuperscript{166,292,294-301}

\subsection{3.5.2 Goals}

Unlike the pharmacists’ defined roles which reflected a more collective and understood professional perspective, the goals described by pharmacists represented an individualised or personal glimpse into what they hoped to achieve professionally by engaging with patients in medication counselling. Patient-centred goals identified by the hospital pharmacists for medication counselling included the following themes: to build rapport with patients, to empower patients and to improve patients’ experience, health and safety (Table 3-3).

\subsubsection{3.5.2.1 Building rapport}

Building rapport with patients was a goal that many pharmacists named as an essential part in engaging effectively with patients. Many pharmacists demonstrated awareness of the need and value to build rapport and make patients feel comfortable in conversations through their communication style, careful listening, and nonverbal communication such as the posture they assumed during conversations. Building rapport with patients requires healthcare professionals to be attentive listeners in order to understand the patient’s perspective.\textsuperscript{3,48,302} Ethan provides an example of the importance of taking the time to hear patients’ views.

‘‘...There's all sorts of things that come out of the woodwork when you actually seek to understand from the patient’s perspective… you sit down and you ask them what the
Anna described how she made adjustments in the language she used to accommodate the particular patient.

“So … you pick your people who you talk differently to. There's the patients who you say, “Oh, hello, sir,”…Then there's the patients who you say, “G’day, how's it going?” You just have to adjust. I think if you can relate to them a bit better, it can get through to them.”

Pharmacists indicated that building rapport with patients included the need for establishing a trusting relationship. This required pharmacists to be able to show an appropriate level of caring and compassion in their communication exchanges. In conversations with patients around their medication use including illicit or recreational drugs, Cathy emphasised the need for having patients’ trust in order to obtain honest and accurate information from them.

“…Because you're trying to build a relationship of trust and if you go, like the police, the first day, then they won't talk to you again.”

The value of building rapport between patients and healthcare professionals has been well studied, particularly between physicians and patients and nurses and patients.\textsuperscript{303-310} Few researchers have studied the effects of rapport building between pharmacists and patients.\textsuperscript{129,139,311}

### 3.5.2.2 Empowering patients

The goal of empowering patients to improve their medication and overall health experience was expressed by many pharmacists participating in the focus groups. Strategies described to enable patient autonomy and give patients agency included: providing them with knowledge and tools to allow them to make decisions about their medications, encouraging patients to be active participants in their healthcare, and assisting patients in navigating the healthcare system.
Healthcare research often represents patient empowerment as an outcome related to self-efficacy or self-management.\(^{312}\) Patient empowerment arising from interactions between a healthcare professional and a patient is thought to be the result of effective communication and information exchange co-created within a partnership.\(^{313}\) Empowering patients by ensuring they take part in making decisions about their healthcare is consistent with the philosophy of patient-centred care.\(^{313,314}\)

Ella illustrated a patient-centred approach in her description of a desirable patient-pharmacist partnership that included effective communication and the provision of medication information to allow patients to make important healthcare choices.

“…you elicit their problems and their concerns and you talk through them… you've equipped them with the information that they require to make decisions about their own healthcare… and what they then choose to do with their medications and their health is an informed choice.”

Several pharmacists raised examples of where they had encouraged patients to have conversations with their GPs to seek alternative treatment options should they experience problems with medication side effects. Amy called this an example of “empowering the patient” in following excerpt.

“…it's saying to the patient, “These are what we use [in hospital], but if you're getting any side effects, just go discuss it with your GP. There's more than one option out there…they can tweak and make things best for you.’”

### 3.5.2.3 Improving patients' experiences, health and safety

Another goal in medication counselling expressed by many pharmacists was improving patients’ experiences, health and safety. They described their desire to make a positive difference in patients’ lives through increased understanding of their medications. They also witnessed improved patient outcomes and avoided adverse drug events resulting from pharmacist initiated changes. The beneficial effects of patient discharge counselling on patient outcomes include decreased adverse drug events and 30-day readmission rates.\(^{164,315,316}\)
Amy, relayed an incident of helping a patient understand the rationale for their medication and the patient’s appreciation of this knowledge.

“I like the lightbulb moment when patients finally understand… They're like, “What? I've been on that for five years and I didn't know why!” …and it's just fantastic seeing the final understanding… I love that. I feel so good afterwards.”

Anna provided an example of how she was able to relate an unwanted side effect to a patient’s medication and initiate changes to their therapy.

“…like also when we see patients when they come in and …they might say, “Oh, I've been taking this medicine and I've been getting this awful rash,”…They don't know why and it's really - it's nice when you can tell them, “Actually that could be from this medicine.” You'll get it reviewed and fixed and then… They'll be like, “I feel great now that I'm not taking that!””

Concern about patient safety in the context of their medication taking behaviour was raised by many pharmacists. Pharmacists often expressed a hope that the medication counselling conversation and information provided would help prevent any medication misadventures at home. This was summarised in Frieda’s desire to improve patients’ outcome and ensure safe medication taking practices.

“I just would hope that I'm improving the safety of the patient at home- so that they know…what to take and when to take and how to do it safely and understand the importance of what they're on…You feel like you’ve achieved something and improved the outcome.”

3.5.3 Barriers and facilitators to pharmacists achieving their goals

For many of the barriers identified by pharmacists in meeting their medication counselling goals, there were related and opposing facilitators to potentially overcome them, and therefore barriers and facilitators will be discussed together. The availability of time to conduct an education session often determined whether the same issues factors were
perceived by pharmacists to be barriers or facilitators. For example, not having sufficient notice about a pending discharge was related to ineffective interprofessional collaboration and left pharmacists frustrated and obliged to hastily prepare for and deliver patient counselling. Whereas time to engage in effective communication and collaboration with other healthcare professionals allowed pharmacists to be proactive and better plan for discharge medication counselling. With time in their favour, pharmacists described many processes that successfully facilitated their goals; however, they were also adamant about the negative consequences when the same processes did not work well. These time dependant themes were grouped as systemic (hospital), patient or pharmacy related factors. The concept of time constraints and feeling under pressure was a common thread throughout the dialogue of most focus groups. Pharmacists often expressed concerns that they were not able to meet their own professional goals, felt rushed to fulfill departmental or pharmacy practice expectations and feared patients might be at risk due to misunderstandings about their medications. Lack of time is frequently cited in the literature as a major barrier to pharmacists conducting medication counselling to hospitalised patients.153,281,317

One pharmacist explained how time pressures have redefined the concept of discharge medication counselling.

“…we're so pushed for time that we consider discharge counselling to be talking about medication to the patient - going through it quickly with them. What they're meant to be taking and how they're meant to be taking it. Off you go… discharge counselling has [been] almost redefined, I think, by time pressures.” (Ewan)

3.5.3.1 Systemic (hospital) related issues
A number of systemic issues affected pharmacists’ ability to meet their medication counselling goals. These issues interfered with effective medication counselling and caused pharmacists to feel rushed and concerned about errors and omissions made in the process. Examples included pressures to free up hospital beds, competition with other healthcare professionals to see patients at discharge and interprofessional collaboration challenges such as not understanding pharmacists’ roles, miscommunication, insufficient notice about pending discharge. However, pharmacists also provided examples of effective interprofessional collaboration that enabled them to meet their medication counselling goals.
System pressures to free up beds
Several pharmacists described feeling hurried during counselling as a result of pressure to free up hospital beds. Decreasing hospital length of stay is driven by the need to address rising healthcare costs and long waiting lists for surgical procedures. However, unintended consequences of early discharges include poor patient outcomes and increased readmission rates while coordinated discharge planning has been shown to decrease these effects.\textsuperscript{318,319}

“We see a lot of bounce-backs and I think particularly with bed pressure. But it's pushing patients out perhaps before they're a 100 per cent…” (Cathy)

Competing for patient’s time at discharge
The process of discharge planning including patient education has been criticised in the literature as typically being provider-centric and driven by the needs of the system rather than being patient-centred and directed by patients’ needs.\textsuperscript{314,320} Knier and colleagues suggested that healthcare providers often inundate patients with information at discharge “in a rushed last minute method without careful planning…” or without consideration of individual patient’s needs.\textsuperscript{314} (p 31) Pharmacists remarked that it was not unusual to face competition for patients’ time and attention at the time of discharge by many different healthcare professionals who also needed to discuss post discharge care with patients.

“…I saw one [patient] yesterday - all these people wanted to see him…He's sitting in his four-bed bay and he goes [to me], “The waiting room's out there, take a card.”” (Danielle)

Interprofessional collaboration
The quality of interprofessional collaboration experienced by pharmacists was varied and was affected by multiple factors such as the type and acuity of the ward or medical service, the ward’s interprofessional culture, and the individual pharmacist’s interpersonal and communication skills.

Pharmacists in the focus groups often pointed to ineffective communication with other healthcare professionals about upcoming discharges as a barrier to allowing them to prepare
adequately for medication counselling. Uncertainty about the timing of discharge has been named as a barrier to medication counselling by other researchers.153

“[Patient’s nurse says]” There’s an ambulance booked in five minutes. Can you please make this all happen right now?” You're like, “But they've started on 10 new medications. How can we do all this in five minutes!?!?” ” (Anna)

Conversely, good communication taking place between pharmacists and other healthcare team members such as discharge planners or coordinators enabled pharmacists to organise and prepare for patient's discharge medication counselling.

“…the nurse unit managers or day coordinators are so great …She’ll tell me three that are definitely going home and four that are potentially going home... so I’ll start preparing the eLMS [medication list] …print it as a draft and stick it in the chart.” (Beth)

Pharmacists gave examples of how good working relationships with other healthcare team members assisted them in meeting their counselling goals through information sharing, the team’s demonstrated support and an understanding of pharmacists’ role in medication counselling. Literature supports the need for healthcare professionals to understand each other’s roles for effective interprofessional collaboration to take place.321-325

“I think the other thing that might impact…is whether the doctors have… verbally supported- the discharge counselling that a pharmacist might then do. So - the team might come along and prescribe warfarin… and they'll say [to the patient], “Look, John [the pharmacist] … is going to come and chat to you later about your warfarin.” So that, kind of endorses what's about to happen…” (Ethan)

Pharmacists also experienced challenging situations working with other healthcare professionals based on the belief that other healthcare providers lacked sufficient awareness of pharmacists’ professional roles and practice. Cathy explained how she needed to assert her role as a pharmacist in the discharge process.
“I have to be quite proactive and push the nurses to include [pharmacists]...I feel we, always as pharmacists, have to push for our inclusion in that process.” (Cathy)

Without understanding pharmacists’ role in discharge planning and medication counselling, other healthcare professionals may not appreciate the complexity involved and time required by pharmacy staff to prepare patients for transition to the community. In addition, pharmacists explained how other healthcare professional’s lack of understanding about the pharmacist’s role led to patient frustration.

“Sometimes they [patients] can be at the end of their tether by the time you see them. They've been told at 7:30 when the doctors were round, “You can go home today”, but then the script hasn't been written until about midday, you don't get it sorted till maybe one or two. You go ‘round to finally see the patient and they're just up in arms. They're just like, “I've been waiting since 7:30 this morning!” (Amy)

3.5.3.2 Patient related factors
Pharmacists made reference to a number of patient related factors that interfered with effective medication counselling or patients’ receptivity to having discussions about their medications. These included situations where patients were focussed on logistics about getting home from hospital and when pharmacists experienced difficulties coordinating medication consultation times with patients. Additional patient barriers to meeting medication counselling goals were cultural or language barriers and financial issues.

Focussed on logistics
Pharmacists recognised that the timing of discharge medication counselling was not always an opportune moment for patients preoccupied with leaving the hospital and found patients less open to having a conversation about their medications.

“...their son's downstairs and…you can't carpark here for very long, so they might be doing laps. There's something else on their mind…they're in a rush …” (Alex)

Coordinating counselling times difficult
Some pharmacists encountered challenges coordinating mutually convenient times for medication counselling sessions with patients. This difficulty has also been cited in the literature. Pharmacists often felt pulled between a desire to meet the needs of the patient and pressures from other workload demands.

**Cultural or language barriers**
Pharmacists described situations where cultural or language barriers posed challenges in being able to communicate effectively with patients and their access to interpreters varied across the hospitals. The lack of available interpreters for medication counselling was also problematic for hospital pharmacists participating in a recently published Australian study. It is anticipated that the current trend of growing multiculturalism in developed countries will continue to increase. More and more healthcare professionals will be caring for people whose cultural backgrounds and perspectives are different from their own. Cultural competency is a skill that healthcare providers including pharmacists will need to possess in order to interact effectively with patients.

**Financial barriers**
Pharmacists included medication costs and patients’ ability to pay as key financial barriers that arise in medication counselling. Newly diagnosed patients are often apprehensive about what to expect in terms of changes to their health and lifestyle after discharge, and how to pay for lifelong medications. Recognising that for some patients their decision to be adherent with their medications may depend on their affordability, pharmacists described strategies they shared with patients to decrease costs such as having their prescriptions filled at one pharmacy to assist them in tracking costs for insurance thresholds and investigating eligibility for the Safety Net Scheme.

**3.5.3.3 Pharmacy system issues**
Pharmacy specific factors felt to interfere with effective medication counselling included limited hours of clinical pharmacy service and heavy workload. However, factors that enabled pharmacists to meet their medication counselling goals included advanced planning for discharge, effective communication skills training and expanding pharmacists’ roles and responsibilities.
Limited hours of clinical pharmacy service

Not having evening and weekend clinical pharmacy services was cited as a barrier to providing consistent and effective medication counselling. Pharmacists were also concerned about the potential safety risks to patients who were discharged after hours without having received medication counselling from a pharmacist.

“This weekend …they sent another [patient on] warfarin home without involving pharmacy. So, we were involved as much as we can be, eight-to-five Monday-to-Friday. They get to the weekend and it's like weekend rules or evening rules …” (Claire)

Workload

Heavy pharmacist/pharmacy technician workload

Hospital system pressures to free up beds also contributed to pharmacy workload issues affecting both ward pharmacists and pharmacy technicians in the dispensary trying to keep pace with the incoming discharge prescriptions needing to be dispensed.

“It's just the fact that you want to finish everything by the time you leave to go home… you've got 10 or eight of these to do and you need see them…And they're trying to get home…And the ward's trying to get them out by 10 o'clock!” (David and Dianne)

Advanced planning for discharge

The ability to plan in advance for upcoming patient discharges was cited by many pharmacists as an enabler to meeting their medication counselling goals. This would usually involve assessing patients' needs for home management and adherence of their medications close to the time of admission or an early medication history using technological devices and computer based documentation to facilitate automation of information, providing patients with written materials for new medications in advance, and prioritising high risk patients who required additional medication counselling.

Haynes and colleagues interviewed hospital pharmacists about medication counselling and reported that pharmacists found it helpful to have conversations with patients early in their
stay to prepare for discharge counselling. In an Australian study of hospital pharmacists’ communication at admission and discharge, the authors recommended pharmacists speak to patients at multiple times during their stay to increase the effectiveness of the communication. Pharmacists in this study attempted to speak to patients about their medications earlier in their stay and when medication changes occurred.

“…starting it as early in the admission as you can. Just, introducing the idea of what tablets they're on and why …” (Denise)

**Effective communication skills training**

Some pharmacists expressed concerns that their undergraduate communication skill training did not prepare them sufficiently for medication counselling and recommended more advanced communication skills training.

“I think I learnt to counsel not through pharmacy school and not necessarily through work, but through actually doing a counselling course...I learnt how to actually listen and communicate with people and patients.” (Ethan)

This need for advanced communication skills training by pharmacists has been explicitly cited in a number of studies and reviews studying communication taking place between pharmacists and patients. The authors suggested that pharmacists further develop their patient counselling communication skills to be more effective in their communication with patients and to step into more advanced advisory roles. Pharmacists need to consider ongoing communication training as a one of their essential life-long learning skills required for professional development and licensure. As Pilnick pointed out, there is a problematic assumption that “pharmacists’ advice giving is a skill that all pharmacists already possess and which can be automatically utilised when appropriate.”

**Professional Practice Changes**

It is a departmental expectation in many Queensland hospitals that medication counselling be conducted by ward pharmacists for all patients being discharged from hospital to home. However, some participating pharmacists could be experiencing moral distress as a consequence of feeling unable to fulfil the professional expectations placed on them. Moral
Pharmacists indicated that nurses and physicians often do not provide sufficient notice for discharge and inform patients of pending discharge before their medication issues have been resolved. Pharmacists seem to feel professionally powerless and devalued by their healthcare colleagues as a result. Being prevented from effectively performing their professional role leaves pharmacists with concerns that their action or inaction may compromise patient care leading to poor health outcomes related to patients’ misunderstanding, incorrect medication taking behaviour or a host of other outcomes as a result of medication non-adherence. There is a potential human cost and impact to this. Quality of patient care may suffer, as can pharmacists’ wellbeing as they may experience moral distress, burn out, and professional dissatisfaction. Potential system and pharmacy specific solutions to ameliorate these challenges were offered by participating pharmacists in a number of focus groups.

Pharmacists from two focus groups recommended that a change in pharmacy practice be formalised to authorise pharmacists to delay patient discharge based on medication readiness and potential risk for medication adherence and misadventure. Pharmacist described how this authority to delay discharge already occurred within other allied healthcare professions such as physiotherapy, occupational therapy and social work.

“…So, if they're [patient] not safe to mobilise, a physio can say, “They're not safe for discharge” and that can keep a patient in hospital.” (Charlotte and Cathy)

Another possible means to address pharmacists’ concerns about rushed and ineffective medication counselling would be to grant ward pharmacists prescribing authority at discharge. Frequently, medical trainees prescribe the discharge medications, which are then verified by pharmacists before being dispensed. This prescribing process often requires assistance from ward pharmacists.

“…there’s normally issues on a high percentage of the scripts and we get those fixed before we would send the script off for dispensing.” (Beth)
Waiting for discharge prescriptions to be written has been identified as a bottleneck in the discharge process as pharmacists typically rely on having the prescriptions in hand before they arrange for medication counselling. The presence of a script can sometimes be the first indication that a discharge is imminent.

“...we'll wait for a script and then we'll produce a discharge list on eLMS [medication list] - and then I use that to counsel the patients...” (Anna)

Giving ward pharmacists prescribing authority and allowing them to write discharge prescriptions may facilitate a smoother and more efficient medication dispensing and counselling process. Prescribing practices that range from prescribing within dependant or collaborative practice agreements to independent prescribing authority have been granted to pharmacists in the UK, New Zealand and in parts of the US and Canada.335-342

These two examples of expanded scope of pharmacy practice would require additional professional training to ensure pharmacist competency in these areas. However, the clinCAT tool already used by many Australian hospital pharmacy departments to regularly assess their pharmacists’ professional competency, provides an excellent foundation upon which these advanced practices could be built.57

3.6 Limitations

Limitations for this study are related to self-report data obtained in focus groups. It is possible that the information provided by pharmacists was subject to a number of recall biases such as inaccurate timing, significance or recollection of events. However, pharmacists recounted experiences and opinions that aligned well with those published in the literature and also resonated well with the investigators’ (BC, WC and MB) professional experiences. Pharmacists’ responses in the focus groups may also have reflected a socially desirable result, for example, to deliberately minimise negative effects or enhance positive effects. Non-response bias may also have occurred, whereby pharmacists interested in expressing their views about communicating to patients in medication counselling sessions would be more likely to volunteer to be part of a focus group than those not interested in doing so.
3.7 Conclusion
Pharmacists identified patient-centred goals in medication counselling in building rapport, empowering and improving patients’ experience, health and safety. To allow pharmacists to achieve these medication counselling goals, emphasis should be placed on developing skill sets of the individual pharmacist with support from the pharmacy department and from the hospital organisation. These communication skills need to be appropriately evaluated and the provision of advanced communication skills training made available to all practicing pharmacists. Departmental and organisational endorsement would also be required for pharmacy practice changes such as pharmacist authority to delay patient discharge based on medication readiness assessment and to write discharge prescriptions. For pharmacists to meet their medication counselling goals, it is imperative that they are able to communicate effectively with patients, caregivers and other healthcare professionals.

This current focus group study explored hospital pharmacists’ perceptions of their roles and goals in patient medication counselling. Further research studying hospital pharmacist-patient communication is needed to explore its effectiveness. Investigating communication exchanges between hospital pharmacists and patients within a communication framework would provide the necessary theoretical rigour. Invoking theories such as Communication Accommodation Theory (CAT) are a move in this direction.\(^{215}\)

CAT posits that individuals’ goals for a conversation direct their communication behaviours. Several goals identified by hospital pharmacists in these focus groups will be further explored within the CAT framework in Chapter 4.
CHAPTER 4: Examining Hospital Pharmacists’ Goals for Medication Counselling within the Communication Accommodation Theoretical Framework (Phase 1)


The previous chapter described hospital pharmacists’ perceptions of their roles and their goals in medication counselling. To better understand the communication dynamics taking place in the patient interactions described by these focus group pharmacists, I recognised the importance of invoking a communication theory such as CAT to interpret these interactions. This chapter further explores Aim 1: Research Question “How do hospital pharmacists perceive their roles and goals in patient medication counselling?” by focussing on the pharmacists’ goals, identified in Chapter 3, for their conversations with patients about their medications, and mapping these to the CAT strategies.

Pharmacist-patient communication had not been previously studied using CAT which is the predominant theoretical framework used in this thesis. Therefore, this study served as a “proof of concept” exercise by demonstrating how pharmacists’ communication behaviours, described within their goals for medication counselling, were aligned with the CAT strategies. This chapter presents a version of the published paper in which CAT was used to examine the rich details from hospital pharmacist focus group discussions that described their medication counselling goals.

4.1 Introduction
Medication counselling opportunities are key times for pharmacists to speak to patients about their medications and the changes made to their therapies during their hospital stay. Failure by a hospital pharmacist to communicate effectively with patients may negatively impact a patient’s ability to understand medication issues contributing to poor health outcomes.
How well pharmacists communicate with patients may likely depend on the goals they have set for these medication counselling sessions. CAT posits it is often these goals held by individuals for a conversation exchange that drive how they choose to communicate with others. The application of CAT to our focus group data will provide more insight into the motivation behind and understanding of pharmacists’ behaviour in their described communication exchanges with patients. Further discussion and details of CAT theory is provided in Chapter 1, pages 27-32.

4.2 Aims
To examine hospital pharmacists’ goals in patient medication counselling within the CAT framework.

4.3 Methods
Focus groups were conducted to obtain rich detail and an in-depth understanding of hospital pharmacists’ goals in counselling patients about their medications. Refer to Chapter 2, section 2.4 for methods regarding participant recruitment, inclusion criteria, data collection and analysis.

In the process of reviewing and revisiting the focus group transcripts, it became apparent to our research team that aspects of the developing themes were well aligned with the CAT behaviour strategies. This was particularly evident for the themes around pharmacists’ goals to build rapport and to empower patients. While all coded transcripts were reviewed, and considered for inclusion in this study, this study focused on transcript segments coded for these two goals.

4.4 Results and Discussion
Six one-hour focus groups held in February and March 2015 included a total of 24 pharmacists. Those participating were mainly women (79%), under the age of 50 (96%), had greater than 5 years clinical pharmacy experience (71%), and worked in the acute care setting (75%) compared to ambulatory clinics or both settings. Approximately half (54%) had post-graduate pharmacy training.
No new ideas or concepts were introduced by the fourth focus group and it was determined that saturation of information had occurred. Greater than 80% consensus was achieved for reliability of all the identified codes.

4.4.1 Patient-centred goal themes
The goals held by pharmacists participating in the focus groups represented their individual views about the goals they hoped to achieve in their interaction with patients. These included the following themes: to build rapport with patients, to empower patients and to improve patients’ experience, health and safety.

Building rapport with patients was a goal that many pharmacists named as an essential part in engaging effectively with patients. Focus group participants relayed many examples of building rapport to make patients feel comfortable in conversations through their communication style, careful listening, and nonverbal communication such as the posture they assumed during conversations.

Pharmacists described a number of ways in which they sought to empower or give patients agency. These included providing them with information to allow them to make healthcare decisions, encouraging patients to be knowledgeable about their medications and active participants in their healthcare by assisting patients in navigating the healthcare system.

The third theme of pharmacists’ goals in medication counselling that emerged from the focus group discussions was to improve patients’ experience, health and safety. Although this was an important and noteworthy goal, it was not reflected in their communication behaviours and will not be discussed in this chapter.

4.4.2 Hospital pharmacists’ goals and CAT behaviour strategies
Participating pharmacists included a number of the CAT strategies when providing examples of their intentions to build rapport and empower patients through the medication counselling process.
4.4.2.1 Approximation
Examples of approximation include strategies used by pharmacists to match patients’ tone, accent or rate of speech. Anna described how she made adjustments in her dialect or manner of speaking to more closely match that of the patient. She speaks in a formal manner using a more refined accent in conversations with patients to match their socio-economic dialect. Perhaps this action is undertaken to reassure the patient of her professional position and training. On the other hand, she adjusts her manner of speaking using casual colloquial expressions to make patients more comfortable and at ease in speaking with her.

“So … you pick your people who you talk differently to. There's the patients who you say, “Oh, hello, sir,” …Then there's the patients who you say, “G’day, how's it going?” You just have to adjust. I think if you can relate to them a bit better, it can get through to them...”

4.4.2.2 Interpretability
The most common type of interpretability strategy employed by pharmacists when speaking with patients about their medications or diagnosis was to ensure the use of nontechnical language and avoidance of medical jargon. Pharmacists in the focus groups relayed examples of how they aimed to provide medication information that patients would be easily able to comprehend.

“…hopefully it’s more in consumer language, more so than the medical discharge summary. So, I hope we give more clarity around what their plan is to do at home with regards to medicine.” (Bev)

An oncology pharmacist suggests that pharmacists’ specialised training in medicines provides them with the ability to simplify complex medication information.

“A lot of people say about it that we're the only ones that explain it in a language they can understand. If a doctor comes in and says, “We've started tumour lysis precautions that means absolutely nothing to the patient. If I go in and say, “You've [been] started on three tablets…The tumour's going to release bad chemicals and we're trying to fix that.” They can understand that level....”
In the following example, Cathy, an acute care pharmacist in cardiology provided an example where a patient misunderstood their diagnosis. Her interaction with the patient required she first help the patient understand their diagnosis so that the reason would become more apparent.

“So many times… you take the Clexane® [anticoagulant medication] and you go, “This is because you had a clot.” “Did I have a clot? When did the clot happen?” It can be two weeks ago and everyone's talked about DVT or VTE...Thrombosis...or where this thrombus is. And no one's sat there and said, ‘Your blood had a clot in it and we're giving you this for the next three months’…”

It is noteworthy that so many of the pharmacists participating in the focus groups recognised the importance of communicating with patients using language and terms that patients could easily understand. This is in contrast to a number of studies where hospital pharmacists counselling patients about their medications were observed using poorly understood medical terms.100,144,153

### 4.4.2.3 Emotional Expression

Building trusting relationships and communicating effectively with patients requires pharmacists to be able to show an appropriate level of caring and compassion in their communication exchanges. This demonstration of caring and compassion is often referred to as expressing empathy. Pharmacists demonstrating empathy reveal an emotional sensitivity in understanding patients’ emotions while at the same time separate themselves from their own personal values and prejudices.3 Researchers have found that when pharmacists were empathetic to patients in consultations about their medications that many patients reported feeling as though their contributions to the conversation were important to the pharmacist.145,343

Examples of understanding and trying to appreciate the hospital experience from the patients’ perspective were provided by the focus group pharmacists. David reflected on how foreign and potentially frightening a hospital stay can be for patients and how pharmacists and other healthcare professionals demonstrating kindness can mitigate these concerns.
“...the hospital experience is quite a scary experience and to know that there's actually people who care and are interested in you... I think is quite valuable and quite useful. There's something to be gained from that, even if there's not information transferred. “

In some practice settings such as the coronary care unit, patients have been admitted to hospital because they have experienced myocardial infarctions or heart attacks. Often these patients had not been taking any prescription medications at home and then once admitted and stabilised, they were prescribed multiple lifelong medications. Pharmacists described these patients as feeling overwhelmed and not confident about their life after discharge from hospital. Deborah explained how she tried to allay the patients’ fears and encourage a positive transition back home into their community.

“...reassure them that they will be able to cope with this at home. They will be able to do it at home or talk to them about administration aids and things like that to help them out, if they're concerned...”

Pharmacists also recognised how healthcare professionals inundate patients with information especially around the time of discharge that can leave them feeling saturated with health information and instructions. Paying attention to patients’ cues and understanding their capacity to take in information was highlighted by Claire in the example below.

“...But trying to be supportive...not giving too much information at that point of discharge - because the patient, they get saturated. There's just so much...”

Riley and colleagues found that prescribing pharmacists in the UK were found to respond positively to 81% of patient’s emotional cues and concerns with nurse prescribers responding positively to 72% and physicians to 53%. They attributed the higher cue response rate by pharmacists to their additional communication skills training received as part of their certification to prescribe.
4.4.2.4 Discourse Management

Discourse management includes a collection of communication strategies that can be used by pharmacists speaking to patients about their medications to ensure effective communication. This is accomplished by organising topics to continue the conversation and repairing breakdown of communication when required. Pharmacists do this by taking turns in speaking, actively listening, using appropriate eye contact and also responding properly to nonverbal behaviours. When speaking to a patient during a medication consultation, a pharmacist engaged in effective discourse management must be aware of their own contributions to the conversation while listening carefully to the patient’s responses to understand both the obvious and underlying meanings and intentions.244,345

One pharmacist, Amy, summed up how encouraging patient engagement in a pharmacist-patient exchange leads to a better appreciation of the patient’s perspective and their understanding of their medications.

“I think when [a pharmacist] comes and sits down on their bed and [says], this is what's happening, any questions? They really have a chance to ask you questions and things will come up then that they might not have even told the doctor…”

When Ethan shared his thoughts on what it means to have an effective communication exchange with a patient in the hospital, the importance of listening carefully to patients was highlighted.

“…really communicating with a patient. Which involves… a lot of listening. It involves a lot of trying to ascertain what people understand - and what their agenda really is…”

Ethan also recommended that pharmacists need to extend their listening skills to include being able to pick up and respond to non-verbal cues from patients.

“...requires people to try and read body language and try and figure out what's bothering someone…You can't rock up and hassle somebody and try and educate them while they're in pain or whatever else is going on. You've got to let that get sorted out, try and find a time…where you've got that window where they actually do want to engage and talk about these things.”
Good listening skills are considered essential attributes to allow pharmacists to engage patients in effective communication exchanges. \cite{3, 4, 8, 30} However, many studies have identified this as a shortcoming for pharmacists whose communication with patients tended to involve the transfer of large amounts of information without actively listening to, asking open-ended questions or engaging patients in the conversation. \cite{11, 144, 145, 148, 153} Perhaps pharmacists experiencing time pressures related to their workload are compelled to purvey medication information in this unidirectional fashion, because they assume it is the most efficient method to communicate with patients. However, this download of information has been criticised by healthcare researchers as meeting provider’s agendas rather than being patient-centred in its focus. \cite{153, 314} Focus group pharmacists discussed the impact of insufficient time on the quality of conversations taking place in rushed medication counselling sessions with patients.

“…we're so pushed for time that we [now] consider discharge counselling to be talking about medication to the patient, going through it quickly with them. What they're meant to be taking and how they're meant to be taking it. Off you go…” (Ewan)

\subsection*{4.4.2.5 Interpersonal Control}

Interpersonal control refers to how individuals use their power to exert their own social or professional role in conversations with others. \cite{234, 346} In the context of healthcare, there are inherent power differentials between healthcare providers and patients where healthcare providers hold the balance of power in the patient-provider relationship. \cite{242} This is because healthcare providers possess professional knowledge, have access to patient information, and make decisions that affect patient’s health. \cite{228} Lagacé described the asymmetrical relationship between providers and patients as one in which “one person is in need of help and the other has the knowledge and power to provide such help and alleviate suffering.” \cite{228} (p 337)

In addition, healthcare providers’ comfort in working within hospital settings where they are more at ease in the familiar clinical environments and routines puts them at an advantage. For many patients, the hospital is a strange and foreign place, and very different from their home environment. \cite{228} More significantly patients not only have to contend with the illness that brought them to the hospital, they often feel powerless as they have relinquished a good deal of personal control and autonomy to others overseeing their care. \cite{347} Therefore, it is
imperative for pharmacists interacting with patients about medication related issues to be aware of these inherent power differentials experienced by patients and communicate in ways that promote equality in their relationship with patients.

According to CAT, communication exchanges between pharmacists and patients that enhance equality and do not constrain patients to passive patient roles would be considered examples of appropriate interpersonal control strategies. Another example of this would be pharmacist-patient interactions where pharmacists encourage shared decision making about their medications. Encouraging patient participation in healthcare decisions can be empowering to patients and is consistent with the philosophy of patient-centred care. Many pharmacists from the focus groups expressed a desired to empower patients to improve their medication and overall health experience. A number of strategies to give patients autonomy or agency were discussed and included providing patients with the knowledge and tools to make decisions about their medications, encouraging active participation in their healthcare, and assisting patients to navigate the healthcare system.

Ewan and other focus group participants acknowledged the need to have patients be more active participants in their healthcare decisions.

“…we should really be looking to have the patient inclusive in the decisions as well. Include them in the decisions about their healthcare.”

In the following example, a pharmacist explained how she equips patients with knowledge about their medications to make informed and important healthcare choices.

“…I think you've equipped them with the information that they require to make decisions about their own healthcare. So even if they still do disagree or they're still a bit sceptical, they've got that informed choice to do what they want to do…” (Ella)

Ella did not insist on imposing her positional authority as a pharmacist in the patient’s decision making, and respected the patient’s autonomy in this regard giving them agency. This action could be considered an example of an accommodative interpersonal control.
A number of pharmacists assisted patients in navigating the healthcare system by encouraged patients to have conversations with their GPs to seek alternative treatment options should they experience problems with medication side effects.

“…I don't think a lot of patients realise that there's…a few different medications per class, so if one doesn't work for them, there might be another that does the exact same thing that might have less side effects…it's saying to the patient, “These are what we use [in hospital], but if you're getting any side effects, just go discuss it with your GP. There's more than one option out there that you can - they can tweak and make things best for you.””(Amy)

A similar scenario was provided by Fay who wanted to build patient awareness around available healthcare resources in the community that could be able to assist them with medication issues.

“I think I also would like them to, if they are getting side effects or there are problems, that realising that they can talk to a pharmacist in the community or go to their GP and not just stopping taking them or not stop taking them because they don’t know anything about them...”

Patient empowerment arising from interactions between a healthcare professional and a patient is thought to be the result of effective communication and information exchange co-created within a partnership. These actions were often described by the pharmacists as attempts to “empower patients” to be active participants in their healthcare. Some pharmacists such as Charlotte expressed frustration when patients assumed a more passive role in their own medication management and did not ask questions or seek clarification from healthcare professionals when they were uncertain or lacked understanding.

“…People are coming in and going, "He told me to do this. I couldn't really understand what he was saying, so I didn't [take my medications]." Consumers need to be a bit more- involved too- with their pills.”
Communicating effectively with patients to enhance their sense of interpersonal control and to empower them to make informed healthcare decisions has direct implications for patient health outcomes. Patient empowerment has been represented in healthcare research as an outcome related to self-efficacy or self-management. Positive research results support empowering patients to self-manage chronic diseases such as cancer and diabetes. Hospital pharmacists are well positioned to support patients in self-managing their medications through interpersonal control strategies that encourage patients to take an active role in their medication management.

4.5 Conclusions

Hospital pharmacists described a range of communication strategies they utilised in medication counselling to achieve their goals of building rapport with and empowering patients. These communication strategies could be successfully mapped onto the five communication strategies of CAT, demonstrating the applicability and utility of CAT as a theoretical framework in studying pharmacist-patient communication exchanges. Further research using the CAT framework to explore hospital pharmacist-patient communication during medication counselling, and to gain each participant’s perspective of that interchange would provide much needed information about the effectiveness of this exchange taking place. Ascertaining what constitutes effective communication exchanges between pharmacists and patients is the first step in this translational research that may lead to the development of CAT based communication skills training for both pharmacy students and practicing pharmacists.

The previous chapter described hospital pharmacists’ roles and goals in medication counselling while this chapter showed how these pharmacists’ goals could be mapped to the CAT strategies, thus demonstrating “proof of concept” for CAT as a theoretical framework to study pharmacist-patient communication. In the next chapter, Chapter 5, pharmacist-patient exchanges will be examined through the lens of CAT to see whether pharmacists accommodate or not to patients’ conversational needs.
CHAPTER 5: Investigating Strategies Used by Hospital Pharmacists to Effectively Communicate with Patients during Medication Counselling

Citation: Chevalier B, Watson B, Barras, M and Cottrell WN. Investigating strategies used by hospital pharmacists to effectively communicate with patients during medication counselling. Health Expect 2017; 00:1–12. doi.org/10.1111/hex.12558

Published Abstract

This chapter addresses Aim 1: Research Question 2, “How well do hospital pharmacists utilise CAT strategies in their communication with patients?” and is a modified version of the publication. In this chapter, the communication strategies employed by hospital pharmacists during patient medication counselling were analysed using CAT to interpret the details of the exchanges and to show where pharmacists accommodated, or not, to patients’ conversational needs.

5.1 Introduction

Effective communication skills are necessary for the provision of high quality patient care by healthcare professionals. Poor communication exchanges with patients have been associated with lower patient satisfaction, treatment nonadherence and negative clinical outcomes. Communication takes place between hospital pharmacists and patients throughout the hospital stay to support patients in effectively managing their medications. Pharmacists do so by addressing patients’ medication concerns, discussing changes made to medication therapy, and by providing patients with medication information and education. Hospital pharmacy practice has expanded in a number of countries to include advanced clinical skills such as prescriptive authority, ability to requisition laboratory tests, conduct physical assessments and provide immunizations. In addition to possessing competent clinical skills, pharmacists must further develop their ability to communicate effectively with other healthcare professionals and especially with patients and their caregivers.

Little has been published about the communication taking place between hospital pharmacists and patients with few details about what makes this exchange effective. Most papers’ methods lack a theoretical basis or focused mainly on skill assessment.
Effective communication between pharmacists and patients may lead to improved clinical outcomes as described in the physician-patient communication literature.\textsuperscript{37,78} It is likely that effective exchanges between pharmacists and patients would better enable patients to make informed decisions about their medications.\textsuperscript{78} However, before relationships between effective pharmacist-patient communication and patient outcomes can be explored, it is essential to first understand what is taking place in these communication exchanges.

This research is theory-based and addresses these gaps in the hospital pharmacist-patient communication literature by exploring the effectiveness of communication between pharmacists and patients during medication counselling sessions. Medication counselling or patient medication counselling are frequently used terms to describe the pharmacist-patient interaction where patients receive and exchange information about their medications.\textsuperscript{148,302} Communication Accommodation Theory (CAT) will be the theoretical framework applied and is discussed in detail in Chapter 1, pages 27-32.

Invoking CAT provides a vehicle for interpreting the detailed patterns and flow of pharmacist-patient conversations and will help identify occasions of accommodation or non-accommodation. These may highlight areas of strength as well as areas in which pharmacists’ communication skills require further development to improve the effectiveness of their exchanges with patients. The aim of this study is to invoke CAT to investigate communication strategies used by hospital pharmacists during patient medication counselling.

5.2 Methods

Qualitative methods were used to gather in-depth communication exchanges between pharmacists and patients during medication counselling. These sessions were audio recorded and observed in which each pharmacist counselled four different patients to observe how they used and adjusted their communication skills to meet the conversational needs of unique individuals. Refer to Chapter 2, section 2.5 for methods regarding participant recruitment, inclusion criteria, data collection and analysis. Refer to Appendix 9 for a completed Consolidated Criterion for Reporting Qualitative Studies (COREQ) document.\textsuperscript{353}
5.3 Results

5.3.1 Medication Counselling Sessions

Twelve pharmacists engaged four patients each for a total of 48 medication counselling interactions that took place between November 2015 and April 2016. Initially, the intent was to recruit 15 pharmacists (each engaging four patients) for a target of 60 pharmacist-patient interactions. However, by 40 pharmacist-patient exchanges no new applications of the five CAT strategies were observed. A decision was made, by the research team, to have the 12 pharmacists complete all four patient interactions for a final number of 48 pharmacist-patient conversations.

Almost all the inpatient pharmacist-patient exchanges took place at the patient’s bedside, within busy, noisy four bed bays. Only a few inpatient conversations occurred in private rooms or in quiet patient lounges. Medication counselling in outpatient settings took place in both private clinic rooms and office areas within open spaces depending on availability. The time to complete patient counselling sessions varied considerably, depending on needs of the patient and complexity of drug regimens with a mean time of 13.6 minutes (range from 3.8 to 45.2 minutes).

5.3.2 Participant Characteristics

Study pharmacists’ demographic characteristics are shown in Table 5-1. These are fairly consistent with demographics reported for Australia except more study pharmacists had postgraduate training (58% vs 26%). Table 5-2 includes participating patient demographic characteristics. Compared to overall hospital age and gender demographics obtained for the study period, the study patients were older (average age of 63.1 versus 52 years of age) and included fewer female study patients (44% versus 53%).
Table 5-1. Pharmacist demographics

<table>
<thead>
<tr>
<th>Demographic Characteristic (n = 12)</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female gender</td>
<td>10 (83)</td>
</tr>
<tr>
<td><strong>Age range</strong></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>6 (50)</td>
</tr>
<tr>
<td>31-50</td>
<td>5 (42)</td>
</tr>
<tr>
<td>&gt;50</td>
<td>1 (8)</td>
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<tr>
<td><strong>Highest level education (Pharm)</strong></td>
<td></td>
</tr>
<tr>
<td>B Pharm</td>
<td>4 (33)</td>
</tr>
<tr>
<td>B Pharm (Hon)</td>
<td>1 (8)</td>
</tr>
<tr>
<td>Graduate Diploma (Clinical Pharm)</td>
<td>3 (25)</td>
</tr>
<tr>
<td>Masters (Clinical Pharm)</td>
<td>4 (33)</td>
</tr>
<tr>
<td><strong>Pharmacist experience as pharmacist (years)</strong></td>
<td></td>
</tr>
<tr>
<td>1 to 5</td>
<td>5 (42)</td>
</tr>
<tr>
<td>6 to 10</td>
<td>1 (8)</td>
</tr>
<tr>
<td>11 to 15</td>
<td>3 (25)</td>
</tr>
<tr>
<td>16 to 20</td>
<td>2 (17)</td>
</tr>
<tr>
<td>&gt;21</td>
<td>1 (8)</td>
</tr>
<tr>
<td><strong>Clinical practice area</strong></td>
<td></td>
</tr>
<tr>
<td>Inpatient (General medicine, Cardiology, Oncology, Nephrology, Neurology, Geriatrics, Surgery and Emergency)</td>
<td>9 (75)</td>
</tr>
<tr>
<td>Outpatient (Infectious diseases clinic, Heart failure clinic and Renal clinic)</td>
<td>3 (25)</td>
</tr>
</tbody>
</table>
Table 5-2. Patient demographics

<table>
<thead>
<tr>
<th>Demographic Characteristic (n = 48)</th>
<th>Number (%)</th>
</tr>
</thead>
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<tr>
<td>Female gender</td>
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<td><strong>Age range</strong></td>
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<td>51-60</td>
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<td>71-80</td>
<td>10 (21)</td>
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<tr>
<td>&gt;80</td>
<td>5 (10)</td>
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<tr>
<td><strong>Average age</strong></td>
<td>63.1</td>
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<td><strong>Patient care area</strong></td>
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<tr>
<td><em>Inpatient</em></td>
<td>36 (75)</td>
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<td>Emergency</td>
<td>4</td>
</tr>
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<td>Geriatrics</td>
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<td>12</td>
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<td><em>Outpatient</em></td>
<td>12 (25)</td>
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<td>Heart failure clinic</td>
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<tr>
<td>Infectious diseases clinic</td>
<td>3</td>
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<td>Renal clinic</td>
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<tr>
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<tr>
<td>Mean number of medications/patient</td>
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<tr>
<td>Standard deviation</td>
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<tr>
<td>Range in numbers of medications/patient</td>
<td>4-30</td>
</tr>
</tbody>
</table>
5.4 Discourse Analyses - Hospital pharmacists’ utilisation of CAT strategies

The following analyses examines how pharmacists accommodate, or not, to patients’ conversational needs during medication counselling based on the five CAT strategies.

5.4.1 Approximation

Study pharmacists demonstrated accommodative approximation behaviours by matching patients’ speech patterns (volume, pace and accent). Pharmacists occasionally used colloquialisms when speaking to patients, likely to put patients at ease and to encourage engagement in the conversation. Phrases used were often greetings such as “G’day again…” (Daniel) or when conversations were winding down, for example “That's alright mate. All the best hey.” (Ben) Some pharmacists used expressions such as “Righto” when breaks occurred in the conversation.

One pharmacist accommodated a patient by matching their accent after establishing a shared UK origin. There was no systematic measure of the UK accent changes. Examination of accent features would have been an effective systematic approach to ascertain this change, therefore, caution needs to be taken in interpreting this observation made in the study. However, the pharmacist acknowledgement sharing a similar UK origin (and therefore a similar accent) with the patient. The pharmacist joked that it was likely that she would adopt their common accent as their conversation progressed.

With a few exceptions, pharmacists spoke clearly and with adequate volume and pace to ensure patient understanding. This was based on observing patients nod or making utterances to indicate they were following pharmacists’ explanation. However, a few pharmacists spoke too quickly, potentially not accommodating patients’ conversational needs. In rare occasions, underaccommodated patients were observed to respond to the excessive speech rate by disconnecting or engaging less with pharmacists. Interestingly, these pharmacists were aware of their behaviour but identified different reasons for doing so. One pharmacist attributed her rapid speech to her highly energetic nature whereas two others remarked that time constraints and pressure to discharge patients necessitated speaking quickly as it served to prevent conversations from straying off topic.
Sometimes pharmacists varied their speech rate depending on the focus of conversation. They used a faster pace when discussing interpersonal issues, but a slightly slower, more thoughtful and pronounced pace when emphasising key points in therapy such as side effect management. Often pharmacists would enunciate more clearly and carefully when shifting the conversation to medication issues.

5.4.2 Interpretability

Most pharmacists adopted appropriate interpretability strategies by using easy-to-understand phrasing, explained rationale for medication therapy with fairly simple terms, and effectively worded questions to elicit patient responses. Patient-specific medication lists were used by all pharmacists as visual guides to support their verbal explanations, and often arranged to have medications at hand to emphasise their identity or demonstrate their use. Many pharmacists also used hand gestures or drew cartoon diagrams to indicate how medications work in the body.

In the following example, the pharmacist displayed appropriate interpretability by using everyday language to describe how a patient might experience muscle weakness and soreness associated with certain cholesterol lowering agents:

“…the side effect to watch out for is unusual muscle pains or aches. The way that I've heard patients describe it before is… ‘My legs and my arms- they're weak… they're aching- it's not going away.’” (Karen)

At times pharmacists used medical jargon and terminology, but provided an explanation immediately afterward, for example: “… in terms of analgesia or your pain relief …” (Ben)

Occasionally pharmacists demonstrated inappropriate interpretability strategies by using terminology that was not understood by patients who responded with quizzical facial expressions or directly asked for the term’s meaning. In this example, the pharmacist used the term “neuralgia” as opposed to “nerve pain “to a patient who did not appear familiar with the term.
“So, this is the one that the pain team have suggested…with the kind of neuralgia that you've got.” (Christine)

Pharmacists typically adjusted the terminology they used in their interactions to match that understood by the patient. For example, Ingrid, an inpatient pharmacist intentionally and appropriately used medical terms such as “cardiac” or “cardiovascular system” to describe the patient’s heart condition to a patient, who was also a retired nurse.

5.4.3 Discourse Management
Discourse management strategies utilised by study pharmacists to engage patients in conversations included asking open-ended questions, promoting two-way conversations by turn-taking, demonstrating careful listening, paying attention to non-verbal cues, and using conversational repair such as face-maintenance or conversation maintenance such as back-channelling (e.g. “hmm” and “yeah”).

Many pharmacists engaged patients by asking open-ended questions. An outpatient pharmacist, Geena, inquired about how a patient with diabetes managed hypoglycaemia symptoms, “What do you do… when you feel like that?”

However, not all study pharmacists consistently used open-ended questions in discussions with patients about their medications. Instead, some pharmacists avoided open-ended questions and only asked patients a few questions near the end of the patient counselling session such as “Do you have any questions about any of that…?” (Jenna)

Pharmacists employed a number of techniques to encourage patient interaction or elicit a response often using carefully constructed questions or phrases such as “What's your understanding of what you're on that for?” (Hailey) or “How are you going with the metoprolol? Remind me what dose that one is.” (Hailey) Many pharmacists also engaged patients by incorporating pauses at different points throughout the delivery of medication information with phrases such as “alright?” or “okay?”. This not only verified patients’ understanding, but also gave patients an opportunity to interject or ask questions about the information.
Sometimes pharmacists used conversation repair strategies such as face-maintenance as demonstrated in the dialogue below by Ellen, an inpatient pharmacist, who down-played a mistake made by a patient to allow him to “save face”.

“Patient: That is supposed to be two lots, not one! I was supposed to get two lots of 20 mg, once in the morning, two lots of 20 mg, twice a day, for the Kapanol.
Pharmacist: Oh.
Patient: For the slow release. See, yeah it's got one. Oh sorry…
Pharmacist: One capsule, twice a day.
Patient: …no, no, twice a day. Sorry … no, sorry. Because I saw it… sorry, no, no- it's me.
Pharmacist: No, that's okay… No, they can be a little bit confusing to read…”

All pharmacists included non-verbal gestures to encourage patients’ engagement in their conversations. Examples included eye contact, nodding, facial expressions, hand gestures, leaning in toward patients when speaking or while listening carefully, and “back-channelling” (i.e. uh-huh, hmm).

5.4.4 Emotional Expression
Accommodative emotional expression took place when study pharmacists recognised and demonstrated an appropriate level of empathy and reassurance in response to patients’ emotional needs. Pharmacists accomplished this by using both verbal and nonverbal communication to express kindness, humour and validate patients’ concerns. However, there were rare occasions where pharmacists appeared impatient or even brusque with patients.

The way in which appropriate emotional expression was demonstrated depended on the individual pharmacist-patient conversation, what was needed in the situation, and each pharmacist’s interaction style based on their own preferences and experiences. Some pharmacists were tactical in their application of emotional expression. In this example, Fiona, an inpatient pharmacist, used a kindly approach when relaying large amounts of information to patients by breaking up these segments with reassurance creating an Information-Reassurance-Information sandwich.
“The other thing with antibiotics...so this one doesn't cause too many side effects at all - and you've been on it for a few days. Sometimes it can cause a bit of an upset stomach, but if you do get some severe diarrhoea with it then you certainly need to let your doctor know as well, okay?” (Fiona)

This “information-reassurance-information” sandwich was a fairly accurate depiction of a pharmacist-patient conversation around the time of discharge from hospital. It was not unusual for the pharmacists to provide large volumes of medication information which typically included side effect warnings. To avoid alarming the patient, which may induce medication non-adherence, pharmacists would qualify the chances of experiencing negative side effects, reassure the patient that the likelihood of experiencing this effect was low, and then provide information about managing the side effects, should they occur. The pharmacist would then progress to another medication and often repeat the pattern.

Study pharmacists were frequently observed recognising patient cues and validating patients’ concerns using empathetic expressions such as “It can be a bit overwhelming...It can be a bit much to take in at once...” (Laura)

In Australia, patients are required to contribute to the cost of medications prescribed for use in the community. Many pharmacists showed sensitivity to patients’ ability to afford medications by working with physicians to change patients’ medications to those covered under the national subsidised medicines program or through other strategies, “… Do you know about the Safety Net...where you reach a certain limit and you get it free?” (Karen)

5.4.5 Interpersonal Control

Numerous accommodative interpersonal control strategies were used by study pharmacists to promote equality between themselves and patients, and to empower or give patients agency, encouraging them to be active participants in their healthcare.

Study pharmacists varied in how they demonstrated and negotiated interpersonal control within their intergroup or professional role and within their interpersonal interactions. Some pharmacists assumed a professional role throughout their patient interactions while others seemed adept at switching roles from interpersonal to their pharmacist role, often by
changing their voice to a more officious professional tone just before launching into a
discussion about medications.

Inappropriate interpersonal control was observed particularly when medication counselling
was initiated. Here, pharmacists affirmed their professional identities and intergroup
relationship with patients by controlling the agenda-setting phase. This control often
continued throughout pharmacist-patient interactions when pharmacists’ communication
strategies ensured that conversations stayed on track. Almost all pharmacists began patient
medication counselling by first introducing themselves, and then stating their reason for the
conversation. Patients were rarely asked at the onset whether they had any specific
medication matters or concerns they would like to discuss. This example typifies the
approach used by most pharmacists:

“…So, we'll just start with the list… it goes through your details, medicine name, brand
name, uses, like reasons for taking them… We'll go through them. We'll go through
them one at a time…” (Laura)

An interpersonal control strategy utilised by many pharmacists to ensure collection of
relevant medication information was to redirect conversations that strayed into more social
topics. Most pharmacists appropriately accomplished this by listening politely to these
diversions before redirecting conversations by tactfully changing the topic using expressions
such as “lovely” or “okay”, pausing and then prompting the patient about the previous
discussion point. An outpatient pharmacist, Geena, skilfully executed this with gentle tact,

“That does it. Yeah. Lovely… So, you've been using the insulin since the transplant?”

Although study pharmacists tended to lead and direct conversations, most patients appeared
comfortable to interject to demonstrate their understanding or clarify information. Most
pharmacists did not appear to be bothered by patients’ interruptions and addressed questions
or queries as they arose reflecting appropriate interpersonal control. On rare occasions,
pharmacists would show their impatience or annoyance by answering abruptly, increasing the
language level by using medical terms or speaking over the patient to bring the topic back on
track. These are all examples of inappropriate interpersonal control communication behaviours as pharmacists exerted their professional role.

However, pharmacists displayed a number of behaviours to promote patient autonomy and participation in their medication management. One strategy used by pharmacists was to incorporate the rationale for treatment with information and advice provided. This delivery method resembled an information-reassurance-rationale-information sandwich where medication information was followed by reassurance and then explanations for any medication changes made. Here information relates to “interpretability”, reassurance to “emotional expression” and “rationale” is the “interpersonal control” CAT strategy.

An example where rationale was provided to encourage self-monitoring is as follows:

“If you're brushing your teeth and you're getting bleeding gums… nose bleed that you can't stop… all of those are signs that actually you've probably got too much in your system and you need to see a doctor.” (Christine)

Pharmacists positively reinforced patients’ correct understanding of their medications, effective medication management strategies, and encouraged patients’ autonomy in making appropriate healthcare decisions, as shown in this exemplar:

“You know yourself best. So- you just keep an eye out and if you're experiencing any usual symptoms- pop off to the GP- it could be the medication.” (Ellen)

Involving patients in shared decision making and assisting patients to successfully navigate complex healthcare systems were other ways in which study pharmacists empowered patients. This exemplar illustrates how an outpatient pharmacist provided a patient assistance by connecting her to key healthcare professionals in her community in preparation for an upcoming bus tour.

“…what I will do is suggest to the doctors that we do give you one of those Glucagon pens and we'll get your pharmacy, your local pharmacy, to show you how to use it just
in case something happens. When you are on the tour, make sure you let the tour guide know that you are a diabetic….” (Geena)

5.5 Discussion
Investigating how hospital pharmacists used CAT strategies in their conversations with patients highlighted both strengths and weaknesses in their repertoire of communication skills. For the most part pharmacists demonstrated accommodative approximation strategies (speech rate, tone, volume or accent). Non-accommodative behaviour has been described by researchers when healthcare professionals caring for elderly patients oversimplified their speech with emphatic enunciations, unnecessarily loud tones and reduced speech rate. Pharmacists in this study were not observed to exaggerate their speech in this manner. Alterations in their tone and rate were subtle and made to emphasise key medication points.

In terms of interpretability, study pharmacists typically were conscientious about choosing language and terminology that was understood by patients. This is in contrast to findings from researchers who reported pharmacists frequently used medical terms not comprehended by patients during medication counselling. Pharmacists adopted a number of accommodative discourse management strategies to engage patients in conversation. By interspersing questions such as “Okay?” or “Alright?” throughout the information provided, pharmacists gave patients an opportunity to interject or ask questions about the information as well as to check for patient understanding. Greenhill et al depicted this activity as “chunk” and “check”. However, they found that their study pharmacists delivered “chunks” of information, but did not check for patients’ understanding. Researchers studying pharmacists counselling patients in South African HIV clinics termed this as “response solicitations” where pharmacists used these prompts to both invite patients to ask questions and check their understanding. Using open-ended questions was another technique utilised by our study pharmacists and identified by other researchers as an effective method to elicit patient engagement and highlight any patient concerns and preferences. However, researchers studying hospital pharmacist communication with patients have found that pharmacists rarely use open-ended questions to engage patients during medication counselling.
Accommodative emotional expression (appropriate levels of empathy and reassurance) was nearly always demonstrated by study pharmacists. Validating patients’ concerns is an important process for pharmacists to assist patients in dealing with negative emotions and worries about their medications and healthcare. Sensitivity to patients’ ability to afford their medications was another example of caring behaviour demonstrated by many study pharmacists. This contrasted with other Australian research that found hospital pharmacists did not explore financial reasons for patients’ medication issues.

There were rare occasions where participating pharmacists appeared impatient or even brusque with patients, not unlike descriptions included in the literature. Perhaps, this was related to pharmacists’ perceived time pressures to stay on task. Effective demonstration of empathy and compassion by healthcare professionals has been reported to result in greater patient satisfaction and adherence to therapy.

Numerous appropriate interpersonal control strategies were used by pharmacists to give patients agency and encourage patients to take an active role in their healthcare. Research supports healthcare professionals empowering patients to effectively self-manage chronic conditions. Study pharmacists frequently discussed the medication’s rationale when counselling patients about their medications. This practice has been previously reported by pharmacists to help patients understand reasons for therapy, promote adherence, and encourage patient participation in their healthcare.

However, not all interpersonal control strategies adopted by pharmacists were accommodative. Pharmacists rarely encouraged patient input at the start of their conversations, the agenda-setting phase. Patient collaboration should be encouraged from the onset by using open-ended questions such as “What sorts of medication concerns or questions would you like to talk about?” This is in contrast to the current situation where pharmacists inform patients how the conversation will unfold and then continue onward in a task-oriented approach. Including patients in agenda-setting by eliciting their expectations for the conversation has been favourably described in physician research. Not engaging patients in the design and purpose of the medication counselling session could be interpreted as under-accommodating patients’ power and relationship needs by not allowing their input into this initial stage.
Another demonstration of inappropriate control observed was related to pharmacists’ task-oriented approach to medication counselling. All pharmacists used patient-specific medication lists that acted as visual props and information sources for patients, but also as a mechanism to keep conversations on track. The behaviour of task-oriented pharmacists could be considered non-accommodative if they responded inappropriately to patients’ questions or interruptions by showing annoyance or talking over them. On the other hand, pharmacists who respond respectfully and address patients’ queries as they arise are demonstrating appropriate interpersonal control. Using a methodical approach in medication counselling reflects a well-entrenched process learned in most undergraduate pharmacy programs and assumed throughout clinical practice. 48-51, 145, 148, 149, 153 Not involving patients in agenda setting and similar task oriented pharmacist behaviours were reported by other researchers. 145, 148, 149, 153

Most pharmacists effectively applied CAT strategies as they adapted to patients’ conversational needs, often combining different conversational techniques (E.g. Information-Reassurance-Rationale-Information sandwich). This was likely done to prevent patients from feeling overwhelmed and to ensure patients felt confident with medication information provided. Pharmacists’ use of multiple CAT strategies is not surprising as it likely reflects their numerous goals in communicating with patients. These demonstrations of multiple CAT communication behaviours in the form of “sandwiches” have not been previously described in the pharmacy literature. Therefore, they appear to be a novel identification of this pattern of discourse between pharmacists and patients.

A number of potential study limitations exist. Having pharmacist-patient conversations observed and recorded may have resulted in expected or professional desirable behaviour by pharmacists, and may not be representative of usual practice (Hawthorne effect). 363 Attempts were made to mitigate this effect and normalise medication counselling by having BC shadow pharmacists interacting with patients prior to the recorded interview. As well, patients may have assumed socially desirable behaviour knowing their interaction was being observed and recorded. Another potential limitation was the self-selection of motivated pharmacists enrolling in this study which may limit transferability of positive results. (A higher proportion of study pharmacists held post-graduate degrees (58%) compared with 26% of surveyed Australian hospital pharmacists. 262) Because this study was conducted at a single
public hospital, the results might not be transferable to all specialty areas at other sites, rural or private hospitals. Although participant groups were relatively heterogeneous (Tables 5-1 and 5-2), specialised clinical areas such as those with mental health patients or persons with dementia were not represented.

This study demonstrates how CAT can be successfully applied to pharmacist-patient conversations to obtain detailed interpretations and insight into the communication behaviours taking place. Previous research invoking CAT to examine physician and nurse communication with patients share similar findings including patient identified preferences such as empathy (emotional expression) and receiving well explained information in layman’s terms (interpretability). However, to our knowledge, this study is novel in its application of CAT to investigate pharmacist-patient interactions.

5.6 Conclusions
Most pharmacists effectively employed all five CAT communication strategies during patient counselling sessions as they adapted to patients’ conversational needs. However, individual methods of discourse with patients varied considerably and were likely related to pharmacists’ preferred communication strategies. Pharmacists’ communication could be improved at the initial agenda-setting phase by asking open-ended questions to invite patients’ input and empower patients to raise any concerns or issues they might have about their medications.

This chapter addressed the research question, “How well do hospital pharmacists utilise CAT strategies in their communication with patients?” by investigating the extent to which pharmacists applied CAT strategies to either accommodate or not accommodate to patients’ conversational needs. However, these exchanges can be further analysed using technology to help identify distinct patterns of engagement. In Chapter 6, Discursis software will be utilised to enhance the qualitative analysis already conducted in this chapter.
CHAPTER 6: Using Discursis to enhance the qualitative analysis of hospital pharmacist-patient interactions

This chapter addresses the Aim 1: Research Question 3, “How are pharmacist-patient speech patterns, episodes of engagement and CAT strategies employed by pharmacists during medication counselling are visually represented by the Discursis software?” This study explored how Discursis software could be used to enhance the qualitative analysis conducted in Chapter 5. An additional collaborator included in this chapter was Daniel Angus PhD, from the School of Communication and Arts, Faculty of Humanities and Social Science, The University of Queensland. (Daniel Angus is the developer of Discursis software.)

6.1 Introduction

All healthcare professionals including hospital pharmacists must possess effective communication skills to ensure they provide high quality patient care.\(^1\) Many hospital pharmacists routinely interact with patients as part of their clinical role within a healthcare team.\(^{160,163-166}\) Pharmacists often meet with patients to discuss their medications at transition points of their hospital journey, such as on admission, transfer between wards or discharge from hospital. These transitions have been identified as times when patients are at a higher risk of experiencing medication errors and adverse events.\(^{160-162}\) Transitions are key times for pharmacists to address patients’ concerns about their therapy, review patients’ medications and discuss any changes taking place during their hospital stay.\(^{160,163-166}\) Failure by a hospital pharmacist to communicate effectively with patients may negatively impact a patient’s confidence and ability to manage their medications contributing to medication non-adherence.\(^{167-170}\) Therefore, it is imperative that hospital pharmacists communicate effectively with patients and their caregivers.

However, communication taking place between hospital pharmacists and patients is poorly understood with few publications providing little detail about what makes these conversations effective.\(^{144,146-148,150,352}\) In addition, most hospital pharmacist-patient communication literature is atheoretical.\(^{145-148,150,352}\) To address this gap in the literature, hospital pharmacist-patient exchanges during medication counselling were investigated in Chapter 5 by invoking Communication Accommodation Theory (CAT) as the theoretical framework to analyse and interpret the conversations.\(^{361}\) Communication Accommodation Theory (CAT) will be the
theoretical framework used in this study. Further discussion and details of this theory is provided in Chapter 1, pages 27-32.

In Chapter 5, most pharmacists effectively used all five CAT communication strategies during medication counselling by accommodating to patients’ conversational needs. Non-accommodation occurred when pharmacists spoke too quickly, used terms not understood by patients, and did not include patients’ input at the start of the conversation, the agenda-setting phase.\(^{365}\)

This next step was to see if Discursis software could be used to visualise these conversations and determine whether key patterns could be identified within the software output to enhance the previously conducted qualitative analysis. Discursis is a computational analysis support tool developed to assist researchers in analysing communication data. Since its inception, it has been used across many different conversational contexts to help analysts identify turn-taking and engagement patterns. From a transcript of a conversation, Discursis can produce a visual plot which represents the pattern of exchange between speakers in chronological sequence.\(^{250,256,265}\) These plots allow for a quick overview of an entire conversation by identifying turn-taking dynamics between speakers (I.e. who speaks when and for how long), and how content themes develop and are maintained over the length of the conversation.

Although there are no published reports utilising Discursis in the analysis of pharmacist-patient medication counselling sessions, the software has been used in the healthcare communication context. Discursis has effectively been applied in the analyses of physician-patient consultations,\(^{250}\) conversations between dementia patients and residential care-givers, care-givers,\(^{253}\) and healthcare provider-patient exchanges around disclosure of adverse events.\(^{266}\) In addition, these research studies used CAT as the theoretical framework.\(^{250,253,266}\)

The Discursis analysis of pharmacist-patient interactions presented here will be a novel application of this technology. Discursis software may help identify patterns of effective communication between pharmacists and patients through visual representation of these exchanges. It is important to note that Discursis will be used as an analytical support tool, as it is not intended to replace qualitative analysis.
The study describes how Discursis software was used to enhance the qualitative analysis of the pharmacist-patient interactions already reported in Chapter 5. This was achieved by addressing the following research questions:

1. How well does Discursis visually depict episodes of pharmacist-patient engagement?
2. Which specific CAT strategies used by pharmacists can be identified within the episodes of engagement?
3. How do pharmacist-patient speech patterns displayed on Discursis plots differ between inpatient and outpatient settings?

6.2 Methods
The first part of this research studying pharmacist-patient communication took place at a 1000 bed teaching hospital that includes multiple medical specialties within both outpatient and inpatient settings. Twelve pharmacists each engaged four patients for a total of 48 pharmacist-patient exchanges. Details about participant recruitment, inclusion criteria, data collection and analysis are described in Chapter 2 (Section 2.5).

6.2.1 Discursis software
Discursis software $^{250}$ is a validated, visual text analytic tool that accepts a text-based conversation transcript as input, and uses the Leximancer$^{366,367}$ conceptual modelling algorithm to create a set of data-grounded concepts. This software is straightforward to operate where the user simply uploads their transcript files into the program. Then, the software automatically applies a Bayesian statistical algorithm to determine the major conceptual content of the conversation. Each person’s turns in the conversation are represented by a set of concepts summarising their speech.

Discursis has been specifically designed for analysing temporal aspects of communicative exchange. Its software uses an existing visualisation technique, called recurrence plotting, to display and identify trends over time.$^{368}$

Discursis plots present conversations diagonally, turn-by-turn: to reveal the extent to which people are using similar concepts to others, repeating their own concepts, or whether the topics are unrelated. If any two turns in a conversation contain similar concepts, then the
corresponding vertical and horizontal intersection block (below the diagonal) is shaded in two colours to indicate conceptual similarity. Examples of these key features are included in Figure 6-1.

Several patterns on the Discursis plots reflect inter-speaker behaviours. Repetition of the same topic by a speaker or unrelated topics spoken by the speakers, appear as alternating, single coloured squares. Vertical stripes extending downward from squares on the diagonal indicate where initial concepts are continued by a speaker over time. Horizontal stripes that originate from individuals’ turns and extend from right to left indicate a summary of concepts discussed up to that point in the exchange (Figure 6-1).

The Discursis plots are also interactive as the software allows the user to easily access the content of the conversation, thus verifying the exchanges at the level of each speakers’ words. This can be done by left clicking and dragging the mouse over the areas of interest and the software will magnify and reveal the dialogue adjacent to the plot squares. This allows immediate verification of the patterns observed (E.g. episode of engagement) and to
investigate how well the speakers have stayed on topic. Visual examples of these magnified patterns with adjacent dialogue are shown and described in the Results section.

### 6.2.2 Process of pattern investigation

#### 6.2.2.1 STEP 1 - Level of engagement between pharmacists and patients

The next step in examining the plots was to determine the level of speaker engagement in each conversation. Although differences in levels of engagement are relative, our research group established indicators for moderate-high versus low levels of engagement. Moderate-high engagement was defined as conversations containing multiple clusters or episodes of recurring two-colour, off-diagonal blocks throughout the interaction. (Refer to Figures 6-2 and 6-3 to illustrate these differences.) This block pattern implies that speakers picked up on the context of each other’s conversation as their interaction progressed. Groupings of these events are considered times where speakers are engaged in a two-way conversation around specific concepts. In contrast, low levels of speaker engagement are typified by no or very few episodes of two-colour, off-diagonal blocks. Instead, these interactions are dominated by patterns of alternating, single coloured squares indicating that the speakers did not continue concepts from the previous speaker’s response. Representative plots of moderate-high and low levels of speaker engagement were chosen to demonstrate contrasts between the pharmacist-patient interactions. These plots were then reviewed by DA (Discursis developer and co-researcher) to verify their interpretation and engagement level designations.

#### 6.2.2.2 STEP 2 - Pharmacists’ use of CAT strategies

Detailed investigations of plots with moderate-high levels of engagement were conducted to determine whether specific CAT strategies used by pharmacists could be identified within the episodes of engagement (Figure 6-4). An assumption made was that moderate-high levels of engagement would more likely be representative of pharmacists accommodating as opposed to not accommodating patients’ conversational needs. Episodes of engagement and accommodative pharmacist behaviour within the groupings of off-diagonal blocks could be verified while working in the software program. This was done by left clicking and dragging the mouse over the engagement episode on the plot, which then expanded the area to reveal the actual, corresponding dialogue.
STEP 3 - Characteristic patterns of inpatient and outpatient settings

Plots from inpatient and outpatient areas were compared to determine whether there were differences in patterns of communication between pharmacists and patients based on the clinical setting in which the exchange took place. For inpatient settings, most pharmacist-patient medication counselling sessions occurred around the time of patient discharge from hospital. At this transition, numerous healthcare professionals, including pharmacists, meet and speak with patients before they leave hospital. When medications are required by the patient, pharmacists either coordinate procurement with community pharmacists or provide a supply of discharge medications. In addition, all pharmacists provide a medication list and written information about new medications for patients to take home with them. This medication list acts as a guide for conversations as pharmacists tend to direct conversations in the order medications are presented on the list. Pharmacists discuss with patients which medications are current, new, and those discontinued. It is not uncommon for pharmacists to provide large amounts of information about the medications (e.g. drug name, rationale for use, dose and administration information, side effects and their management, strategies to promote adherence, and refill procurement directions). Typically, the medication counselling sessions are initiated by the pharmacist introducing themselves, stating the reason for their conversation, and providing a review of the written information. Then the pharmacist would proceed through the medication list. It was not unusual for pharmacists to be the dominant speaker during these sessions.

In outpatient or clinic settings, the type of conversation between pharmacists and patients tends to be about a specific medication issue or takes the form of a medication review where the pharmacists would ask patients to provide detailed information about their medication management. Pharmacists in outpatient settings also use medication lists to direct their conversations with patients; however, in these settings pharmacists often seek information and details about patients’ medication taking behaviour. Therefore, it is not uncommon for these outpatients to speak more than the patients from inpatient settings and reflects the outpatient context.

6.3 Results

Discursis plots were generated from 48 pharmacist-patient conversations that took place in inpatient wards (36) and outpatient clinics (12).
6.3.1 STEP 1 - Level of engagement between pharmacists and patients

Moderate to high engagement plots are contrasted to low engagement plots in each of the inpatient and outpatient settings. (Figures 6-2a and 6-3a)

Figure 6-2. Inpatient setting - Moderate to high versus low engagement

Figure 6-3. Outpatient setting - Moderate to high versus low engagement
Of the 48 Discursis plots, 40 conversations were designated as moderate-high pharmacist-patient engagement. There were 27 identified from inpatient and 11 in outpatient settings. Figure 6-2a from an inpatient ward includes the characteristic inpatient pattern of mostly larger red (pharmacist) squares, but also includes frequent clusters of two-colour, off-diagonal squares indicating engagement between the speakers. One large section of engagement (numerous off-diagonal square clusters) dominates the middle of the conversation where much of the discussion about the patient’s medications takes place. Certain concepts introduced by the pharmacist early in the conversation are carried throughout as depicted by the consistent reappearance of the squares in a vertical stripe. As well, the large red pharmacist square at the end of the conversation appears across the same horizontal line indicating that the pharmacist has included many of the previously discussed concepts in a summary statement to the patient.

Figure 6-3a depicts a Discursis plot from an outpatient clinic showing the larger blue (patient) squares typical for patient contributions in this type of conversation and from this setting. At the beginning of this exchange, the pharmacist and the patient engage in agenda-setting for the conversation. Concepts discussed in this early part of the conversation are carried throughout their interaction as indicated by the vertical stripes projected downward. This continuation is an indication that the conversation stayed on track for most of its course. As in the inpatient example, there is a clear delineation of concepts discussed in the mid-section of the exchange. Near the end of the conversation, the pharmacist (large red square) recaps several concepts already discussed with the patient as shown by the horizontal bar to its left containing numerous blue and red squares.

Eight low engagement Discursis plots could be distinguished from moderate-high engagement conversations by the absence or few occasions of two-colour, off-diagonal squares and the predominant pattern of alternating solid single coloured squares. There were seven inpatient and one outpatient conversations identified as low engagement. An example of a very low level of engagement between an inpatient hospital pharmacist and patient conversing at discharge is represented in Figure 6-2b. This plot contains no patterns indicative of engagement between the speakers. It is clear from the relatively large red blocks that the pharmacist is dominating the conversation. The repetition of the pharmacist’s speech
vertically and horizontally suggests they are mostly repeating themselves throughout the conversation. The pharmacist is staying on topic with little engagement from the patient who is only providing short responses or back-channelling utterances such as “hmm”. There are no blue vertical stripes stemming from early patient’s turns implying there was no partnership in setting the agenda for the conversation.

Figure 6-3b shows an exchange between an outpatient pharmacist and a patient where there are only a few occasions of engagement throughout the course of the conversation. Although there is lack of engagement in the early part of the exchange where the agenda-setting usually takes place, initial comments made by the patient about their medications are carried throughout the conversation as shown in the left-most downward vertical stripe. Frequent occurrences of white spaces underneath the diagonal sequence suggest multiple unrelated concepts have been raised by both speakers, but not necessarily continued throughout the conversation.

6.3.2 STEP 2 - Pharmacists’ use of CAT strategies
Examples of moderate-high pharmacist-patient engagement were studied in detail to investigate how pharmacists applied CAT strategies to engage patients in their conversations. Pharmacists’ application of some of the CAT strategies were reflected in Discursis plots as episodes of engagement with the characteristic two-colour, off-diagonal patterns. Typically, these episodes represented times when pharmacists’ communication behaviours were accommodative of patients’ conversational needs. Accommodative examples were identified from four of the five CAT strategies, the exception being emotional expression.

Most of the approximation strategies (speech volume, tone, rate and accent) required review of audio recordings to be detected. However, Discursis plots demonstrated how pharmacists applied accommodative approximation through “same-saying” where they repeated patients’ phrases. These often appeared as shorter sequences of engagement with only one or two off-diagonal squares. Figure 6-4a is an example of a detailed plot showing pharmacist approximation to verify their understanding of patient’s words.
Accommodative discourse management strategies used by pharmacists were identified within episodes of pharmacist-patient engagement on Discursis plots (Figure 6-4b). In this plot, the details of the exchange show an inpatient pharmacist asking an open-ended question to a patient to ascertain his understanding of cholesterol medication.

Most pharmacists employed accommodative interpretability strategies by using easily understood terminology in their conversations with patients. Figure 6-4c shows a detailed plot of a discussion between a pharmacist and patient about managing a potential side effect. In this same exchange, the pharmacist also demonstrated accommodative interpersonal
control by prefacing advice with the expression “you know yourself best” to encourage patient autonomy in making appropriate healthcare decisions.

The CAT strategy emotional expression was not identified in the segments of plots indicating moderate to high levels of pharmacist-patient engagement. (However, appropriate emotional expression was located within the original transcripts, audio recordings and observational notes that included descriptions of non-verbal behaviours such as facial expressions, nods, or physical contact).

6.3.3 STEP 3 - Characteristic patterns of inpatient and outpatient settings
At the time of patients’ discharge from hospital, it was not uncommon for pharmacists to relay large amounts of medication information to inpatients as shown in the dominant squares of red (pharmacist) and smaller blue squares (patient) indicating fewer spoken words (Figure 6-5a).

![Figure 6-5. Pharmacist-patient medication counselling (inpatient versus outpatient settings)](image)

Exchanges taking place in outpatient settings typically involved the pharmacists reviewing patients’ medication therapy by soliciting information from patients through questions and prompts. Figure 6-5b shows a plot of a pharmacist-patient exchange taking place in an outpatient clinic where the volume of conversation contributed by patients (blue) at least matches that of the pharmacists (red).
6.4 Discussion

Using Discursis software to visualise hospital pharmacist-patient conversations, allowed for the location of pharmacist-patient engagement, identify some specific CAT strategies used by pharmacists within these engagement episodes as well as differentiate between interactions taking place in inpatient and outpatient settings. These findings provided an enhanced perspective and interpretation of the exchanges already analysed in Chapter 5 from audio recordings, transcripts and observational notes. This technology, which has been previously validated and used in other health settings, permitted the identification of distinct conversation patterns in pharmacist-patient interactions.

Firstly, and of particular interest, was the software’s ability to represent different levels of pharmacist-patient engagement. Low and medium-high levels of engagement could be easily identified and distinguished on the Discursis plots. This feature will lend itself to future research where larger data sets of Discursis plots can be quickly scanned for detailed study.

Higher levels of engagement observed on Discursis typically signified a two-way conversation and were usually an indication of accommodative communication taking place between speakers. However, researchers have cautioned that strong engagement depicted by Discursis relays information about the level of speaker engagement, but does not indicate the content or relevance of the discussion. Angus et al provided a Discursis example where the physician and patient were highly engaged in their conversation, but the topic was about sailing, and not the patient’s medical condition. In contrast, pharmacists in this study did not allow conversations to digress and typically stayed on task throughout their exchanges with patients. This was confirmed by the process described in the Methods section to verify the dialogue corresponding to episodes of engagement (by highlighting these areas on the plots).

Secondly, the next step of the study involved “drilling down” to the original dialogue within the Discursis plots of moderate-high pharmacist-patient engagement. This detailed investigation offered numerous examples of accommodative use of CAT strategies by pharmacists for approximation, interpretability, discourse management and interpersonal control. No examples of the CAT strategy, emotional expression, could be detected in the Discursis engagement patterns. However, its absence is not entirely surprising as expressions
of emotional support given by a pharmacist to a patient may not be concepts repeated back to the pharmacist by a patient. Therefore, these expressions would not be identified as related concepts by the software and would not be displayed as engagement (off-diagonal squares). Although emotional expression is a more abstract CAT strategy and could not be identified on Discursis within an engagement episode, its potential to establish positive pharmacist-patient exchanges and facilitate strong engagement with patients cannot be undervalued. The importance of accommodating patients’ emotional needs has been studied in physician communication research, and has been positively associated with patient satisfaction and improved patient outcomes such as adherence to therapy and improved diabetic control.\textsuperscript{30,72,74}

Examples of accommodative approximation as repetition of the previous speaker or “same-saying” were found in both isolated and larger episodes of engagement. Discursis patterns showed that both pharmacists and patients repeated portions of each other’s speech. Although both the pharmacists and patients were accommodating each other, they did so for different reasons. Pharmacists appeared to use “same-saying” to encourage patients to expand on the subject or clarify the patient’s meaning whereas patients repeated pharmacists’ speech not only to indicate their understanding of the topic, but also to seek clarification or ask a question. Research using Discursis and CAT to help analyse conversations during open disclosure about adverse events that occurred in hospital found that physicians usually used “same-saying” to reassure patients, however patients sometimes used “same-saying” negatively by repeating physician statements with sarcasm.\textsuperscript{266} The negative use of “same-saying” was not observed in this study.

Accommodative interpretability and discourse management strategies utilised by pharmacists were readily identified within large segments of moderate-high engagement plots where pharmacists predominately used simple terms and phrasing in their discussions with patients and sought patient understanding by asking open-ended questions (Figure 6-4). Angus et al inferred that within high level engagement exchanges where physicians spoke clearly and used easy-to-understand language, patients would be more likely to have a good understanding of their treatment plan.\textsuperscript{250} On the other hand, the same researchers suggested that low physician-patient engagement as shown as alternating squares of colours meant that the patient left the consultation with little awareness of what the doctor said. It was postulated that the physician dominated the conversation and did not allow the patient enough time to
take in the information and formulate responses. Episodes of strong pharmacist-patient engagement, likely reflecting effective practitioner communication skills, are vital to ensure patients’ understanding of their medication therapy. Effective pharmacist-patient communication may, in future studies, be linked to improved patient outcomes such as medication adherence. Associations between treatment adherence and strong clinician-patient relationships have already been established in physician-patient communication literature.

The use of non-accommodative CAT strategies by pharmacists could not be detected within episodes of moderate-high engagement in the Discursis visualisations similar to findings by Angus et al. Instead, examples of non-accommodation were more readily found in exchanges classified as low level engagement such as Figure 6-2b. In fact, this exchange occurring early in the medication counselling session is likely to have had a negative effect on the remainder of the conversation. The tone and the content of this pharmacist’s speech heard in the audio recordings did not portray empathy, but conveyed judgement and frustration. There was little to encourage patient input in this conversation and it was not surprising that this conversation held no engagement between the pharmacist and patient. Interestingly, the pharmacist did not seem to recognise that their conversational method was ineffective and did not attempt to redirect their efforts to engage the patient. This pharmacist’s steadfast approach can be seen on the Discursis plot where the initial and subsequent vertical stripes are continuous throughout the conversation indicating that similar concepts were repeated multiple times. As well, the pharmacist dominated the conversation as seen by the larger red squares with only small blue squares representing the patient responses. Researchers observing similar Discursis patterns in physician-patient conversations have suggested that it is difficult to know how well patients have understood information when they have only provided abbreviated responses and there has been little engagement between the physician and patient. As a caveat, it cannot be assumed that most or all situations of low patient engagement necessarily mean that the conversation has not been effective for the patient. For example, a patient wanting specific details about a medication may be content with receiving large volumes of information from the pharmacist, and may only provide little input in terms of response. In this type of situation, parts of the interaction would likely be represented in a similar manner as the example in Figure 6-2b. However, to determine that the patient preferred this type of exchange, an accommodative pharmacist would need to have discussed this with the patient, probably at an early point in
the conversation. This agenda-setting phase would appear as an engagement episode on a Discursis plot, and was not present in the exchange depicted in Figure 6-2b.

Lastly, in the final step of the study, the setting of the conversations (inpatient versus outpatient) could be readily distinguished by the distribution and size of participants’ squares (turns) on the Discursis plots. For example, pharmacists were the dominant speakers for inpatient exchanges taking place at discharge, whereas patients in outpatient settings provided more input during medication assessments.

Discursis has numerous practical and theoretical applications for future health communication research and training. Its practical applications include: to provide a quick overview of exchanges between pharmacists (or other healthcare professionals) and patients to observe characteristic patterns of engagement between speakers, to identify dominant speakers and their ability to stay on task as well as good communication skills such as turn-taking and ensuring key concepts are summarised at the conversation conclusion. Discursis plots are easily generated from audio recorded transcripts, and therefore conducive as teaching tools for both students and practitioners to assess and develop their communication skills.

Discursis was also amenable to the theoretical application of the communication theory, CAT, which allowed for a detailed examination and analysis of the individual episodes of engagement. Researchers can use Discursis as a tool to conduct preliminary reviews of large data sets of clinician-patient conversations prior to identifying key areas for concentrated analysis.

There are limitations to this Discursis study of pharmacist-patient interactions. Current Discursis software is based on the transcriptions of the audio recordings, and does not, as yet, account for speakers’ pauses or non-verbal communication taking place. Understanding Discursis plots requires sufficient time and ample practice for most users to gain confidence in their ability to interpret the patterns accurately. However, once this is achieved, there is much potential for Discursis to enrich the qualitative analysis of communication research. Another potential limitation was the self-selection of highly motivated pharmacists, who chose to be part of the original pharmacist-patient communication study. This may have
resulted in fewer examples of poor communication from which to select for Discursis analysis, and in turn, may limit the transferability of positive results.

In summary, pharmacist-patient conversations with moderate-high engagement and multiple episodes of accommodative CAT strategies detected on Discursis plots most likely indicate that effective communication has taken place. Conversely, pharmacist-patient exchanges with low levels of engagement and few demonstrations of accommodative CAT behaviours by pharmacists appear to reflect ineffective exchanges. However, examining the overall effectiveness of the interaction requires an understanding of the conversation’s context, as well as gaining both participants perspectives of the exchange.

6.5 Conclusion
Discursis software was an effective and efficient technology to enhance the qualitative analysis of pharmacist-patient conversations by providing visual representations of the interactions. Characteristic patterns displayed by Discursis showed the relative contributions made by each speaker, the extent of pharmacist-patient engagement, and how well the conversation remained on topic, all aspects of an effective exchange. Discursis has value as an adjunct to analysis in qualitative research as well as a teaching tool in communication skills training for both students and practitioners.

This chapter showed how Discursis software can pin point times of pharmacist-patient engagement and how these episodes of moderate-high engagement often represent times when pharmacists have appropriately applied CAT strategies. The previous chapter and this chapter have focussed on the analysis of pharmacist-patient exchanges. However, these analyses of pharmacist-patient conversations provide only a partial evaluation of the effectiveness of the exchange. Eliciting both patients’ and pharmacists’ opinions about their shared conversation will provide a more complete analysis of the exchange. Chapter 7 compares both participants’ views about their exchange, and also compares their assessment to that of an Observer’s ratings.
CHAPTER 7: Pharmacists’ and patients’ perspectives of their shared medication counselling session, and triangulating the results

This chapter addresses Aim 1: Research Question 4, “How well does the pharmacist communicate from the patient’s perspective, how does the pharmacist’s perspective of that interaction compare to the patient’s, and to that of an Observer?” This study focussed on the perspectives of pharmacists and patients, and their responses to statements about their shared medication counselling experience as well as those from the Observer’s evaluation of the interaction.

7.1 Introduction

As discussed in Chapter 1, there has been little published research investigating communication exchanges between hospital pharmacists and patients, and with few details about what makes these conversations effective. Most of these studies focus on the pharmacist-patient interactions or evaluate either only the patients’ or pharmacists’ perspective, but not both participants’ experience. In addition, most research is atheoretical.

This research helps address these gaps in the literature by invoking CAT to interpret the details of the pharmacist-patient interaction. An Observer assessed the exchanges based on the CAT framework, and these analyses were triangulated with the pharmacists’ and patients’ perceptions of their shared medication counselling session. This approach provided both insider’s (pharmacists/patients) and outsider’s (Observer) perceptions of the same interaction. Further discussion and details of CAT is provided in Chapter 1, pages 27-32. The aim of this study is to invoke CAT to investigate how well pharmacists communicate from the patients’ perspective, and how pharmacists’ perspectives compare to patients’, and to compare these results with those from an outsider (Observer).

7.2 Methods

7.2.1 Study Type and Design

A mixed methods approach was used to address the research aims. Qualitative methods, through semi-structured interviews with patients and pharmacists, were used to gather details about each participant’s perspective of their shared medication counselling experience. Quantitative methods were employed in the data collection and analysis of participants’ responses to the 13 statements from the semi-structured interviews, and the comparison of
these to an Observer’s (BC) assessments of their interaction based on CAT criteria (Table 2-4). Refer also to Chapter 2 (Section 2.5.5) for details about data collection and analysis of the semi-structured interviews and their comparisons to the Observer’s ratings.

7.3 Results

7.3.1 Medication Counselling Sessions
Twelve pharmacists engaged four patients each for a total of 48 medication counselling interactions that took place between November 2015 and April 2016. In the semi-structured interviews, several pharmacists were observed to reflect on their rationale for assigning a particular level of agreement, often leading them to alter their initial response. These pharmacists often chose higher levels of agreement at first and upon verbalising alternative and better ways in which to interact with patients, they changed their level of agreement to a lower value for that statement.

7.3.2 Comparison of patient and pharmacist explanatory responses to the semi-structured interview statements
Patients and pharmacists provided both numerical ratings and an explanation for their assigned rating to the 10 CAT related statements included in the semi-structured interviews. Transcripts of interviews with participants’ rationale for their rating choices were then further subcoded within each of the five CAT strategies. (Table 7-1)
Table 7-1. CAT strategy elements described in semi-structured interviews by patients and pharmacists

<table>
<thead>
<tr>
<th>Semi-structured interview statement</th>
<th>CAT Strategy</th>
<th>Patient Subcodes (Elements of CAT Strategy)</th>
<th>Pharmacist Subcodes (Elements of CAT Strategy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The pharmacist spoke so the patient was able to understand what they were saying.</td>
<td>Approximation</td>
<td>Not observed</td>
<td>Accents/colloquialisms (recognised shared background adjustments made (clarity or volume): conscious adaptations to accommodate to patients’ conversational needs</td>
</tr>
<tr>
<td>2. The pharmacist avoided the use of medical terms that the patient wouldn’t understand.</td>
<td>Interpretability</td>
<td>Language level used: appropriate/ inappropriate level (negative response); medical terms used but explained Information conveyed: verbal/written format; information volume (too much (negative response)/ appropriate) Confidence in understanding their medications: understood well/ uncertain/ already confident</td>
<td>Language level used: appropriate/ inappropriate level (negative response); medical terms used but explained Information conveyed: verbal/written format; information volume (too much (negative response)/ strategic in choice of information provided) Confidence in patient’s understanding of their medications: understood well/ uncertain/already confident</td>
</tr>
<tr>
<td>3. The pharmacist explained to the patient how their medication works in a way they could easily understand</td>
<td>Discourse Management</td>
<td>Attentive: pharmacist paid attention; picked up on cues (non-verbal/verbal); addressed concerns Conversation pace: well-paced/ enough time/insufficient time to ask questions/not feeling rushed; already had prepared questions</td>
<td>Attentive: demonstrated active or careful listening; assessed patient’s level of engagement; addressed concerns; self-reflection on quality of attentiveness provided Conversation pace: well-paced/ allowed for two-way conversation (questions/engagement; inadequate/felt rushed</td>
</tr>
<tr>
<td>4. The pharmacist allowed the patient enough time to ask any questions they had.</td>
<td>Interpersonal Control</td>
<td>Promoted equality: comfortable to interrupt; feels equal to/on same level Empowerment: given agency to be active in own healthcare/already active; able to self-monitor &amp; make connections to resources in community; understands therapy rationale</td>
<td>Promoted equality: handled interruptions appropriately/ inappropriately (task driven) Empowerment: patient encouraged active role in healthcare, able to self-monitor therapy &amp; connect with resources in community; and understands therapy rationale to enable informed choice</td>
</tr>
<tr>
<td>5. The pharmacist paid attention and listened to medication concerns expressed by patient.</td>
<td>Emotional Expression</td>
<td>Built rapport with pharmacist Kindness/caring bestowed/reassurance provided Politeness &amp; respect Feeling valued</td>
<td>Built rapport/relationship Empathy/kindness/reassurance Politeness &amp; respect (judgemental/lack of judgement) Validated patient’s concerns</td>
</tr>
<tr>
<td>6. The pharmacist allowed the patient to interrupt them with any questions they had.</td>
<td></td>
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<tr>
<td>7. The pharmacist encouraged the patient to talk to their doctor and/or community pharmacist about different medication options available.</td>
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<tr>
<td>8. The pharmacist encouraged the patient to take responsibility for managing their health.</td>
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<tr>
<td>9. The pharmacist demonstrated to the patient that they thought their worries and questions about their medicines were important.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The pharmacist spoke to the patient in a respectful and courteous manner.</td>
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</tbody>
</table>
Approximation

Approximation (matching each other’s speech production such as volume, pace or use of accents) was represented by one statement only “The pharmacist spoke clearly so the patient was able to understand what they were saying.” Patients interpreted this statement to describe the pharmacist’s ability to articulate their words clearly as opposed to how pharmacists adjusted their speech pace or volume. Examples of patient comments included “…Very clearly” and “…she spoke clearly.” Even when this statement was further clarified to patients to mean that pharmacists used sufficient volume or that their speech rate was adequate, some patients qualified their opinions by saying “…she come through good…”.

Pharmacists on the other hand provided more details about how they accommodated or not to patients’ conversational needs through speech production. Several pharmacists identified consultations where they felt they spoke too quickly and may not have accommodated to patients’ speech rates. Some pharmacists attributed their fast-paced speech to nervousness, “I think when I get a little bit nervous and stuff, I just speak a little bit fast.” Others felt rushed to complete the current consult and get to the next patient, “I am aware that I was in a rush.” A few were aware of their tendency to rapid speech, “… I know I have a problem with speaking quickly - and I'm conscious of that…”

Several pharmacists described how they assessed and addressed difficulties with speech production, by ascertaining how well the patient was understanding the information and then by making audible changes to their speech as well as alterations to their manner of speaking. The following exemplify these observations and changes made by two inpatient pharmacists:

“With the elderly - with the hearing - you never are quite sure... She was responding appropriately” (Daniel) and

“I sat on the edge of his bed [so that] he could hear me.” (Ingrid)

Two pharmacists remarked how they shared backgrounds and accents with patients,

“…he was a bit of a laid-back sort of male…from an area that was not a metropolitan area… I find it easy to sort of relate to people like that - and talk.” (Ben) and
“…she's from the same part of the world as me, so actually accent shouldn't have been a problem…” (Anna)

Although many pharmacists were quite critical in self-assessing their ability to accommodate to patients’ conversational needs through approximation strategies, none of the patients expressed negative opinions about pharmacists’ ability to speak clearly. An example of this pharmacist-patient miss-match occurred when Geena, an outpatient pharmacist, self-rated lower than the patient and stated, “…I know I speak quickly and I can never be 100 per cent certain that I wasn't babbling when I'm talking…” However, the patient did not share her view, “… I strongly knew what she was saying.”

7.3.2.2 Interpretability
Pharmacists and patients responded to two statements related to interpretability strategies intended to assess pharmacists’ ability to modulate their language and word choice to ensure their words were understood by patients. Both participant groups provided similar explanations for their choice in responses to the two statements. These aspects of the interpretability strategy were subcoded as language level used, information conveyed, and confidence around patient’s understanding of their medications (Table 7-1).

Language level used
Comments from patients about the language level used indicated that almost all felt that pharmacists used appropriate language levels, well understood by patients. Many described the way in which pharmacists explained medication information as “very straightforward”. Most, as this elderly inpatient explained, were receptive to hearing the information,

“…I mean she was trying to instil a bit more information to Joe Blogs- about what - the medication and treatments that she is supplying…to tell me, as layman…She knew the ability of those products more so than I did. To me they’re just a label. She explained what the label says and promotes.”

Some pharmacists had conversed with patients on multiple occasions during their hospital stay and had already adjusted their vocabulary and manner of speaking,
“I’ve been talking to her for about four weeks now - so I know the type of language that she likes to use.” (Ellen)

Many patients appreciated pharmacists using plain language and avoiding medical terminology, “Yeah. It was just plain English.” Only one patient reported that the pharmacist had used inappropriate terminology. “I understood half I think. I don't know.”

Most pharmacists indicated that they consciously avoided the use of medical terms and ensured they used easy-to-understand language in their conversations with patients:

“…I think I actually echoed the words that she used. So, when she talks about her apixaban being as a blood thinner - I refer to it as a blood thinner…” (Anna)

Sometimes, pharmacists commented that they were uncertain whether they had used an appropriate level of language in their exchange with patients, “…occasionally medical terminology can creep in.” (Fiona)

Numerous patients reported that pharmacists used medical terms and then explained their meaning, “…he'd use them -but then he'd explain the use of them… he'd break it down to what I'd understand.” Pharmacists also admitted to using medical terms at times when conversing with patients about their medications, but then explained their meaning to the patient.

” I probably used some medical terms, but I think that I then explained what the medical term was…” (Ben)

At times pharmacists reported intentionally and appropriately using medical jargon in situations where the patient was either a healthcare professional or already had in-depth knowledge of the subject area.

“I probably used more medical terms than I normally would have because the patient was a nurse with 30 years’ experience and we knew that going in.” (Ingrid)


**Information conveyed**

Many patients and pharmacists provided details of the *information conveyed* to explain their responses to the statements. This included the information format such as the verbal discussion as well as written medication information, including supplementary medication information sheets as take-home references for patients, lists and calendars to augment the conversation. Numerous patients remarked how helpful they found the written information and tools in preparing them to better understand and manage their medications,

“…she wrote it down in a format that we could understand…She even gave us suggestions on what to do - how to do it with calendars and things like that…”

Both participants remarked on the volume of information provided, and whether they felt too much information or the appropriate amount had been given. A few patients felt overwhelmed with the quantity of information provided indicating the volume was inappropriate, “Too much information. My head's going…” Pharmacists also recognised that at times the amount of information provided was inappropriate,

“I do [explain how medication works in a way that could be easily understood] …but I believe she just got a bit overwhelmed with the lot of them.” (Laura)

Pharmacists also commented on how they were strategic in the type and volume of information given to patients depending on their goals for that patient interaction.

“I didn't go into a massive amount of detail…other than to say that they were for pain…as long as she knew what they were for and what had to be monitored…” (Christine)

**Confidence in patient’s understanding of their medications**

In both pharmacists’ and patients’ remarks responding to the statement about the pharmacists’ ability to explain medication information well, an interesting concept around patients’ confidence in their understanding of their medications emerged. Many pharmacists explained their responses in terms of their confidence in the patients’ understanding of their
medications, and ability to manage their medications at home. Pharmacists’ comments often included their assessments to determine patients’ understanding:

“He was giving me appropriate responses back. He seemed to understand what I was talking about - and he seemed fairly competent with his medications.” (Daniel)

When patients described understanding their medications, they often framed their discussions around factors that affect their confidence in managing their medications. Patients indicated that they had gained confidence in understanding their medication often crediting the pharmacist for their explanations and information provided. Examples include: “she explained those things to me which was good because I wouldn't have known otherwise.” and “She's very convincing, like you could tell she knew what she was talking about and it's easy to understand what she's going on about…”

Both pharmacists and patients recognised that achieving a good understanding of medications was often a process. A patient described how he overcame his uncertainty around managing his medications, “…I had to ask and get it - explanation of them, because I didn't understand them. But she explained them so I did understand…” An inpatient pharmacist, unconvinced that the patient understood how to apply her analgesic patches, described the follow up process to ensure the patient was prepared at discharge:

“…when I went back, I was showing her the patches…I had said to her before, 'You can cut these.' Then I showed them to her and she understood a little bit better...she knew what everything was for.” (Christine)

For many patients, the conversation with the pharmacist served as a review or reminder to patients who were already confident in their medication knowledge and understanding. Some examples of patients’ implied confidence include: “It was all sort of clear to me from beforehand…” and “…I understand these [medication] sheets very well- because I've been doing it for over 12 months.”

Pharmacists also acknowledged the patients’ pre-existing understanding and competence in managing their own medications, in saying:
“She's the kind of patient who knows more about her medicines than I ever will…She knows exactly what she takes and why.” (Anna) and

“This patient was pretty comfortable with her medications anyway- kind of knew what she was taking and why…” (Daniel)

### 7.3.2.3 Discourse Management

Patients and pharmacists responded to two statements related to discourse management strategies intended to determine how well pharmacists paid attention to concerns expressed by patients and whether pharmacists allowed patients enough time to ask questions during their medication consultation. Comments provided by both patients and pharmacists pertained to the attentiveness of the pharmacist and the pace of the conversation.

**Attentiveness**

From the perspective of the patient, attentiveness meant that the pharmacist demonstrated active listening by picking up on both verbal and non-verbal cues and by addressing patients’ concerns. Patients often provided examples of how pharmacists listened to them and addressed their medication concerns, “I felt she gave me her full attention and answered my questions.” and “Yes…when I was talking about whether I need to [measure]…blood pressure or things like that…”

Pharmacists reflected on their level of attentiveness and demonstrated this through careful listening and attending to patients’ raised concerns.

“She really was quite focused on the fact that she’d had this fall. I really tried to build that into the conversation…” (Daniel) and

“I knew the patient was coming in with some specific medication concerns - so I tried to address those as the first topic of conversation…” (Geena)

Some pharmacists expressed that patients might have had concerns they had overlooked or not picked up on,
“Probably the one that I thought he would have the most concerns about was the Lyrica dropping down…but he didn't seem very concerned about it… maybe there were non-verbal cues that I wasn't picking up on or something.” (Ellen)

In most pharmacist-patient interactions, both participants agreed on their assessment of the pharmacists’ attentiveness. This is illustrated in the following example where an inpatient pharmacist deduced from her conversation with the patient that he was experiencing an adverse drug reaction. The pharmacist’s comments indicated an acknowledgement of the patient’s concerns and her communication with the medical team.

“I definitely took on what he said about the medication… and the information that I’d gotten from the doctors yesterday had changed...” (Ingrid)

The patient felt that his concerns had been heard. “yeah…and she is going and finding out whether I can maybe get a drug change, which is really what I'm after.”

**Conversation pace**

Patients described their conversations as being well-paced when they felt they had enough time to ask questions. “I didn't feel like we were rushed conversation or anything…”

Some patients agreed that the conversation allowed time to ask questions, but they had already prepared questions for the pharmacist in advance. “I already had a series of questions in mind anyway on my medication…”

Pharmacists also preferred an unrushed, smooth flowing conversation conducive to patients’ questions.

“…we were in no rush to go anywhere - nor was he, which was a bit of a rarity…I think he had enough time [to ask questions] if he wanted to- and I told him he can ask tomorrow as well if he thinks of anything else…” (Ben)

Only one patient expressed concerns about being rushed and not been given sufficient time to ask questions. The following was taken from a patient interview with a man who had recently
experienced a myocardial infarction and was being discharged two days later with five new medications. “…Because it's all new to me. There is no length of time…”

On the other hand, several pharmacists indicated that their conversation had been too rushed, often attributing this to workload issues.

“I guess - downfalls is that I'm often in a big hurry and I don't give them probably as much time - as they could - to ask more questions.” (Fiona)

7.3.2.4 Interpersonal Control
Three statements in the semi-structured interview guide pertained to aspects of the CAT strategy, interpersonal control. Opinions expressed by interviewed pharmacists and patients were categorised within two main subcodes, promoting equality and patient empowerment.

Promoting equality
From the patient’s perspective, promoting equality meant the patient felt equal to or “on the same level” as the pharmacist. Patient’s comments were mainly made in response to the statement about their comfort in interrupting pharmacists to ask questions, such as, “…she gave me the go-ahead…” and “Yeah- I was quite comfortable with her [for me to interrupt her].” Only one patient indicated he felt he was not able to interrupt the pharmacist to ask questions. “Yeah- [she] didn't allow…”

A few patients may have misinterpreted the intent of the statement where they considered interrupting another person as a rude or socially undesirable behaviour, “I hope I didn't interrupt…”

Some patients commented that pharmacists had spoken to them in a way that made them feel equal and respected. The following dialogue between the patient and her husband depicts the pharmacist’s communication style as one that promoted equality between themselves and patients:

Patient: I liked the way she kind of came down to our level.
Patient’s Husband: Yeah.
Pharmacist also described behaviours that promoted equality between themselves and patients through appropriately handling patients’ interruptions and adroitly redirecting off topic conversations,

“…she did interrupt me a couple of times to clarify some things... she interrupted and I answered the questions…” (Jessie) and

“[He] did have lots of questions and I did feel like he interrupted me a lot. Not in a bad way - but I felt like he was maybe getting a little bit off track sometimes - so I probably did…keep him back on track…” (Fiona)

However, some pharmacists felt that they had not been very receptive to patient interruptions because they felt compelled to stay on task during the exchange with patients, “…I try not to let them interrupt too much. I've got deadlines…” (Fiona)

One patient described how he was put off by a pharmacist who seemed to be intent on conducting the medication counselling session in a preferred order: “…when I was talking about that antibiotic, he says, ‘Yeah, we'll get to that.’…but generally speaking- yeah- he did [allow me to interrupt].” The pharmacist involved in this conversation provided his interpretation:

“I tried to explain at the start that we'd go through it step-by-step - which I find makes it a little bit easier, because it brings their mind back knowing that we'll get to the one they want to talk about.” (Ben)

**Empowerment**

Several pharmacist behaviours were described by both patients and pharmacists that empowered or encouraged patients to be active players in their own healthcare. Specific examples included: ensuring patients knew how to self-monitor their therapy, encouraging patients to connect with their primary care health professionals, and making sure patients
knew the rationale for their therapy to enable them to make informed decisions about their therapy.

Many patients indicated they felt more confident in self-managing their medications at home after conversing with the pharmacist and had been encouraged to be more active in their own healthcare. “Going through each item individually and explaining the new medications…pointing out all the side effects…because I'm controlling of my medications [at home].” and “It's important questions…because I’m going home after spending 10 days in here in a monitored state - very monitored …Now it's up to me, so I'd like to know that I'm capable of doing what I need to do.” However, some patients reported that they had been already confident in self-managing at home, “I do it all myself. I get them out and take them. I don't need anyone to say, ‘Take this and do that.’ I do it all myself.”

The ways in which pharmacists encouraged patients to be more active in caring for their health ranged from general advice to specific medication related strategies,

“…because…he could get the same symptoms again… The words I used were, ‘I want you to make a lot of noise if this happens again’…I encouraged him quite strongly to talk to his GP, see a pharmacist, talk to the team here - call people. I said if nobody listens to you again - I don't want you getting ignored. Make some noise about it.”

(Ingrid)

Pharmacists gave many examples of how they encouraged patients to self-monitor and to coordinate their care with healthcare professionals in their community.

“I gave him a follow-up plan for his cellulitis - should he notice that the symptoms were worsening or that he was feeling unwell.” (Daniel) and

“…if she needed any further pain relief or anything that she should go to her GP…and that she can go to her community pharmacist if she has problems like constipation.”

(Christine)
However, a few pharmacists did not feel they had made sufficient links to resources in the community for their patients. “…I probably didn't encourage him to other sources as much as I could have.” Patients felt empowered by understanding how to connect with different healthcare professionals to address medication issues in the community, “…she [pharmacist] was clear with what options I have- if I need to do anything with that…”

Both patients and pharmacists described understanding the importance and rationale of medications as a way to empower patients. Many pharmacists felt it was necessary for patients to understand the rationale for their medication, most often because they felt it would improve patients’ medication adherence. However, some pharmacists emphasised that patients’ understanding of their medication and especially its rationale would enable patients to make informed choices about their treatment.

“…it is my responsibility to make sure they know why they should take them- and that when they're choosing not to take them, they understand what those risks are as well.” (Ingrid) and

“…it was important to reiterate… what the plan was… that he was supposed to be on it long-term, and the reasons behind it - and weighing up those risks and benefits.” (Ben)

Patients emphasised their need to understand the reasons for their medication therapy, and indicated their appreciation in receiving this key information: “Well he [the pharmacists] explained why they had been stopped- the reason why …” and “…you need to understand what is happening to you, why it has happened, will it happen again - and what do you do to prevent it…”

7.3.2.5 Emotional Expression

Patients and pharmacists responded to two statements based on the emotional expression strategy that assessed pharmacists’ ability to provide appropriate empathy and reassurance to patient’s emotional needs.

Both participant groups elaborated on their responses with similar concepts including building rapport between pharmacists and patients, a cluster of behaviours related to
bestowing kindness, caring, reassurance and empathy and polite and respectful behaviour. Patients relayed pharmacists’ behaviours that made them feel valued while pharmacists described situations in which they had validated patient’s concerns.

**Building rapport**

Patients who had been admitted to hospital for extended stays remarked on how the pharmacist had built a good rapport by interacting with them throughout their stay. “She's been coming ‘round and…I think we've already established a bit of a rapport... I've already established a rapport with [the pharmacist] quite some time ago. She's been lovely since I've been here…” Pharmacists also shared how rapport could easily be built with patients,

“- it was easy enough to talk to him… I could probably have a conversation with him regardless of medications…” (Ben)

Having a shared sense of humour seemed to have facilitated the development of rapport between some pharmacists and patients, as described in these interviews following a pharmacist-patient exchange. “She's right into having a laugh, I think. Yeah - which is good. That's good for everyone. I believe [when you're] in hospitals, mate - you can't get enough laughter, because of all the sadness and the pain in here, mate. Laughter is the best medicine.” This patient’s pharmacist also referred to building a relationship with him through a shared sense of humour,

“…he's a bit more of a laid-back fellow- so you can be a bit - a bit more casual with him and he doesn’t mind… I've been popping around every day or two to have a chat with him - as with all of my patients.” (Ellen)

**Empathy/kindness/reassurance**

Patients gave many examples of how pharmacists had demonstrated kindness and caring. In this example, the patient’s husband described the caring interaction between his wife and the ward pharmacist, “…[my wife] is reluctant to tell me when she …was feeling pain. But [the pharmacist] explained - she said, ‘Speak up if you are in pain - we have to work out this patch thing anyway- so you've got to speak up and say’…”
Pharmacists also bestowed kindness to patients by advocating on their behalf and assisting patients in navigating the healthcare system. A pharmacist described her frustration in trying to help a patient connect with other healthcare professionals in the community to facilitate medication changes requested by the patient,

“…she articulated that she can't get hold of her case worker… and she can't go with a psychiatrist… it sounds [like]… she has fallen through the gaps a little bit…” (Anna)

On the other hand, this patient was pleased with attempts made by the pharmacist. “…she stayed and talked to my psychiatrist and to my mental health team and the people here.”

Several patients described situations in which pharmacists provided much needed reassurance, “…the new medication that they started me on this morning. That was a bit scary to me - to begin the medication and then leave the hospital straight away - before I find out what side effects I have. She's put me at ease.” Patients were grateful for having access to the pharmacist after their conversation and felt reassured to be able to follow up on any further medication questions. “She's told me that there's a phone number on the handouts that I can ring…”

Pharmacists also offered many examples where they had demonstrated genuine concern and empathy for patients. “…she's been extremely unwell with this whole gastro thing. It's been very distressing and quite traumatic.” (Karen) A pharmacist coordinating multiple medication changes with the patient’s medical team commented,

“He's worried he's got too many medicines - and honestly - I'm worried he's got too many medicines, and I'm worried that he's not on the right mix for him…” (Anna)

Sometimes the pharmacist’s kind and considerate actions were related to practical issues such as drug procurement or patients’ ability to afford their medications. For example,

“I got the team to change his medications to something that we could put on the PBS... I definitely did allow him to tell me - if you're having a problem - if you can't afford to
pay for it…this is what we should be doing- and this is what we can do or we can't do…. but there was only so much I was able to do…” (Christine)

**Politeness and respect**

All patients felt that the pharmacists had been courteous in their interaction and some articulated this feeling of respect in the interviews. “He's always been polite and ‘How are you?’ and all that yeah. Yeah, he's a good bloke.” Pharmacists shared the patients’ values of being respectful and courteous, and this was reflected in their comments.

“I don't want them to feel like ‘We're just trying to get you out the door and I need [you] to go home.’” and “I have a relationship with this patient…I've known him now for over 12 months - so…I used a familiar manner, but not disrespectful.” (Geena)

Some pharmacists remarked how they consciously avoided being judgemental,

“I think I'm non-judgmental…I think certain patients - and certain environments - can feel automatically defensive - and I think it's important not to make that worse by your manners - your mannerisms…” (Anna)

Two pharmacists reflected on the possibility that they may have acted in a judgemental manner,

“…So perhaps I did have my guard up with her - that she was what we would call a problematic pain patient - not necessarily drug seeking, but as in a druggie and IV use…and perhaps might have limited the opportunity…to get too deeply involved in the conversation…” (Jesse) and

“I felt a bit harsh… when I'm talking to somebody about money - and they can't afford…when I was saying, ‘We're going to do this and I'm aware that you can't afford this and this is a problem’…” (Christine)
Patients feeling valued/Pharmacists validating patients’ concerns

Some patients expressed a feeling of being valued by the pharmacist in their interaction, for example, “She was interested in what I had to say. I know that…” and “I wasn't just another page in the book…I was an individual. Individual, yeah”

Pharmacists provided examples of how they validated patients’ concerns:

“She obviously had a very strong focus on preventing further falls because of the injury that she had sustained. She was also concerned about any absences of medications and so I think they were valid concerns and I think we addressed them.” (Daniel) and

“… [he] asked two good questions…’what happens if I don't take these at all?’ Which was showing that was something he was contemplating which is understandable when you’ve never taken medications before and you're faced with potentially starting on all these new ones. The other thing he asked was whether it mattered if you would miss a dose…So both of those were good questions and good concerns - and we discussed those.” (Ingrid)

7.3.3 Comparing the perceptions of the Observer, Pharmacists and Patients – a quantitative approach

The results of the analysis of the Observer, Pharmacists’ and Patients’ responses to the 10 CAT based strategies and three satisfaction statements are presented in Table 7-2. There was close agreement between the three groups for statement 2 only which was about the pharmacist avoiding medical terminology. There were no statistically significant differences among the responses provided by any of the groups about this statement. However, there was disagreement between the groups regarding the remaining 12 statements related to the pharmacists’ performance while engaged in medication counselling with patients.
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Approximation</td>
<td>1. The pharmacist spoke clearly so the patient was able to understand what they were saying.</td>
<td>90% [67.0]</td>
<td>94% [58.9]</td>
<td>100% [91.7]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 p= NS; 2&amp;3 p&lt;0.0001; 1&amp;3 p=0.001</td>
</tr>
<tr>
<td>Interpretability</td>
<td>2. The pharmacist avoided the use of medical terms that the patient wouldn’t understand.</td>
<td>94% [72.0]</td>
<td>94% [78.9]</td>
<td>88% [66.6]</td>
<td>P=NS</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>3. The pharmacist explained to the patient how their medication works in a way they could easily understand.</td>
<td>96% [73.1]</td>
<td>70% [53.5]</td>
<td>96% [86.7]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 p=0.004; 2&amp;3 p&lt;0.0001; 1&amp;3 p=0.04</td>
</tr>
<tr>
<td>Discourse Management</td>
<td>4. The pharmacist allowed the patient enough time to ask any questions they had.</td>
<td>85% [60.7]</td>
<td>81% [74.6]</td>
<td>96% [82.2]</td>
<td>P=0.01</td>
<td>1&amp;2 and 2&amp;3 p=NS; 1&amp;3 p=0.001</td>
</tr>
<tr>
<td></td>
<td>5. The pharmacist paid attention and listened to concerns the patient expressed about their medications.</td>
<td>96% [69.4]</td>
<td>83% [61.3]</td>
<td>100% [78.1]</td>
<td>P=0.04</td>
<td>1&amp;2 and 1&amp;3 p=NS; 2&amp;3 p=0.01</td>
</tr>
<tr>
<td>Interpersonal Control</td>
<td>6. The pharmacist allowed the patient to interrupt them with any questions they had.</td>
<td>90% [65.7]</td>
<td>79% [59.1]</td>
<td>98% [77.6]</td>
<td>P=0.01</td>
<td>1&amp;2 p=NS; 1&amp;3 p=0.04; 2&amp;3 p=0.006</td>
</tr>
<tr>
<td></td>
<td>7. The pharmacist encouraged the patient to talk to their doctor and/or community pharmacist about different medication options available.</td>
<td>71% [54.4]</td>
<td>75% [68.6]</td>
<td>87% [73.9]</td>
<td>P=0.02</td>
<td>1&amp;2 and 2&amp;3 p=NS; 1&amp;3 p=0.003</td>
</tr>
<tr>
<td></td>
<td>8. The pharmacist encouraged the patient to take responsibility for managing their health.</td>
<td>92% [79.0]</td>
<td>46% [51.1]</td>
<td>87% [81.0]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 and 2&amp;3 p&lt;0.0001; 1&amp;3 p=NS</td>
</tr>
<tr>
<td>Emotional Expression</td>
<td>9. The pharmacist demonstrated to the patient that they thought their worries and questions about their medicines were important.</td>
<td>91% [57.3]</td>
<td>98% [82.8]</td>
<td>98% [70.86]</td>
<td>P=0.001</td>
<td>1&amp;2 p&lt;0.0001; 2&amp;3 p=NS; 1&amp;3 p=0.03</td>
</tr>
<tr>
<td></td>
<td>10. The pharmacist spoke to the patient in a respectful and courteous manner.</td>
<td>96% [61.8]</td>
<td>98% [74.5]</td>
<td>100% [81.2]</td>
<td>P=0.03</td>
<td>1&amp;2 and 2&amp;3 p=NS; 1&amp;3 p=0.007</td>
</tr>
</tbody>
</table>
### Comparing Observer’s, Pharmacists’, and Patients’ Evaluations of Pharmacist-Patient Interactions

<table>
<thead>
<tr>
<th>Satisfaction Statement</th>
<th>Observer (BC) % Agree [Kruskal-Wallis Mean Rank Score]</th>
<th>Pharmacist % Agree [Kruskal-Wallis Mean Rank Score]</th>
<th>Patient % Agree [Kruskal-Wallis Mean Rank Score]</th>
<th>Chi-squared P value</th>
<th>Post-hoc Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. The pharmacist did a good job helping me understand my medicines.</td>
<td>92% [61.0]</td>
<td>81% [57.8]</td>
<td>98% [93.9]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 p=NS; 2&amp;3 and 1&amp;3 p&lt;0.0001</td>
</tr>
<tr>
<td>12. I was satisfied with my experience I had with the pharmacist/patient. *</td>
<td>83% [58.1]</td>
<td>88% [65.9]</td>
<td>100% [93.6]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 p=NS; 2&amp;3 and 1&amp;3 p&lt;0.0001</td>
</tr>
<tr>
<td>13. This was an effective conversation with the pharmacist/patient.</td>
<td>69% [57.3]</td>
<td>83% [67.1]</td>
<td>98% [93.1]</td>
<td>p&lt;0.0001</td>
<td>1&amp;2 p=NS; 2&amp;3 and 1&amp;3 p&lt;0.0001</td>
</tr>
</tbody>
</table>

**Note:**
Agree includes the total of Agree plus Strongly Agree responses or in the case of reverse worded statements, Disagree plus Strongly Disagree responses.

NS = not significant; N/A = not applicable

*Observer rated this satisfaction statement based on their observations made during the medication counselling sessions (including non-verbal communication). Descriptions of this non-verbal communication can be found in Table 4-3 and within Chapter 5.*
Statement one assessed how well pharmacists applied the approximation strategy and to match patients’ speech production (E.g. speech rate, volume, use of accents/slang). For this statement, “The pharmacist spoke clearly so the patient was able to understand what they were saying”, both the Observer and the pharmacists agreed with their assessment whereas the patient indicated more strongly than the others that the pharmacist had demonstrated this behaviour.

For statement three, an interpretability strategy statement, “The pharmacist explained to the patient how their medication works in a way they could easily understand.” there was no agreement between any of the three groups about this statement. Pharmacists tended to underrate their ability to accommodate to patients’ conversational needs compared with assessments made by the Observer and patients.

A discourse management strategy captured by statement four, “The pharmacist allowed the patient enough time to ask any questions they had.” indicated no difference in the level of agreement expressed by pharmacists and the patients or between the Observer and the pharmacists. However, the Observer’s ratings were significantly lower than the patients’.

In statement five, “The pharmacist paid attention and listened to concerns the patient expressed about their medications.”, there was agreement between the Observer and pharmacists and with the Observer and patients. However, the pharmacists assessed themselves significantly lower than did the patients.

There were differing views in response to all three interpersonal control statements.

Statement six, “The pharmacist allowed the patient to interrupt them with any questions they had.” was intended to indirectly assess how well pharmacists promote equality between themselves and patients by the way in which interruptions were handled. Again, pharmacists tended to underrate themselves on this statement compared to the Observer and the patients.

For statement seven, “The pharmacist encouraged the patient to talk to their doctor and/or community pharmacist about different medication options available.”, there was agreement between Observer/pharmacists and pharmacists/patients, but patients rated this communication behaviour significantly higher than did the Observer.
The third interpersonal control (statement eight), in which there were significant differences of opinion, was “The pharmacist encouraged the patient to take responsibility for managing their health.” The purpose of this statement was to determine how well pharmacists encouraged and empowered patients to take an active role in their own healthcare including the management of their medications. In this statement, pharmacists frequently rated themselves lower than both patients and the Observer.

In statement nine, an emotional expression strategy there were very different perceptions arising from the three groups. For this statement, “The pharmacist demonstrated to the patient that they thought their worries and questions about their medicines were important.” Pharmacists rated their capabilities higher than either the patients or the Observer. However, differences between the pharmacists and patients were not statistically significant. The Observer also scored pharmacists lower on this statement than patients.

For the statement ten, “The pharmacist spoke to the patient in a respectful and courteous manner”, there were no differences between Observer’s and pharmacists’ or pharmacists’ and patients’ assessment of this communication behaviour. Again, the Observer did not feel as strongly as the patients that the pharmacists had exhibited this behaviour.

For the three statements related to satisfaction (statements 11-13), there was agreement in assessments made by the Observer and pharmacists and between pharmacists and patients. However, the Observer provided lower overall assessments compared to patients who rated their satisfaction significantly higher.

In comparing the different groups’ level of agreement for the 10 pharmacist communication behaviours and three satisfaction statements (Table 7-2), patients indicated strong agreement (87-100%) for pharmacists demonstrating the communication behaviours and for satisfaction with their conversation. It is worth noting that patients’ overall lower percentage agreement for certain statements did not necessarily mean that the pharmacist exhibited nonaccommodative behaviour. Often it meant that patients simply did not observer or experience that particular pharmacist behaviour. For example, one patient in their semi-structured interviews explained a lower assigned rating by stating, “Responsibility for
managing my health… because she didn't talk really about diet or exercise, so she mainly had to stick to the medication… so… we'll put slightly agree, eh, five?”

Pharmacists assigned themselves lower overall scores ranging from 46% to 98%, and tended to rate themselves lower for how well they explained information to patients, whether they allowed patients to interrupt them, and whether they encouraged patients to take responsibility for their health. The Observer’s level of agreement for the pharmacist behaviour and satisfaction statements (69-96%) was overall higher than pharmacists, but lower than the patients.

7.4 Discussion
Patients and hospital pharmacists provided rich details in the semi-structured interviews about their shared conversations. Invoking CAT as the theoretical framework identified numerous aspects of effective communication as well as some communication challenges occurring in the exchanges. Comparison of the pharmacist, patient, and Observer responses to the CAT based behaviour and satisfaction statements provided an opportunity to assess how well pharmacists met the conversational needs of patients. This triangulation of results also indicated discrepancies between Observer, pharmacist and patient perceptions, thus highlighting some areas where pharmacists could focus communication skills training.

7.4.1 Interpreting/triangulating participant comments with quantitative responses
7.4.1.1 Approximation
Most patient and pharmacist responses to the CAT based statements included examples of observed pharmacist behaviours that aligned with the five CAT strategies except for the approximation strategy. With this strategy, some pharmacists and most patients interpreted statement 1, “The pharmacist spoke clearly so the patient was able to understand what they were saying” as an assessment of the pharmacist’s ability to enunciate clearly as opposed to matching the patient’s speech production (rate, volume, accent). Patients who stated that they could understand the pharmacist easily were providing comments related to the interpretability strategy and not the approximation strategy. As well, it was sometimes difficult to know if the pharmacists’ motivation to match the patient’s speech rate was driven by a desire to connect socially (approximation) or to ensure the patient could understand them (interpretability) or perhaps both.
However, some pharmacists described adjusting their speech production to match that of the patient demonstrating approximation. It can be difficult for speakers to identify instances of approximations as these adjustments are often made unconsciously and automatically. Therefore, a speaker unaware of making speech changes might not be able to recall their actions. Not surprisingly, patients did not describe any instances where they altered their speech production to either converge or diverge to that of pharmacists’. Pharmacists, assuming a leadership role as a healthcare professional in the hospital environment, may take the lead in ensuring that the other person’s conversational needs are met. Therefore, it is more likely that they would adjust their speech patterns to match those of the patients, and not vice versa.

The quantitative responses from pharmacists, patients and Observer produced little agreement between the groups on this approximation statement. It is likely the higher patient scores reflect the way in which the patients had interpreted the statement to mean that pharmacists enunciated clearly. Lower overall scores assigned by the Observer and the pharmacists are probably related to pharmacists’ rapid speech, not matching the pace of the patients’. Similar findings by other researchers have reported the pharmacists speak quickly in their conversations with patients, and have attributed this behaviour to pharmacists’ workload pressures where they feel rushed to finish and see the next patient.

7.4.1.2 Interpretability
In response to the statement that pharmacists avoided medical terms the patient would not understand (statement 2), all but one patient felt that pharmacists used easy-to-understand language in discussions with patients about their medications. Pharmacists’ comments implied they were conscientious in choosing appropriate terminology and this was reflected in their self-assessments. It is not surprising that the participating pharmacists’ communication goals included using appropriate levels of language as this practice has been emphasised in their training and reinforced in practice. Patient preference for “using layman’s terms” is also well established in the literature. Consequently, there was strong agreement between pharmacists, patients and the Observer on this behaviour.
The second interpretability statement (statement 3) was intended to determine how well pharmacists explain information to patients, and from a patient’s perspective, how well they understood what the pharmacists were relaying. Although differences existed between all three groups, the study pharmacists significantly underrated their interpretability behaviour compared to the others. These discrepancies might be explained by the comments provided by pharmacists within the subcodes *confidence in understanding medications* and *information conveyed*. Many pharmacists responded to this statement in terms of their confidence in the patients’ understanding of their medications, and ability to manage their medications at home. Pharmacists often cited examples of how they assessed patients’ comprehension, and some pharmacists were left uncertain about patients’ ability to manage their medications at home. This uncertainty may have contributed to their lower self-assessment scores. In responding to this statement, pharmacists also associated patients’ understanding of their medications to the amount of information conveyed in their interaction with patients. Although pharmacists were often strategic in the type and amount of information provided, many expressed concerns about patients’ ability to absorb and comprehend the large volumes of information often provided at discharge from hospital. Concerns about overwhelming patients with information likely negatively influenced the pharmacists’ responses on this statement. Other studies have described how excessive amounts of information were relayed by pharmacists and were related to time pressures to complete discharge medication counselling. Researchers have recommended that pharmacists provide both oral and written material to aid in information retention. Study pharmacists’ comments about their patient counselling practice were generally congruent with these researchers’ advice.

### 7.4.1.3 Discourse management

The intent of the discourse management (statement 4) was to determine how well the pharmacist paced the conversation, rather than the content, to allow for two-way conversation and sufficient time for patients to absorb information and ask any questions they might have. Previous studies have highlighted patients’ preferences and the importance of ample time spent with healthcare professionals. Rushed conversations have been associated with less patient engagement and satisfaction. In turn, lack of patient participation in discussions about their medications may leave patients with unanswered questions and poor knowledge about their medications.
Overall, there were no differences in Observer/ pharmacists’ and pharmacists’/patients’ assessments of how well pharmacists paced the conversations. However, the Observer rated this communication behaviour lower than the patients. Some of the hurried pharmacist-patient conversations witnessed by the Observer led to an overall lower assessment for this statement. Reasons for differences in levels of agreement between the Observer and patients for this particular statement are unknown. However, for any of the statements where differences between the Observer and patients exist, these might be explained by the different processes used by each group in assessing pharmacist behaviour. Patients may have assigned scores based on their own goals and expectations for the pharmacist-patient exchange which in turn are influenced by their past experiences with pharmacists while the Observer’s assessments were based on established criteria described within CAT strategies. It is possible that for many patients, they may not know that hospital pharmacists routinely counsel patients about their medications, and therefore have not formed an expectation for this service. Other researchers have noted that low patient expectations of pharmacists may be related to being unaware of the services available from pharmacists.

In statement 5, the second discourse management statement, there was some agreement between pharmacists, patients and the Observer that the study pharmacists were attentive to and addressed patients’ concerns. However, the differences between pharmacists’ and patients’ assessments were likely related once again to pharmacists’ harsh self-assessment of their performance. Attentive behaviour has not consistently been observed by other researchers, who recommended to healthcare professionals, that in order to have effective conversations with patients, “They should listen and ask relevant questions.”

7.4.1.4 Interpersonal Control

Three statements (statements 6-8) were based on the interpersonal control strategy. Statement six was intended to assess how well pharmacists promoted equality between themselves and patients. Pharmacists who accomplished this did so by appropriately handling patient interruptions. They respectfully addressed patients’ concerns as they arose, as opposed to showing their frustration or impatience or by speaking over patients. Patients who were comfortable to interrupt the pharmacist during the conversation with questions and clarifications likely felt “equal” to pharmacists. For this statement, patients felt more strongly than either the pharmacists or the Observer that they were able to interject in the conversation.
to ask pharmacists for clarifications or to answer questions. Pharmacists rated themselves lower on this communication behaviour than either the Observer or patients. Based on comments provided by pharmacists, their reasons for underrating themselves may be related to their perceived need to comply with time pressures and rush through the interaction, thus discouraging patients’ questions. This task oriented approach by healthcare professionals including pharmacists has been previously described in the literature. Others have recommended processes to promote equality between pharmacists and patients such as engaging patients in the agenda setting phase of a planned medication counselling session.

The next two interpersonal statements focussed on patient empowerment. Statement seven assessed how well pharmacists enabled patients to make connections with other healthcare professionals in the community. The only statistically significant differences occurred in the assessments between patients and the Observer on this statement. Overall, the Observer noted that pharmacists were conscientious about making sure patients knew when they should seek assistance from community pharmacists and physicians. This component of the pharmacist-patient interaction is important for ensuring continuity of care from hospital to the home community, and has been well described in pharmacy literature and other healthcare provider research.

Statement eight assessed how well pharmacists encouraged patients to take responsibility for managing their health. There were statistically significant differences between pharmacists’/patients’ and pharmacists’/Observer’s perspectives. The Observer and the patients were in close agreement and rated the pharmacists higher than the pharmacist rated themselves. A few possible reasons for the discrepancy in assessments exist. As described earlier, the Observer had noted that pharmacists often critiqued themselves harshly and underrated their communication exchange. Often pharmacists downgraded their initial self-assessments after they had reflected on their performance and verbalised alternative or additional behaviours they felt they should have demonstrated. As well, high patient assessments of both statement seven and eight may be related to a strong sense of confidence in their ability to self-manage their medications as reflected in their comments. This relationship between patient empowerment and self-efficacy or self-management has also been described by other researchers. Patient empowerment has been attributed to effective
communication partnerships and information exchanges taking place between healthcare 
providers and patients.\textsuperscript{313}

\textbf{7.4.1.5 Emotional Expression}

Two statements in the semi-structured interviews related to the emotional expression strategy 
were intended to gauge pharmacists’ empathy, kindness and caring behaviours. Statement 
nine responses reflected a cluster of pharmacist behaviours including empathy, kindness, 
reassurance that led to the establishment of positive rapport building and patient reported 
sense of feeling valued by the pharmacist. Other researchers have noted similar pharmacist 
behaviours to enable effective rapport building with patients\textsuperscript{378} while accounts of poor 
interpersonal behaviours by pharmacists have impeded good rapport building between 
pharmacists and patients.\textsuperscript{144,153} As well, UK researchers found that 65\% of interviewed 
patients felt valued by hospital pharmacists when pharmacists had taken the time to listen and 
understand them.\textsuperscript{370}

Statement ten asked participants whether pharmacists were respectful and courteous in their 
exchanges. Of the two emotional expression statements, this one could be interpreted as a 
more superficial assessment of pharmacists’ emotional behaviour. Professional training in 
pharmacy schools\textsuperscript{48} and societal norms demand that pharmacists exhibit a minimum standard 
of acceptable polite behaviour.\textsuperscript{379} While most pharmacists consistently displayed highly 
courteous and polite behaviour, the Observer witnessed some subtly rude and impatient 
conduct that resulted in slightly lower assessments than those provided by either the patients 
or the pharmacists. Similar Observer discrepancies in ratings when compared to pharmacists 
and patients occurred for both emotional expression statements. Differences in each groups’ 
assessment may be explained by various factors. Lower Observer assessments were based on 
how well pharmacists displayed CAT described emotional expression behaviours. Brusque or 
impatient responses to patients and the appearance of judgemental behaviour resulted in 
decreased Observer assessments on these statements. Although not statistically significant, 
the disparity between the Observer’s and pharmacists’ ratings may indicate an overall lack of 
awareness of emotional expression behaviours and an opportunity to further develop these 
communication skills. Differences between patient and Observer assessments may be related 
to individual patient’s expectations for pharmacist or healthcare professional behaviour (as 
described earlier) and influenced by their past experiences.\textsuperscript{239} Previous researchers have also
described healthcare provider-patient interactions in which patients of low socioeconomic status have low expectations of healthcare professional behaviours. It is possible that some disadvantaged study patients may have responded favourably to the statements due to their low expectations of pharmacist behaviour.

7.4.1.6 Satisfaction statements

There were three statements in the semi-structured interviews intended to assess participants’ satisfaction with their shared interaction. Statement 11 “The pharmacist did a good job helping me understand my medications.” is also related to the interpretability CAT strategy. This statement assumes that an overall goal of pharmacist-patient interactions is to ensure patients understand their medications, and that this will lead to satisfaction. This objective for pharmacist-patient exchanges is consistent with pharmacy practice literature. For this statement pharmacists rated themselves lower than either the Observer or the patients, likely related to pharmacists’ self-critique as described earlier. However, overall, pharmacists and patients felt satisfied with their shared experience as expressed in statement 12. There were significant differences between the mean rank scores for the three groups for statement 13, “This was an effective conversation.” However, all three groups expressed agreement that the majority of the interactions were effective pharmacist-patient exchanges. Nearly all patients (98%) agreed with this statement compared with 83% of the pharmacists, whereas the Observer agreed that 69% of pharmacist-patient interactions were effective.

7.4.2 Opportunities for Communication Skill Training

The results of this study indicate some potential areas for pharmacists to improve their communication skills. These included statements related to the following CAT strategies: approximation, discourse management, interpersonal control and emotional expression. Nonaccommodative pharmacists’ behaviours detected for these strategies were affected by the time poor environment in which pharmacists work. While system-wide time pressures are challenging obstacles for pharmacists to negotiate, some recommendations have been made that would assist pharmacists in their daily workload. These included being given the authority to prescribe patients’ medications at discharge and being able to delay patient discharge based on medication readiness and their potential risk for medication harm.
Aside from system changes that may facilitate more effective pharmacist-patient conversations, there are aspects within the CAT strategies that can be targeted for communication skills training. In terms of approximation, several pharmacists admitted they spoke too quickly, and were also observed to not match the speech rate of the patients’ speech rate or volume, pharmacists’ behaviour is divergent linguistically to patients’, even if it is unintentional.\textsuperscript{243} This may create a distance between themselves and patients, and may impede the development of a good rapport with patients.\textsuperscript{240} Pharmacists may not be aware of the consequences of this behaviour. Further skill development to increase their awareness of their speech production, and how well it matches that of patients’ may be beneficial to some pharmacists.

In terms of discourse management and the processes used by pharmacists to maintain a productive conversation with patients, the Observer noted that the conversation pace set by the pharmacists was sometimes inadequate and too rushed. Again, pharmacists related their hurriedness to time pressures experienced in their role. Some process changes have been recommended by other researchers such as breaking discharge counselling into shorter segments delivered at different times throughout the patient’s hospital stay.\textsuperscript{153} Another recommendation would be to involve patients at the beginning of the consultation in the agenda-setting phase. However, very few study pharmacists did so. As observed by other researchers, most pharmacists began their conversations with patients by outlining their plan to review the medications and then proceeded, with little or no input from patients.\textsuperscript{144,153} Patient involvement at the onset would not only promote equality between pharmacists and patients, an interpersonal control strategy, but would help focus the discussion on key issues identified by patients instead of spending large amounts of time reviewing medications already well understood by the patients. Several study patients had commented they had already been confident in their understanding and ability to manage their medications before their conversation with the pharmacist. As well, another time efficient and effective communication strategy described by a study pharmacist involved setting goals for the patient counselling session and tailoring the information and conversation to a patient’s needs.

The large discrepancies in Observer and pharmacists’ assessments, in which the Observer rated the pharmacists’ CAT behaviour much lower than the pharmacists, were noted for the one of the emotional expression statements. This significant miss-match may be signalling
the need for communication skills training. Although the Observer witnessed appropriate emotional expression behaviour in most pharmacist-patient exchanges, there were a few interactions with disrespectful behaviours such as impatience or curtness and judgemental attitudes. Some behaviours such as impatience may be attributed to the pharmacists feeling stressed with the pressure to keep on schedule. However, other behaviours such as subtle disrespect and holding judgement may indicate the need for further health literacy and cultural awareness training.328

This study will help address gaps in the literature where most research conducted in hospital pharmacist-patient communication has been atheoretical, focused on pharmacist-patient exchanges or evaluated either the patients’ or pharmacists’ perspective, but not both participants’ experience. The inclusion of an outsider (Observer) rating also provides an important dimension to these medication counselling sessions. A mixed method approach was used to investigate the perspectives of both pharmacists and patients who had recently engaged in a conversation about the patients’ medications by qualitatively analysing interview dialogue, invoking the CAT framework, and triangulating these results with quantitative responses from pharmacists, patients, and an Observer. Areas for communication skills development were identified and explored. At the very least, it is hoped that pharmacist awareness of their communication behaviours may be raised. The importance of accommodative communication strategies that reduce linguistic barriers, put others at ease, and facilitate effective conversations is well described and should not be overlooked.239,240,243

7.4.3 Limitations
There were a number of potential limitations to this study. Both pharmacists and patients may have provided socially desirable responses in their interviews. Although patient interviews were conducted immediately after and pharmacist interviews on the same day as the pharmacist-patient conversation, it is possible that the participants’ recall may have altered as they attempted to remember specific details about their interaction. As well, work related time pressures for pharmacists and transport issues for patients in a hurry to leave the hospital may have resulted in hastier responses and shorter explanations. In addition, it is possible that some patients may have misinterpreted the intent of some semi-structured interview statements, even though the researcher was present to respond to any confusion patients may have had about their meaning. Another potential limitation was the self-selection of
motivated pharmacists enrolling in this study which may limit transferability of positive results. An important limitation associated with the validation of the ten CAT related behavioural statements was the small sample size and the use of too few statements to assess construct validity through factor analysis. This research was conducted at a single public hospital, and therefore the results might not be transferable to all specialty areas at other hospitals or to rural or private hospitals.

7.5 Conclusion
By invoking CAT to investigate how well pharmacists communicated from the patients’ perspective and how pharmacists’ perspectives compared to patients’, we found that overall, pharmacists and patients shared similar opinions about their conversations. Observer assessments of the pharmacist-patient interactions allowed for the triangulation of participants’ perceptions with those of an outsider assessing the exchanges based on CAT criteria for effective communication. Comparison of Observer, pharmacist and patient ratings of the conversations identified areas of discrepancy between the groups, in which, the majority could be explained by participants’ rationale for their assessments. Areas highlighted for communication skills training are increased pharmacist awareness and integration of CAT strategies into their conversations with patients and further training in health literacy and cultural awareness. Recommendations also included individual strategies and system-related changes to reduce time pressures experienced in medication counselling.

This chapter contributed valuable information about pharmacists’ and patients’ views about their shared medication counselling sessions. The analysis and interpretation of the numeric ratings of the pharmacist behaviour and satisfaction statements were supported by the qualitative data that together allowed a better understanding of the findings. Chapter 8 will build upon this chapter by focussing on pharmacists’ and patient’s perspectives of what makes pharmacist-patient conversations effective.
CHAPTER 8: Hospital pharmacists’ and patients’ views about what constitutes effective communication between pharmacists and patients

This chapter addresses Aim 1: Research Question 5, “How do pharmacists’ and patients’ opinions compare about what constitutes effective pharmacist-patient communication exchanges?” This study builds on Chapter 7 findings that included both pharmacists’ and patients’ perspectives of their interaction which were mainly focussed on whether patients experienced and pharmacists demonstrated specific CAT related communication behaviours. In this study, one of the satisfaction statements, “This was an effective conversation with the pharmacist/patient.” was further explored to better understand what aspects of a pharmacist-patient conversation make it effective. Results from the semi-structured interviews were analysed by invoking CAT as the framework to interpret hospital pharmacists’ and patients’ perceptions of effective conversations.

8.1 Introduction

Effective conversations between patients and healthcare professionals are necessary for patients to have a good understanding of their medications and be able to manage their medication after discharge. Understanding what patients need from a conversation with a hospital pharmacist about their medications may assist pharmacists in preparing patients for discharge and supporting patients’ confidence in managing their medications. However, there are no studies published that have focussed their investigations on hospital pharmacists’ and patients’ opinions about what constitutes an effective hospital pharmacist-patient conversation. Instead researchers have only explored questions tangentially related to patients’ opinions about pharmacist-patient communication. For example: patients’ views of pharmacist prescribing that included aspects of interpersonal communication, inpatients’ requirements for medication information, patient preferences for hospital pharmacy services, patients assessing aspects of patient counselling (pharmacist attitude, information and explanation of side effects), inpatients’ experiences and evaluations of pharmacy services, and hospital pharmacists’ perceptions of medication counselling.

As well, these studies evaluate either the patients’ or pharmacists’ perspective, but not both participants’ experience. This is important as patients and healthcare providers may not necessarily share similar views about effective communication. In addition, the research was
not based on theoretical frameworks. This current research intends to address these gaps in the literature by exploring hospital pharmacists’ and patients’ perceptions of effective conversations and by invoking CAT as the framework to interpret their views. Further discussion and details of this theory is provided in Chapter 1, pages 27-32. The aim of this study was to explore both pharmacists’ and patients’ views about what constitutes effective pharmacist-patient communication exchanges.

8.2 Methods
8.2.1 Study Type and Design
This was a qualitative study using semi-structured interviews to gather details about how pharmacists and patients perceive effective pharmacist-patient conversations. This study analysed the verbal responses from pharmacists and patients to questions and prompts posed by BC about effective communication. Refer to Chapter 2 (sections 2.3.2 and 2.3.3) for details about data collection and analysis used.

8.3 Results
8.3.1 Medication Counselling Sessions
Twelve pharmacists engaged four patients each for a total of 48 medication counselling interactions, resulting in 48 pharmacist and 48 patient semi-structured interviews. The study took place between November 2015 and April 2016. Participant demographic information has been described in Table 8-1.
Table 8-1. Participant demographics

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Patients n=48</th>
<th>Pharmacists n=12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (%)</td>
<td>Number (%)</td>
</tr>
<tr>
<td>Female gender</td>
<td>21 (44)</td>
<td>10 (83)</td>
</tr>
<tr>
<td>Age range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>1 (2)</td>
<td>6 (50)</td>
</tr>
<tr>
<td>31-50</td>
<td>10 (21)</td>
<td>5 (42)</td>
</tr>
<tr>
<td>51-60</td>
<td>10 (21)</td>
<td>1 (8)</td>
</tr>
<tr>
<td>61-80</td>
<td>22 (46)</td>
<td>0</td>
</tr>
<tr>
<td>&gt;80</td>
<td>5 (10)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Patient care area**

**Inpatient**

<table>
<thead>
<tr>
<th>Area</th>
<th>Patients n=48</th>
<th>Pharmacists n=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>6</td>
<td>2*</td>
</tr>
<tr>
<td>Emergency</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>General medicine</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Nephrology</td>
<td>2</td>
<td>1*</td>
</tr>
<tr>
<td>Neurology</td>
<td>2</td>
<td>1*</td>
</tr>
<tr>
<td>Oncology</td>
<td>2</td>
<td>1*</td>
</tr>
<tr>
<td>Surgery</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

**Outpatient**

<table>
<thead>
<tr>
<th>Area</th>
<th>Patients n=48</th>
<th>Pharmacists n=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure clinic</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Infectious diseases clinic</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Renal clinic</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

*2 pharmacists rotated within multiple patient care areas

8.3.2 Pharmacists’ and patients’ opinions about what constitutes an effective conversation

While there were several themes contributing to effective pharmacist-patient conversations described by participants (Table 8-2), the overarching shared goal for pharmacists and patients was to be confident in patients’ ability to manage their medications after leaving hospital.
**Table 8-2. What makes a conversation between a pharmacist and a patient effective?**

<table>
<thead>
<tr>
<th>Related CAT Strategy</th>
<th>Patient Semi-Structured Interview Theme</th>
<th>Pharmacist Semi-Structured Interview Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximation</td>
<td>Not observed</td>
<td>Using <em>shared colloquialisms/slang</em></td>
</tr>
<tr>
<td>Interpretability</td>
<td>Pharmacist <em>explains information well</em>: uses easy-to-understand language, provides clear, precise information (includes information about procuring medication)</td>
<td><em>Well-explained information</em> given to patient: ensures information is concise and relevant, and is strategic/prioritises information to provide</td>
</tr>
<tr>
<td>Discourse Management</td>
<td>Patient <em>engagement</em>: being engaged in conversation by not feeling rushed in the conversation, having opportunity to ask many questions, and having concerns and questions answered</td>
<td><em>Engagement</em>: engaging patients in conversation by allowing enough time for conversation, encouraging patient to ask questions and responding to patient’s questions and concerns</td>
</tr>
<tr>
<td>Emotional Expression</td>
<td><em>Established rapport</em> with pharmacist: experiences kindness, reassurance (including ongoing access to pharmacist), and feels “heard” or “listened to”.</td>
<td><em>Established rapport</em> with patient: by “hearing the patient”, displaying empathy and reassurance (including accessibility)</td>
</tr>
<tr>
<td>Interpersonal Control</td>
<td>Patient <em>empowerment</em> by: being treated as an equal by pharmacists and supported in their autonomy to make informed choices</td>
<td>Pharmacist promotes patient <em>empowerment</em> by: promoting equality between themselves and encouraging patient involvement in shared decision making, and supporting patient autonomy to make informed choices</td>
</tr>
</tbody>
</table>

**8.3.2.1 Approximation (Shared colloquialisms/slang)**

Numerous examples for each effective communication theme could be mapped to the five CAT strategies, except approximation. Only one pharmacist remarked on the value of using expressions from shared backgrounds,

“…perhaps if you use colloquialisms and slang …that you know they'll understand…I think that sometimes will put them at ease… so you have a much more natural conversation.” (Anna)

**8.3.2.2 Interpretability (Well-explained information)**

Both patients and pharmacists spoke about the importance of patients receiving well-explained information. Pharmacists highlighted the benefits of giving patients concise and relevant information, “…just stick to…” This is what you've got to take. This is why you're
taking it. This is how many’...” Many patients agreed with this approach, “…make it simple. Simple. Simple to understand. Simple to follow.”

However, patients were specific about the types of information they wanted to receive from pharmacists. “…tell me what is good and bad about what I’m taking. What to be looking for in those side effects and stuff like that… I want to know what to look for if things were going wrong with my medication.” Several patients also emphasised the need to understand the rationale for their medications, and how to procure their medications. “What I wanted to know - was obviously the functional things of taking the tablets - but also to where to get them from…”

Almost all patients attributed the use of easy-to-understand language and the avoidance of medical jargon to effective exchanges with pharmacists. Examples include, “…she explained things in words that I could understand…” and “…my terms, I mean… layman's terms.” A few pharmacists recommended being strategic in the type and volume of information relayed to patients,

“…I recognise that you only can remember five things from the session. So, I tried to focus on the changes to the medications because I felt that they were the most significant…” (Daniel)

8.3.2.3 Discourse Management (Engagement)
Another major theme identified by both patients and pharmacists was around engagement. This meant the participants did not feel rushed, patients had the opportunity to ask many questions, and had their issues addressed.

An elderly patient provided the following insightful excerpt, “…the patient needs to be not rushed. At this age, it's not hard to let everything be rushed - but I think that the [pharmacist] needs to be able to explain how things happen and to make them feel comfortable and not to confuse them.”

Pharmacists aware of the time pressures faced in their workplace often cited the value of not being rushed as a facilitator to effective communication exchanges with patients.
“…and I know that he's not leaving till tomorrow. We had no-one breathing down our necks, or somewhere he had to be or we had to be…” (Ellen)

Many patients placed high importance on the ability to ask questions and have their issues addressed, “…I could ask questions … instead of rubbing on about whatever the pills are…” Pharmacists appreciated patients’ questions and interpreted these as indicators of engagement,

“…it's always effective if they're asking questions because it means at least that what you're giving them is thought provoking or they're taking it in- to the point where they have a question about it.” (Ben)

8.3.2.4 Emotional Expression (Establish rapport)
Pharmacists and patients described several aspects of building rapport to facilitate an effective conversation. These included pharmacists establishing trust between themselves and patients, demonstrating kindness, empathy and reassurance, and ensuring patients were heard.

To build rapport, pharmacists and patients both indicated the importance of trust within a pharmacist-patient relationship. One patient described trust as a belief in the pharmacist’s capabilities. “I think it’s important that I have the trust in them that they know what they're talking about…” However, a pharmacist explained how building rapport by establishing a sense of comfort or trust between a pharmacist and patient was needed for information disclosure,

“… I feel like the rapport's essential for them to be open with you and tell you if they're in trouble or what they're actually taking.” (Karen)

Patients feeling “heard” and pharmacists “hearing patients” were requirements for effective conversations to take place. One pharmacist provided the following, “…So sometimes you can't always solve their problems, but you can say, ‘I hear you - I understand that's an issue.'” (Anna) Patients concurred stating, “I think for me - it's them listening to my concerns…”
Many patients focussed on aspects of kindness that allowed positive relationships to develop with pharmacists. Making the time for patients and having them feel valued was cited by several patients, “…just being able to talk to her and ask her anything…” One patient implied that it was a mutual appreciation of each other that led to effective conversations, “…somebody that you can understand and they understand you…it's the understanding of the person, both ways.”

Patients appreciated the pharmacists’ reassurance about their medication concerns, “…she made me feel at ease and comfortable with the fact that I'm going to be able to manage my medication when I get home.” In addition, patients were often reassured by knowing pharmacists could be accessible to them for further questions after leaving hospital, “…it's important because I live two and a half hours away…” Allowing patients to contact them after leaving hospital, also reassured pharmacists and gave them an opportunity to follow up with patients. “I think I got across the main points….and he has the information - and he can call me as well.” (Ellen)

8.3.2.5 Interpersonal Control (Empowerment)

The theme of patient empowerment (interpersonal control strategy) was demonstrated through the promotion of equality and encouragement of shared decision making, and informed choices. Promoting equality between themselves and patients may be reflected in the way pharmacists respond to patients’ questions and concerns. This in turn may affect a patient’s willingness to bring them forward, as one patient explained, “I wouldn't be made to feel silly …. that I can't ask a question if I don't understand. Sometimes, when people speak to you, you don't want to ask a question because you don't want to feel stupid.”

Both patients and pharmacists expressed the need for patients to be given the right information in which to make autonomous and informed choices about their therapy. One patient explained, “…Helping you to understand …the dos and don'ts against having it or not having it…”
Many pharmacists shared this perspective,

“So even if you're not 100% on board with everything that you're saying...as long as they're actually participating...wanting to manage their own health and being active in that process - and we're giving them the right information to be able to make those decisions...that's an effective conversation.” (Daniel)

8.4 Discussion
Pharmacists and patients were asked their opinions about what made pharmacist-patient conversations effective, and they provided valuable insight about their preferences and goals for these exchanges. The overarching theme or shared goal resonating from the participants’ interviews was that patients need to be confident in managing their medications at home. To facilitate this, patients focussed mainly on pharmacists’ delivery of medication information and interpersonal behaviours. Pharmacists’ themes included building rapport, but also emphasised patients’ understanding of their medications and their level of engagement as indicators of patients’ confidence in self-managing their therapy.

The main strength of this study is its novelty in directly asking both hospital pharmacists’ and patients’ their opinions about what constitutes an effective pharmacist-patient exchange. Results of this theory based study have implications for both pharmacy student and pharmacist practitioner communication skills training by increasing their awareness of patients’ preferences for effective conversations with pharmacists. While these results provide pharmacists with some guidance in their approach to medication counselling, it is essential that pharmacists converse with patients to establish patients’ specific needs to confidently manage their medications at home.

There are limitations to this study. Pharmacists and patients may have provided socially desirable responses in their interviews. The self-selection of motivated pharmacists enrolling in this study may limit the transferability of positive results. Because this research was conducted at a single public hospital, results might not be transferable to all specialty areas at other hospitals or to rural or private hospitals.

All pharmacist and patient themes arising from the interviews could be successfully mapped to the five CAT strategies. Although only one pharmacist remarked about using shared
accents and colloquialisms (approximation strategy) to put patients at ease, this behaviour had been observed in other pharmacists during their exchanges with patients.\textsuperscript{365} This study pharmacist intentionally reduced linguistic barriers between themselves and the patient, an example of convergence and accommodative approximation.\textsuperscript{379}

In terms of patients having well-explained information (interpretability strategy), both pharmacists and patients emphasised providing clear succinct information using easy-to-understand terminology. Study participants’ opinions are supported by other researchers’ focus group findings, inpatients’ survey results, and interviews with inpatients indicating preferences for both oral and written materials that include medication purpose, side effects and prescription alternatives.\textsuperscript{102,113,370}

Discourse management strategies around engagement described by pharmacists and patients included not rushing conversations to allow patients ample time to ask and have their questions and concerns addressed. Work-related time constraints have been described by pharmacists as impediments to effective conversations with patients.\textsuperscript{102,113,370} In other studies, inpatients and their families have stressed the importance of having sufficient time to discuss medications with pharmacists.\textsuperscript{172,370} Consequences of hurried conversations include low patient satisfaction and engagement,\textsuperscript{372} and patients left with a poor understanding of their medications.\textsuperscript{145,153}

Processes for building rapport between pharmacists and patients aligned well with the emotional expression strategy. Participants believed that positive, trusting relationships were based on empathy, kindness, reassurance and feeling “heard” or “listened to”. Other researchers support these finding and have reported patient preferences for friendly pharmacists that listen, understand and show a genuine interest in patients.\textsuperscript{110,370,384,385}

To empower patients (interpersonal control strategy) pharmacists encouraged patients to be involved in shared decision making about treatment and provided them with information to make informed choices. This is supported by a recently published scoping review that found patients wanted sufficient information from pharmacists to allow them to make appropriate clinical decisions.\textsuperscript{384} Researchers have found that the degree of desired patient involvement in shared decision making varies considerably.\textsuperscript{5,246,248,386} Interestingly, overtime and perhaps
with changing demographics and patients’ expectations of healthcare professionals, researchers have found that an increasing proportion of patients prefer sharing decision roles with clinicians. Pharmacists encouraging patients to be active in medication decisions may lead to positive health outcomes for patients. Wide ranging benefits of shared decision making to both patients and the healthcare system have been well described in the physician literature.

Patients described being treated as an equal by pharmacists as another example of empowerment. Other researchers have characterised healthcare professionals’ behaviours as positive when patients were treated as equals, and viewed “talking down to a patient” in a negative light.

8.5 Conclusion
Hospital pharmacists and patients provided valuable insights about what makes pharmacist-patient interactions effective. Their overall shared goal was to ensure patients were confident in managing their medications at home. Themes arising were related to CAT strategies, and included shared colloquialisms and slang (approximation), well-explained information (interpretability), engagement (discourse management), established rapport (emotional expression) and empowered patients (interpersonal control). Results of this novel study can be used by both pharmacy students and pharmacists to increase their awareness of patients’ preferences for effective communication. This may help guide them in establishing shared goals when conversing with patients about their medications.

This chapter highlighted pharmacists’ and patients’ views about effective conversations and identified which CAT related behaviours contribute to successful exchanges and to patient confidence in managing their medications.
CHAPTER 9: Exploring relationships between effective communication exchanges, patient satisfaction and medication taking behaviour

This chapter addresses Aim 2: To explore relationships between effective communication (as per CAT) and patient satisfaction, and patient’s medication taking behaviour. In Chapter 7, patients assessed pharmacist communication behaviours and provided satisfaction ratings for their exchange with the pharmacist. Both pharmacists and patients shared details about what makes pharmacist-patient conversations effective in Chapter 8. This current study will build on these previous chapters by exploring potential relationships between effective pharmacist-patient communication and patients’ medication taking behaviour as a clinical outcome.

9.1 Introduction

Non-adherence to medications has been associated with poor health outcomes for patients and increased costs to healthcare systems.\(^3^9^0,^3^9^1\) Only about 50% of patients prescribed medication to treat chronic conditions are typically adherent to their treatment.\(^3^9^2,^3^9^3\) Multiple determinants for non-adherence include socioeconomic-related factors, health care team/health system-related factors, condition-related factors, treatment-related factors, and patient-related factors.\(^1\) These determinants have been broadly categorised as patient related, healthcare provider related or system related.\(^1\) Determinants attributed to healthcare providers such as good relationships and effective communication with patients have been found to facilitate medication adherence for the management of pain, diabetes, epilepsy, HIV/AIDS, tuberculosis, hypertension and tobacco cessation.\(^1\)

Pharmacists have been identified as key healthcare professionals in identifying and addressing non-adherence issues.\(^3^9^4,^3^9^5\) While much has been published about the pharmacist’s role in improving medication adherence,\(^1,^5^8^-^6^8,^3^9^6\) there is little or no detail in these publications about how effective communication taking place between pharmacists and patients might affect patients’ medication adherence. This is a substantial gap in understanding the role pharmacists play in patients’ adherence to their medications. Conversely, numerous empirical studies have investigated the effect of good physician-patient relationships and effective communication on clinical outcomes including medication adherence.\(^3^0,^3^2,^3^7,^6^9^-^7^7\) Results of these studies indicate a positive relationship between
effective physician communication skills and patient adherence to treatment. However, there are inconsistent findings within the physician literature where attributes of effective physician communication skills have not been associated with treatment adherence and other patient outcomes.\(^3\)\(^,\)\(^9\)\(^7\)\(^,\)\(^9\)\(^8\)

Physician-patient communication research has been criticised as lacking sufficient understanding of which aspects of communication between clinicians and patients contributes to which health outcome.\(^7\)\(^8\) Furthermore, healthcare provider-patient communication research fails to suggest pathways and processes to explain how effective communication could be associated with positive patient outcomes. Street posits that these links between clinician-patient communication effectiveness and patient outcomes are often complex.\(^7\)\(^8\) While positive exchanges may directly result in desirable health outcomes for patients, these communication exchanges often follow indirect paths leading first to proximal outcomes (E.g. rapport building, patient satisfaction) then to intermediate outcomes (E.g. self-care skills, treatment adherence) before achieving health outcomes (E.g. cure, emotional well-being).\(^7\)\(^8\) (Figure 9-1)

![Figure 9-1. Direct and indirect pathways from communication to health outcomes](image)

This part of my thesis explores the relationship between effective pharmacist-patient exchanges, patient satisfaction and patients’ medication taking behaviour. This exploration will be conducted in multiple steps. To begin, pharmacists’ dialogue related to medication adherence issues during pharmacist-patient exchanges will be examined in detail. This will
provide contextual understanding of study pharmacists’ practices and approaches to medication adherence when engaged in medication counselling with patients. Then relational aspects between communication and medication adherence will be studied through a pathway adapted from previous research (as depicted in figure 9-1) to fit the pharmacist-patient context. Relationships between proximal outcomes such as effectively used communication strategies and patient satisfaction will first be studied. Then possible associations with these proximal outcomes and the intermediate outcome of adherence to treatment will be explored. (Figure 9-2)

![Figure 9-2. Exploring relationships between effective communication, patient satisfaction and medication taking behaviour](image)

The communication strategies used will be the five strategies described within CAT. Refer to previous Chapter 1, pages 27-32 for a detailed description of the CAT framework.

The aim of this chapter is to explore relationships between patient reported effective communication (using CAT) and patient satisfaction, and patients’ medication taking behaviour (Aim 2). The research questions specific to this aim are:

1. What is the relationship between effective communication and patient satisfaction?
2. How is patients' medication taking behaviour related to patient reported effective communication and satisfaction?

Additional investigations aligned with Aim 2 that further explore potential relationships between pharmacist-patient communication and patients’ medication taking behaviours will also be conducted. These include measuring changes in patients’ medication taking
behaviours over time, and examining the effects of additional factors related to the patient-pharmacist communication exchange on patients’ medication taking behaviour.

9.2 Methods

9.2.1 Study Type and Design
A mixed methods approach was used to address the research aims. There were three steps to this study. The first step employed qualitative methods. These included the analysis of pharmacist-patient conversation transcriptions containing references to medication adherence to gather details about how pharmacists included medication adherence messages in medication counselling. Further qualitative data were collected from patients four weeks after leaving hospital when they were asked to respond to questions about how their conversation with a pharmacist helped or did not help them be more adherent to their medication.

The second step used quantitative methods in the analysis of CAT related pharmacist communication behaviours and patient satisfaction statements from the semi-structured interviews, and correlations of the patient assessed pharmacist communication behaviours with patient satisfaction statements. As well, pharmacist communication behaviours and patient satisfaction were correlated with medication taking behaviour results.

The third step involved further exploration of relationships between pharmacist-patient communication and patients’ medication taking behaviour such as changes over time in patients’ beliefs about their medications and their medication adherence. Additional patient factors were measured and analysed to see how they affected medication adherence. These factors included whether the patient had previously met with their hospital pharmacist, had arranged for their prescriptions to be filled within four weeks of leaving the hospital, and had found the conversation with the pharmacist helpful in taking their medications regularly.

Further details about medication adherence tools used, data collection and analysis can be found in Chapter 2 (Section 2.6).

This exploratory study was not designed or powered to detect differences in medication taking behaviours over time. This PhD research mainly utilised qualitative methods to
investigate the effectiveness of communication between hospital pharmacists and patients during medication counselling. This exploratory study intends to lay the foundation for the development of preliminary pathways that can be used in future research. These pathways may demonstrate important links between pharmacist communication behaviours and patient satisfaction to patient outcomes such as medication adherence. Future research can build on these pathways using robust methods to show differences in medication taking behaviour.

9.3 Results
Twelve pharmacists engaged four patients each for a total of 48 medication counselling interactions; however, not all 48 patients who consented to be in the study completed all parts of the study. (Figure 9-3)

48 patients enrolled in study

48 completed 1st Beliefs about Medications Questionnaire (BMQ)

45 completed 1st Morisky Medication Adherence Score (MMAS-8);
• 3 had no prescriptions prior to hospitalisation

48 participated in medication counselling & semi-structured interview

47 completed 2nd BMQ
• 1 deceased

46 completed 2nd MMAS-8
• 1 deceased & 1 declined

Figure 9-3. Patient enrolment and participation

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Ibid
9.3.1 Observations of study pharmacists discussing medication adherence issues with patients

Transcripts from 29 of 48 pharmacist-patient conversations contained references to medication adherence issues. All 12 study pharmacists were engaged in at least one conversation with a patient about medication adherence. Four main themes arose from the coded transcript references, and were related to how pharmacists approached medication adherence issues with patients. These themes included pharmacists initiating discussions with patients about medication adherence, recommending strategies to improve medication adherence, reinforcing medication importance and treatment duration, and addressing systemic barriers to medication adherence. (Table 9-1)
| **Table 9-1. Medication adherence (MA) issues discussed during medication counselling** |
|:-----------------|:----------------------------------|:-----------------------------------------------------------------|
| **Observed MA related activity** | **Description of activity** | **Additional exemplars (not included in text)** |
| Initiating MA discussions | Approached topic of MA (both directly and indirectly) | “How are you going with your other tablets...remembering to take them... anything we can help with there?” |
| Recommending strategies to improve MA | Suggested general strategies | “Some people get one of those boxes and do a weeks' worth packed up at a time.” |
| | Discussed strategies specific to patients’ needs | “Do you have a mobile phone? Do you set alarms on it?”; “…if you wear shirts like that with a pocket, keep the box of the antibiotics. It’s only for seven more days, keep it in that pocket.”; “…best to take in the evening …when your cholesterol rises…but if it helps you remember… take it in the morning with the others.”; “You’re better off not missing a dose if it means you have to take it with food, does that make sense? [than to] forget to take them at all.” |
| Reinforcing medication importance & treatment duration | Emphasised importance of taking specific medications; Highlighted length of treatment | “So- it's important to take that one.”; “It is really important that you do try to remember it all the time.” |
| | | “So-these are the two ongoing ones…Long term to help prevent any further events.” |
| | | “With the antibiotics, it is always important that you finish the course, even if you think you don’t need them anymore.” and “Alright, finish your course. If they do decide to give you a repeat then make sure you take it, don't keep it in the cupboard for when you're feeling like it.” |
| Addressing systemic barriers to MA | Encouraged patients to visit same pharmacy & follow up with primary care physician | “…So, after you've filled that repeat and when you're getting down to your last two boxes I'd recommend going off to the doctor and getting another script…” |
| Facilitating continuity of care in community | Helped patients organise medication supply | “…So, you can buy it [aspirin] without a prescription…” |
| Assisting in medication procurement | | “…we will ring your…pharmacy and get it put into your Webster pack…don't need to worry…” |
| Recognising cost issues, and/or providing strategies to manage them | Approached issue of cost; worked with healthcare team to change medications to government funded alternatives; discussed government strategies available (Safety Net) | “I suppose the other thing with medications is always cost. How are you managing with the cost of the medications?” |
| | | “…we'll be able to put that into your pack. That's on the PBS as well so that should be significantly cheaper…” |
Pharmacists did not routinely ask patients directly about their medication taking behaviours and instead tended to raise the subject obliquely, especially with patients unfamiliar to them.

“…you look like you’re all over it – but do you manage it alright…do you use a list? I know plenty of people who have less than you and struggle…” (Anna)

However, some pharmacists did probe further to better understand the nature of the patient’s medication adherence issues,

“Now that was the tricky one you had to space away from medication…Do you remember that one?” (Karen)

Some study pharmacists suggested many general strategies to patients who seemed to have issues with medication adherence,

“…put it on your calendar, put one strip next to your toothbrush, put one strip next to your toast in the morning or something like that.” (Ben)

Many pharmacists were observed to elicit causes of patients’ non-adherence and then discussed specific strategies tailored to patients’ needs. Examples of these tailored strategies to help support patients with their adherence are included in Table 9-1. An outpatient pharmacist assisting a patient with diabetes prescribed multiple medications to prepare for her three-week holiday suggested, “I wonder if it might be worth getting some Webster-Paks just for your trip overseas.” (Geena)

Emphasising the importance of adhering to specific medications and making sure patients understood their treatment duration were other ways study pharmacists reinforced medication adherence during conversations with patients. A pharmacist impressed upon a cardiology patient the need for lifelong aspirin therapy. “The aspirin is the lifelong one. After having a stent put in - they'll want it for lifelong.” (Laura)
Study pharmacists attempted to address a variety of systemic barriers to medication adherence. To facilitate continuity of care in the community, patients were encouraged to follow up with their primary care physician and to visit a consistent community pharmacy.

“…if you need any other medications for anything … it's best to just keep going…to the same pharmacy that you normally go to”. (Christine)

Pharmacists assisted patients in organising their medication supply from community pharmacies or in some cases from the hospital,

“…come back to this hospital within a month to get a further supply…we'll give you a month and then you'll need to come back…” (Christine)

Pharmacists often recognised the potential cost issues of medications for patients and frequently provided patients with strategies to manage them,

“How do you go with the cost of the medications? ...Do you know about the Safety Net, where you reach a certain limit and you get it free?” (Karen)

9.3.2 Relationship between patients’ assessment of pharmacists’ CAT behaviours and patients’ satisfaction

Overall, patients indicated strong agreement (>80%) for pharmacists demonstrating the communication behaviours described in each of the ten statements. (Table 9-2) Patients’ level of agreement to ten statements assessing pharmacists’ communication behaviours and their relationship to three patient satisfaction statements are displayed in Table 9-2. Almost all pharmacist communication behaviours were positively correlated with all three patient satisfaction statements, except for statements two and ten.
<table>
<thead>
<tr>
<th>Pharmacist communication behaviour statement</th>
<th>Associated CAT strategy</th>
<th>Patient % agreement with pharmacist behaviour (n=48)</th>
<th>Spearman’s Rank Correlation with Patient Satisfaction statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The pharmacist spoke clearly - so I could understand what they were saying.</td>
<td>Approximation</td>
<td>100%</td>
<td>The pharmacist did a good job helping me understand my medicines.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I was satisfied with my experience I had with the pharmacist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This was an effective conversation with the pharmacist. (I got what I needed.)</td>
</tr>
<tr>
<td>2. The pharmacist used medical terms I could understand.</td>
<td>Interpretability</td>
<td>88%</td>
<td>.361*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.371**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.388**</td>
</tr>
<tr>
<td>3. The pharmacist explained how my medication works in a way I could easily understand.</td>
<td>interpretability</td>
<td>100%</td>
<td>.131</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-.031</td>
</tr>
<tr>
<td>4. The pharmacist gave me enough time to think about the medication information given to me so that I could ask any questions I had.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discourse management</td>
<td>96%</td>
<td>.196</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.306*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.498**</td>
</tr>
<tr>
<td>5. The pharmacist paid attention and listened to my concerns about my medications.</td>
<td>Discourse management</td>
<td>100%</td>
<td>.501**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.328*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.431**</td>
</tr>
<tr>
<td>6. The pharmacist allowed me to interrupt to ask questions.</td>
<td>Interpersonal control</td>
<td>98%</td>
<td>.357*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.334*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.457**</td>
</tr>
<tr>
<td>7. I felt like the pharmacist thought my worries and questions about my medicines were important.</td>
<td>Emotional expression</td>
<td>98%</td>
<td>.597**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.443**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.383**</td>
</tr>
<tr>
<td>8. The pharmacist spoke to me in a respectful and courteous manner.</td>
<td>Emotional expression</td>
<td>100%</td>
<td>.432**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.592**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.395**</td>
</tr>
<tr>
<td>9. The pharmacist encouraged me to talk to my doctor and/or community pharmacist about different medication options available to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interpersonal control</td>
<td>87%</td>
<td>.383*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.389**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.318</td>
</tr>
<tr>
<td>10. The pharmacist encouraged me to take responsibility for managing my health.</td>
<td>Interpersonal control</td>
<td>87%</td>
<td>.143</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.117</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.303</td>
</tr>
</tbody>
</table>

**Note:** Agree includes the total of Agree plus Strongly Agree responses or in the case of reverse worded statements, Disagree plus Strongly Disagree responses; **Correlation is significant at the p<0.01 level (two-tailed). *Correlation is significant at the p<0.05 level (two-tailed).
9.3.3 Relationship between patients’ assessment of pharmacists’ CAT behaviours, their level of satisfaction and medication taking behaviour indices (BMQ & MMAS-8 Scores)

Patients’ assessment of pharmacists’ communication behaviours and patients’ level of satisfaction were correlated with medication taking behaviour indices. (Table 9-3) BMQ indices used were post necessity scores, post concern scores and post necessity-concern differentials. The BMQ instrument consists of necessity statements that assess patients’ beliefs about the value of their medications and concern statements that assess patients’ concerns about the harmful effects of their medications. Patients with higher necessity scores and lower concern scores generally are more adherent to their medications. As well, a positive necessity-concern differential implies that the patient holds stronger beliefs that the medication will help them than will harm them. A post MMAS-8 score was used to detect a relationship between medication adherence and pharmacist communication behaviours and patient satisfaction.

Almost all correlations with statistical significance occurred with the BMQ post necessity score in which five pharmacists’ communication behaviours and two patient satisfaction statements were found to be positively correlated. Only pharmacist communication behaviour (statement two) indicated a statistically significant and negative correlation with the post concern score. As well, the only statistically significant correlation with the post necessity-concern differentials also occurred with pharmacist communication behaviour (statement two). No statistically significant associations were found between the post MMAS-8 scores and any patient assessments of pharmacist communication behaviours or patient satisfaction.
<table>
<thead>
<tr>
<th>Pharmacist communication behaviour &amp; patient satisfaction statements</th>
<th>Associated CAT strategy</th>
<th>Patient % agreement with statements (n=48)</th>
<th>Spearman’s Rank Correlation with BMQ &amp; MMAS-8c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The pharmacist spoke clearly - so I could understand what they were saying.</td>
<td>Approximation</td>
<td>100%</td>
<td>Post Necessity Score (BMQ) (n=47)</td>
</tr>
<tr>
<td>2. The pharmacist used medical terms I could understand.</td>
<td>Interpretability</td>
<td>88%</td>
<td>.226</td>
</tr>
<tr>
<td>3. The pharmacist explained how my medication works in a way I could easily understand</td>
<td>Interpretability</td>
<td>100%</td>
<td>.332*</td>
</tr>
<tr>
<td>4. The pharmacist gave me enough time to think about the medication information given to me so that I could ask any questions I had.</td>
<td>Discourse management</td>
<td>96%</td>
<td>.427**</td>
</tr>
<tr>
<td>5. The pharmacist paid attention and listened to my concerns about my medications.</td>
<td>Discourse management</td>
<td>100%</td>
<td>.251</td>
</tr>
<tr>
<td>6. The pharmacist allowed me to interrupt to ask questions.</td>
<td>Interpersonal control</td>
<td>98%</td>
<td>.143</td>
</tr>
<tr>
<td>7. I felt like the pharmacist thought my worries and questions about my medicines were important.</td>
<td>Emotional expression</td>
<td>98%</td>
<td>.296*</td>
</tr>
<tr>
<td>8. The pharmacist spoke to me in a respectful and courteous manner.</td>
<td>Emotional expression</td>
<td>100%</td>
<td>.328*</td>
</tr>
<tr>
<td>9. The pharmacist encouraged me to talk to my doctor and/or community pharmacist about different medication options available to me.</td>
<td>Interpersonal control</td>
<td>87%</td>
<td>.388**</td>
</tr>
<tr>
<td>10. The pharmacist encouraged me to take responsibility for managing my health.</td>
<td>Interpersonal control</td>
<td>87%</td>
<td>.271</td>
</tr>
<tr>
<td>11. The pharmacist did a good job helping me understand my medicines.</td>
<td>N/A</td>
<td>98%</td>
<td>.326*</td>
</tr>
<tr>
<td>12. I was satisfied with my experience I had with the pharmacist.</td>
<td>N/A</td>
<td>100%</td>
<td>.381**</td>
</tr>
<tr>
<td>13. This was an effective conversation with the pharmacist.</td>
<td>N/A</td>
<td>98%</td>
<td>.167</td>
</tr>
</tbody>
</table>

**Note:** Agree includes the total of Agree plus Strongly Agree responses or in the case of reverse worded statements, Disagree plus Strongly Disagree responses; **Correlation is significant at the p<0.01 level (two-tailed). *Correlation is significant at the p<0.05 level (two-tailed).**

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9.3.4 Further exploration of relationships between pharmacist-patient communication and patients’ medication taking behaviour

Some additional exploration consistent with this study’s aim which was to explore relationships between effective communication (as per CAT) and patient satisfaction, and patient’s medication taking behaviour were undertaken to further investigate possible relationships between pharmacist-patient communication and patients’ medication taking behaviour.

9.3.4.1 Changes in BMQ and MMAS-8 scores over time

Differences between patients’ BMQ and MMAS-8 scores measured prior to their conversation with a pharmacist about their medications and again four weeks after the patients had left the hospital are shown in Table 9-4. No statistically significant differences for any of the BMQ indices were found. Differences between the two different time points for MMAS-8 scores were significant (medians 6.75 vs 7.00; p=0.022) although the calculated effect size was small (r=0.2478).

Table 9-4. BMQ and MMAS-8\textsuperscript{d} patients' scores at two points in time

<table>
<thead>
<tr>
<th>BMQ &amp; MMAS-8 Results</th>
<th>1\textsuperscript{st} Questionnaire Median (Range) (BMQ n=48 &amp; MMAS-8 n=45)</th>
<th>2\textsuperscript{nd} Questionnaire Median (Range) (BMQ n=47; MMAS-8 n=46)</th>
<th>Wilcoxon Signed Rank Test</th>
<th>Z value &amp; p value &amp; r value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Necessity score</td>
<td>21 (11-25)</td>
<td>21 (12-25)</td>
<td>Z = 0, p = 1.0</td>
<td></td>
</tr>
<tr>
<td>Concern score</td>
<td>12 (5-22)</td>
<td>13 (5-22)</td>
<td>Z = 1.690, p = .091</td>
<td></td>
</tr>
<tr>
<td>Necessity-Concern differential</td>
<td>6 (-2 – 20)</td>
<td>7 (-2 – 20)</td>
<td>Z = -.312, p = .775</td>
<td></td>
</tr>
<tr>
<td>MMAS-8</td>
<td>6.75 (0.5 – 8)</td>
<td>7.00 (1-8)</td>
<td>Z = 2.298, p = 0.022; r = 0.2478</td>
<td></td>
</tr>
</tbody>
</table>

Note: First questionnaire was administered before patient’s conversation with pharmacist, and second questionnaire took place four weeks after patient left hospital.

The distribution of MMAS-8 scores for the first and second questionnaires is shown in Table 9-5. Most patients have moderate or high adherence scores for both the first questionnaire (60%) and the second questionnaire (85%).

\textsuperscript{d} Ibid
Table 9-5. Distribution of MMAS-8e scores at two points in time

<table>
<thead>
<tr>
<th>MMAS-8 Adherence Level</th>
<th>1st Questionnaire* Number (%)</th>
<th>2nd Questionnaire** Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Adherence (MMAS-8 Scores &lt;6)</td>
<td>18 (40%)</td>
<td>7 (15%)</td>
</tr>
<tr>
<td>Moderate Adherence (MMAS-8 Scores 6 to &lt;8)</td>
<td>18 (40%)</td>
<td>20 (44%)</td>
</tr>
<tr>
<td>High Adherence (MMAS-8 Scores &gt;8)</td>
<td>9 (20%)</td>
<td>19 (41%)</td>
</tr>
</tbody>
</table>

*1st Questionnaire (n=45); ** 2nd Questionnaire (n=46)

9.3.4.2 Additional factors potentially affecting patients’ medication taking behaviour

Some additional factors related to the pharmacist-patient communication exchange were examined to explore their potential affect on medication taking behaviour. These factors included whether patients had filled their medication prescriptions within four weeks of leaving the hospital, whether patients found the conversation with the pharmacist helpful in taking their medications regularly and whether they had spoken or met with this pharmacist on a least one occasion before their medication counselling session. (Table 9-6)

Table 9-6. Potential factors affecting medication taking behaviour

<table>
<thead>
<tr>
<th>Factors affecting medication taking behaviour</th>
<th>Number of patient responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient filled prescriptions at 4-week discharge (n=46)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37 (80)</td>
</tr>
<tr>
<td>No</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Prescription not needed</td>
<td>8 (18)</td>
</tr>
<tr>
<td>Conversation with pharmacist before leaving hospital helped them to take their medications regularly (n=46)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33 (72)</td>
</tr>
<tr>
<td>No</td>
<td>11 (24)</td>
</tr>
<tr>
<td>Unsure</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Patient had previously conversed with the pharmacist on at least one other occasion (n=48)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24 (50)</td>
</tr>
<tr>
<td>No</td>
<td>24 (50)</td>
</tr>
</tbody>
</table>

*Ibid*
At the four-week post discharge telephone call patients were asked whether they found the conversation they had with the pharmacist before leaving the hospital helpful. Results showed that 33/46 (72%) patients answered “yes”, 11 (24%) of patients answered “no”, and 2 (4%) of patients were “not sure”. Patients were also prompted to provide more details about their answer. Exemplars from patients for each of the responses provided are shown in Table 9-7.

Table 9-7. Patients' opinions about how their conversation with pharmacist affected their medication adherence

<table>
<thead>
<tr>
<th>Did the conversation with the pharmacist before leaving the hospital help you to take your medicines regularly?</th>
<th>How did the pharmacist help you? (Exemplars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>&quot;[Pharmacist] made me aware of which ones I have to take all the time - which is a good thing...so many new medications... really helped in being less stressed with all the new medication...really helped me understand which ones I had to make sure I took - which were most important...&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;...I'm able to glean that much more information from our conversation and keep things correct...&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;... the conversation was helpful and the list - what to take and when to take it - was very helpful - especially initially...because before [when in hospital], I took what the nurses gave me to take. So, particularly the schedule [the pharmacist] gave me was really helpful.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;...[pharmacist] did make me feel at ease with my medicines...I didn't have that much to be worried about.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;...all the information, schedule and everything so helpful. I'm going to laminate the medication sheet and information sheets...trying to be more organised about my medications now.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;...discussing what I take. [Pharmacist] harasses me about my medications. [Laughs] She explains to me all about my medications - why I need it and any problems or side effects that can happen...&quot;</td>
</tr>
<tr>
<td>Not sure</td>
<td>&quot;...difficult to answer that. I'm pretty comfortable with them and felt I could ask any questions... if I didn't understand...and asked [pharmacist] about the new medications that were added.&quot;</td>
</tr>
<tr>
<td>No</td>
<td>&quot;Ah...I think I already knew everything about my medicines... it was good though, to go through the medications and review what everything was used for...&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;I don't think it made a difference...I have a system for my medications. One 7-day box each for the morning, midday and evening tablets.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;...I have pill containers to keep all my medication straight. And a wife that looks after it all.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;I've been looking after my own medications for years and I don't miss any of them.&quot;</td>
</tr>
</tbody>
</table>
The Mann-Whitney U test was used to determine whether there was any effect of filled prescriptions, previous conversations with pharmacists or patients finding their conversation with the pharmacist helpful on measures of medication adherence scores. (Table 9-8) None of the three factors had a statistically significant effect on any of the medication adherence indices.

**Table 9-8. Association of three patient factors with medication adherence**

<table>
<thead>
<tr>
<th>Medication Adherence Indices</th>
<th>Potential factors affecting medication adherence scores</th>
<th>Mann-Whitney U test (U value &amp; p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prescription filled within four weeks leaving hospital*</td>
<td>Previously met with pharmacist</td>
</tr>
<tr>
<td>BMQ Necessity score</td>
<td>U= .376; p=0.716</td>
<td>U=.457; p=0.647</td>
</tr>
<tr>
<td>Concern score</td>
<td>U=- .329; p=0.760</td>
<td>U=-.333; p=0.739</td>
</tr>
<tr>
<td>Necessity-Concern differential</td>
<td>U=.268; p=0.805</td>
<td>U=.684; p=0.494</td>
</tr>
<tr>
<td>MMAS-8</td>
<td>U= -.941; p=0.372</td>
<td>U= -.298; p=0.766</td>
</tr>
</tbody>
</table>

*Category “not filled” was not included in analysis as there had been only one response
**Category “unsure” was not included in analysis as there had been only two responses

### 9.4 Discussion

#### 9.4.1 Study pharmacists discussing medication adherence issues with patients

Understanding how the study pharmacists approached and sought to address medication adherence issues with patients provided the context from which further exploration into relationships between pharmacist communication behaviours, patient satisfaction and medication taking behaviours could then be investigated. Clearly, study pharmacists appreciated the importance of discussing medication adherence with patients as all pharmacists had engaged in at least one medication adherence related conversation. This is not surprising as many study pharmacists had described the importance of ensuring patients’ confidence in understanding their medications and in managing their medications at home. As well, pharmacists’ role in medication adherence figures prominently in most pharmacy students’ curriculum and within standards of practice for pharmacy practitioners.279,399
The medication adherence themes arising from the pharmacist-patient counselling sessions included *initiating discussions with patients, recommending strategies* to improve medication adherence, *reinforcing medication importance and treatment duration*, and *addressing systemic barriers* to medication adherence. Pharmacists tended to broach the topic of medication adherence with patients using indirect methods initially, to avoid judgement and encourage open conversation, and then followed up with more direct questions and prompts. This approach has been a well-established strategy described in the literature. 400-402

Study pharmacists provided patients with many general strategies to improve medication adherence, although most pharmacists discussed specific strategies tailored to patients’ needs. Many researchers have found tailoring medication adherence strategies for individual patients to be a more effective approach to improving medication adherence. 167,403,404 A common approach used by study pharmacists in their conversations with patients about medications was to reinforce and emphasise the importance of the medication to the patient’s treatment and health. This strategy frequently appears in research studies and is often recommended to healthcare professionals speaking to patients about their medications. 150,395,400-402

Most pharmacists addressed systemic barriers such as lack of continuity of care by encouraging consistent primary care physician and community pharmacist visits. This approach to continuity care taken by study pharmacists is supported by research and associated with beneficial outcomes for patients. 405-407 However, only a few pharmacists in both inpatient and outpatient setting approached the issue of medication costs with patients. This is an important consideration as the ability of patients to pay for their medications has been identified as a major barrier to medication adherence in many developed nations. 1,408

9.4.2 Relationship between patients’ assessment of pharmacists’ communication behaviours and patients’ satisfaction

Nearly all of the patient assessed pharmacist communication behaviours were positively correlated with all three patient satisfaction statements. This implies that the more patients experience these pharmacist communication behaviours, the higher their reported levels of satisfaction with the pharmacist-patient exchanges. However, there were exceptions noted for the communication behaviours statements two and ten. Statement two, “The pharmacist used medical terms I could understand”, was the only statement that had been reverse-worded
statement in the patient’s semi-structured interview. It is possible that this statement (being reverse-worded) was confusing to the patients resulting in their incorrect interpretation and scoring of the pharmacist’s behaviour. This occasionally happened, even after BC explained the statement’s intent to those who expressed confusion about the statement’s meaning. Only one patient satisfaction statement, “This was an effective conversation with the pharmacist” was positively correlated with statement ten which described the pharmacist as encouraging the patient to take responsibility for managing their health. It is unclear why a positive correlation was not observed for this pharmacist behaviour statement and the two other patient satisfaction statements. However, as discussed in Chapter 7, section 7.3.3 (page 149), lower scores assigned to pharmacists’ communication behaviour statements by patients did not necessarily mean that the pharmacist was nonaccommodative to the patient’s conversational needs. It most often meant that the pharmacists’ behaviour was not observed by the patient in their interaction.

Several pharmacist communication behaviours were strongly correlated with the patient satisfaction statements. Of note, the pharmacist behaviour statements 1 and 3 to 9 are strongly correlated with all three patient satisfaction statements. Other researchers have found positive associations with similar communication behaviours and levels of patient satisfaction. Pharmacists from the UK trained in a cognitive behavioural therapy framework provided medication consults to patients on an inpatient mental health ward. Patients expressed high levels of satisfaction with having their questions answered in a way they could understand and being treated with respect and dignity. 117 Patients surveyed at a US immunisation clinic after receiving counselling and an immunisation from a pharmacist expressed satisfaction to having the “pharmacist explain things to me in a way that I can understand” and “pharmacist spends as much time as is needed with me”. 409 Australian researchers eliciting patient’s assessment of their experience and level of satisfaction with prescribing pharmacists in a surgical pre-admission clinic reported similar relationships between a number of assessment statements and patient satisfaction as observed in our study. These included “explained clearly”, “provided relevant information”, “listened”, “answered questions in a way easily understood”, and “understood medication concerns expressed”. 410

These associations observed between many of the pharmacist communication behaviour statements and levels of patient satisfaction highlight communication behaviours that are of
particular importance to patients, and therefore, necessary for effective conversations to take place.

**9.4.3 Relationship between patients’ assessment of pharmacists’ communication behaviours, patients’ level of satisfaction and medication taking behaviour**

The second step in this exploratory study was to investigate whether a relationship between pharmacists’ communication behaviour or patients’ level of satisfaction exists with patients’ medication taking behaviours. The positively and statistically significant correlations between pharmacist communication behaviours and patients’ satisfaction occurred mainly with the BMQ post necessity score. This positive correlation is understandable as patients who have experienced a pharmacist-patient interaction where the pharmacist provided well-explained information, at a pace that allowed patients enough time to ask and linked patients to healthcare professionals in their community to address medication issues would likely appreciate the need for their medication and its benefits to their health and wellbeing. Patients who felt that the pharmacist was empathetic and provided reassurance in response to their concerns about their medications may have stronger beliefs that their medications are beneficial to them. Therefore, it is not surprising that there were strong positive correlations between the overall satisfaction statements, “I was satisfied with my experience I had with the pharmacist”, “The pharmacist did a good job helping me understand my medicines” and the necessity score. However, it is unknown why the same associations were not observed for the satisfaction statement, “This was an effective conversation with the pharmacist.”

There was only one negative statistically significantly correlation between statement two, “The pharmacist used medical terms I could understand.” and the post concern score. This indicates that the more patients experienced pharmacists using layman’s terms rather than medical terminology, the less patients expressed concerns about the harmful effects of their medications.

As well, the only positive and statistically significant correlation with the post necessity-concern differential also occurred with pharmacist communication behaviour (statement two). This implies that as more patients experience plain language spoken by pharmacists, there is also an increase in patients feeling stronger about the necessity compared to their concerns about their medications.
No statistically significant associations were observed with any pharmacist behaviour statements, patient satisfaction and post medication adherence (MMAS-8) scores. The overall low level of associations seen between the behaviour statements or levels of satisfaction and all four medication taking behaviour indices is likely due to the exploratory, observational design and relatively low patient numbers in this study to detect associations. Perhaps, a different study design would allow for further associations to be detected.

9.4.4 Further exploration of relationships between pharmacist-patient communication and patients’ medication taking behaviour

This chapter’s aim to investigate relationships between effective communication and medication taking behaviour is novel and exploratory. The third step of this exploration, discussed below, further investigated potential relationships between communication and medication taking behaviour that are well aligned with this aim.

9.4.4.1 Changes in medication adherence indices (BMQ and MMAS-8 scores) over time

The only significant difference found between medication adherence indices administered prior to the pharmacist-patient exchange and then again four weeks after leaving the hospital occurred with the MMAS-8 scores, although the effect size was small. Not only are there small differences in scores between the first and second time points for all BMQ and MMAS-8 indices, the initial scores already reflect relatively high levels of medication adherence. This makes it more difficult to show significant changes in medication taking behaviour. As well this study was not designed or powered to show differences between the time points.

9.4.4.2 Additional factors potentially affecting patients’ medication taking behaviour

Three additional factors related to the pharmacist-patient communication exchange were examined to explore their potential affect on medication taking behaviour. At the time of their semi-structured interview, patients were asked if they had spoken with or had had conversations with the pharmacist in the past. This was to find out whether they had already built rapport with the pharmacist. It was unknown how an established relationship might affect the pharmacist-patient exchange as well as the patients’ medication taking behaviour. At the four-week follow up telephone call, patients were asked if they had filled their
prescriptions as another way to gauge their medication adherence. Most patients had done so, but many had an adequate supply and did not require their prescriptions refilled.

Patients were also asked at the four-week telephone call whether they found their conversation with the pharmacist helpful in taking their medications regularly. The majority of patients responded “yes” and provided a wide range of reasons for their answer. These included reassurance and encouragement, provision of information, and tools to assist patients in being adherent such as medication lists and calendars. Patients’ stated reasons for finding the exchange with the pharmacist helpful for adherence could be matched to specific CAT strategies. Reassurance, encouragement and putting patients at ease is related to the emotional expression strategy while the provision of information and medication lists are examples of interpretability strategies.

Few patients stated that their conversations with the pharmacist did not help them in being more adherent. Almost all who did were quick to point out that they already had established effective routines to assist them in adherence. Most of the patients with systems already in place to assist them were clinic patients and had built a relationship with the pharmacist over time. Perhaps for some of these patients, the intermediate outcome is not adherence to treatment, but access to care (to consult the pharmacist for specific issues) or trust in system (availability of pharmacist) or self-care skills (patients empowered to self-monitor) or even emotional management (reassurance to help anxious patients). This may suggest that patients’ adherence improves as a result of regular follow up and accessibility of pharmacists where patients feel that the pharmacist is genuinely interested in their health and well-being. Study patients had reported the importance of pharmacists’ interpersonal skills such as kindness and reassurance as well as being accessible as necessary components of effective conversations with pharmacists. (Chapter 8) Only two patients were uncertain about the helpfulness of the conversation with the pharmacist and taking their medications regularly and even one stated that she had asked and received information about her new medications from the pharmacist. Interestingly, the percentage of moderate and high adherence score (85%) at the four-week telephone call is greater than the percentage of those patients who felt that the conversation with the pharmacist helped them to be adherent (72%). It is likely the difference can be attributed to those patients who responded “no” to this question, and then explained that they already had processes in place to ensure their adherence.
The effect of these three factors was tested on the medication taking behaviour measures (BMQ and MMAS-8), but no statistically significant effect was detected. Intuitively, any of these factors could have potentially affected the medication adherence indices; however, the study population numbers included in the analysis were likely too small to see an effect. It was not surprising that much of the investigations involving the medication taking behaviour measures (BMQ and MMAS-8) showed few correlations to pharmacist communication behaviours, level of patient satisfaction, revealed little change when measured over the two, time points, and were not affected by some additional factors. This study was an exploratory and observational study with relatively small numbers of patients. However, this part of the thesis contributes a valuable foundation for future work by providing some preliminary process mapping of the pharmacist-patient communication interaction to proximal and intermediate outcomes. For example, further research might include a controlled trial composed of sufficient numbers of low adherent patients randomised at baseline to control or multiple communication interventions, and followed over time.

9.4.5 Limitations

There are several potential limitations to this study. Patients may have provided socially desirable responses in their semi-structured interviews where they assessed pharmacists’ communication behaviours and indicated their levels of satisfaction. Although patient interviews were held immediately after their conversation with the pharmacist, it is possible that the participants’ recall may have altered as they attempted to remember specific details about their interaction. As well, transport issues for patients in a hurry to leave the hospital may have resulted in hastier responses and shorter explanations. In addition, patients may have given socially desirable responses and/or were subject to recall bias when asked questions at the four-week follow up telephone call. Another potential limitation was the self-selection of motivated pharmacists enrolling in this study, which may limit transferability of positive results. This research was conducted at a single public hospital, and therefore the results might not be transferable to all specialty areas at other hospitals or to rural or private hospitals. An important limitation for this exploratory research was that this study was not designed or powered to detect differences in medication taking behaviours over time.
9.5 Conclusion
By adapting a process map from the literature, we created a framework in which to conduct some exploratory research to investigate the relationship between effective pharmacist-patient exchanges and patients’ medication taking behaviour. Almost all patient assessed pharmacist communication behaviours and levels of patient satisfaction were strongly correlated highlighting many communication behaviours needed for effective conversations to take place. A few positive correlations were detected between pharmacist communication behaviours such as well-explained information, sufficient time for conversations, empathy and reassurance, patient satisfaction statements and BMQ Necessity scores. Little differences in BMQ and MMAS-8 scores over time and no effect of some additional patient factors on BMQ and MMAS-8 scores were observed as this exploratory study was intentionally not designed or adequately powered to show these differences and effects. This study produced a valuable foundation for future work by providing some preliminary process mapping of the pharmacist-patient communication interactions to patient health outcomes. Some of this future work is discussed in Chapter 10.
CHAPTER 10: Discussion

In this final chapter, I highlight the main findings and discuss how these interrelate and address the overarching aim for this thesis. A number of issues and limitations that arose during the study as well as the lessons learned will also be described. Implications of this research for practitioners and pharmacy students will be considered. I conclude this chapter proposing future directions for ongoing health communication research.

10.1 Main Findings

The overarching aim of this thesis, “To investigate the effectiveness of communication between hospital pharmacists and patients during medication counselling”, was addressed in a step-wise fashion that applied a theoretical framework, incorporated multiple research methods, and investigated communication effectiveness from an Insider’s perspective, the patient’s and the pharmacist’s, and from an Outsider’s or Observer’s point of view. Then an exploratory study yielded limited, but interesting results, such as the relationships between patient reported pharmacist communication behaviours and patient satisfaction. As well, a preliminary process map was developed that can be used for future pharmacist communication-patient outcome research.

The introductory chapter provides the rationale for conducting hospital pharmacist-patient communication research. While clinical pharmacy practice has evolved over the past few decades, the development of communication competency for pharmacists taking on new, expanded and advanced roles has not kept pace. This is reflected in the paucity of pharmacist-patient communication literature with few details about what made these exchanges effective, and almost all research has been atheoretical. To address these gaps in the literature, a framework specific to communication, CAT, was chosen. CAT provided a comprehensive framework in which to study pharmacist-patient interactions. CAT enabled detailed interpretation of these interactions as the framework considers the behavioural, motivational and emotional processes underlying communication exchanges. In addition to its application in the data analysis and interpretation, CAT strategies were also integrated into data collection tools such as the semi-structured interview communication behavioural statements.
The first phase of this research involved focus groups of hospital pharmacists to find out their perceived roles and goals in medication counselling as well as the barriers and enablers to achieving their goals. These focus groups (discussed in Chapter 3) provided important information about the context and environment in which the hospital pharmacists practiced. Pharmacists’ descriptions about their roles in medication counselling reflected professional expectations for Australian pharmacists while their goals in medication counselling tended to reflect their personal intentions in their interactions with patients. Goals described by pharmacists provided insight into how they approached and practiced communication with patients, and raised questions about whether and how these behaviours would be observed in the pharmacist-patient conversations in phase two of this research. Results from the focus groups informed the contents of the CAT based statements within the semi-structured interview guides for pharmacists and patients used in the second phase of this research. The second study (Chapter 4) demonstrated that pharmacists’ goals identified in the focus groups could be easily mapped to the five CAT strategies. Pharmacists’ goals were selected for this exercise as CAT posits that it is the individual’s goals that drive their communication behaviour. Although CAT had been utilised in other health communication research, the framework had not been previously applied to pharmacist-patient interactions. This step acted as an important “proof of concept” for the next phase of the research.

Phase 2 of this research involved audio recording and observing pharmacist-patient exchanges about patients’ medications, followed by separately held, audio recorded pharmacist and patient semi-structured interviews to gain each participant’s perspective of their shared interaction (methods described in Chapter 2). The results and analysis of Chapter 5 comprise the main body of this PhD research. This chapter highlighted how well pharmacists accommodated or not to patients’ conversation needs through their application of CAT strategies. All pharmacists successfully utilised CAT strategies in most of their interactions. Interestingly, the goals identified in the focus groups (Chapters 3 and 4) were observed in the pharmacists’ communication behaviours. However, a key area for improved pharmacist communication was identified. This occurred at the beginning of their conversations with patients or in the agenda-setting phase. Most study pharmacists did not include patients in the agenda setting phase of their conversations. This was unfortunate as this is an important point in the conversation to understand the patient’s goals, hear and help address their medication issues and to encourage their active involvement in medication and
healthcare decisions. Inviting patients into this crucial first step of a conversation can also be a time saver for pharmacists as the conversation can be focused on the issues identified by the patient. Addressing patients’ issues at the start of a conversation may result in patients being more receptive and willing to engage in further discussions about their medications. Otherwise patients may be distracted by their concerns, not engaged in the conversation with the pharmacist and therefore, may not benefit from the information provided. A few pharmacists from the early focus groups described the importance of this early step in the conversation as failing do so would often result in a distracted, unengaged patient focussed on other issues.

To enhance the qualitative analysis already conducted in Chapter 5, Discursis software was used to produce visual representations of the pharmacist-patient conversations (Chapter 6). Of particular interest were the Discursis depictions of moderate-high versus low levels of pharmacist-patient engagement which were readily discernible on the plots. Although most of the study’s conversations were classified as having moderate-high levels of pharmacist-patient engagement, there were several exchanges that indicated low levels of engagement where the characteristic patterns of off-diagonal blocks were absent. Not surprisingly, these low-level engagement conversations matched the pharmacist-patient exchanges analysed in Chapter 5 as being one-way conversations with little input from patients. Medication counselling by study pharmacists was observed to be a very procedure driven process. It was only problematic and interfered with patient engagement when pharmacists became too focussed on getting through the medication list quickly. Discursis plots of moderate-high engagement also confirmed times when pharmacists appropriately applied CAT strategies to accommodate to patients’ conversational needs. The same accommodative applications of CAT strategies were found in the analysis of Chapter 5. Verification of these results support the use of Discursis as a tool to screen data sets and identify plots of interest for targeted qualitative analysis.

The next step in the investigation of the effectiveness of hospital pharmacist-patient communication was to gain the perspectives of both the pharmacists and the patients about how well their shared conversation went (Chapter 7). Pharmacists and patients provided their views in separate semi-structured interviews held after their shared medication counselling session. Common CAT related themes from pharmacists and patients emerged from the semi-
structured interviews. These themes were also supported and could be triangulated by the results of the Chapter 5 analysis of the pharmacist-patient exchanges. Comparisons of Insiders’ (pharmacist and patient) and Outsider’s (Observer) quantitative ratings of the pharmacist-patient exchanges matched some, but not all of the qualitative findings. Differences between Observer and Pharmacist ratings highlighted areas for additional training (health literacy and cultural awareness). Qualitative results helped explain some interesting differences between pharmacists’ assessments and those of patients and the Observer. For example, pharmacists’ self-reflection on their provision of medication counselling led to assigning themselves lower self-ratings compared to the patients’ or Observer’s scores. These, sometimes harsh, self-assessments were not completely surprising. Many of the participating pharmacists had remarked at study enrolment that they were interested in improving their communication skills and wanted to receive feedback. (However, study pharmacists did not receive feedback on their communication until after the completion of the study. At that point, all pharmacists received a verbal explanation and written CAT based evaluation of each of their four patient exchanges.) It may be that the positive results obtained in this research are attributable to having highly motivated pharmacists enrolled in the study.

Although differences in ratings existed between patients, pharmacists and Observer, it is noteworthy that most pharmacist-patient interactions were assessed as being effective conversations by all three groups. Almost all patients (98%) while the majority of pharmacists’ (83%) and Observer’s assessments (69%) rated the pharmacist-patient conversations as effective.

If Chapter 5 can be considered the body of this research, Chapter 8 represents its heart. To understand pharmacists’ and patients’ perspectives of what makes a conversation between pharmacists and patients effective is the culmination of the previous chapters. Pharmacists and patients shared a number of CAT related themes around aspects of effective conversations; however, their overarching goal was to ensure patients were confident in their ability to manage their medications. This concept of patient confidence in understanding their medications and in being able to manage medications at home came up in both pharmacist and patient semi-structured interviews. Although pharmacists and patients rarely used the term “confidence”, patients often stressed their need to be able to manage independently after
leaving the hospital and others described their systems in place to organise their medication taking, storage and procurement. Pharmacists often commented upon how they assessed and looked for ways in which patients demonstrated their understanding and readiness to self-manage their medications.

Having a shared goal of patients’ confidence in managing their medications is a laudable one for pharmacists and patients. It helps to direct communication and preparation for discharge. Pharmacists can apply this goal in their conversations with patients about discharge by ascertaining what patients need from them to self-manage their medications at home. These conversations not only assist patients for the present healthcare situation, but may also act to encourage and empower patients to be more active in their healthcare and to better understand how to navigate the healthcare systems for future care. This approach would also be amenable to pharmacy students’ communication skills training to encourage students to have conversations with patients and find out how they could assist patients to be confident about managing their medications.

In this last part of the thesis (Chapter 9), relationships between effective pharmacist-patient exchanges and patients’ medication taking behaviour are explored. These were studied through a pathway adapted from previous research to fit the pharmacist-patient context. Relationships between pharmacist communication behaviours and patient satisfaction were first examined, followed by studying possible associations of communication behaviours and patient satisfaction with medication adherence. From these studies, an important result was the establishment of a process pathway to further study links between effective communication and patient-health outcomes.

Importantly, almost all patient assessed CAT based pharmacist communication behaviours were positively associated with patient satisfaction. The more that patients experienced these communication behaviours, the higher their reported satisfaction. One of these three patient satisfaction statements included a direct reference to effective communication, “This was an effective conversation with the pharmacist.” Therefore, the pharmacist communication behaviours positively associated with this statement mean these behaviours are necessary for effective communication to take place. These quantitative results align well with the findings from the qualitative analysis of the patient semi-structured interviews discussed in Chapter 7.
However, there were few associations found between pharmacist communication behaviours, patient satisfaction, and medication taking behaviours. Perhaps this is because many study patients were already adherent to their medications at enrolment, and therefore, they did not attribute their adherence to their conversation with the pharmacist before leaving hospital. There may be additional factors or potential pharmacist influences that should be explored for communication-health outcomes. For patients where medication adherence is already established, this initial pathway may not have been broad enough to include other potential pharmacist influences such as accessibility and trust in the system included in the adapted Street model. For example, it is possible that clinic patients who have established relationships with outpatient pharmacists may have already been assisted in making medication taking changes to improve their adherence. Some of these patients had reported that their conversation with pharmacists was not helpful in remembering to take their medications, as they already had well organised systems in place. However, these clinic patients were satisfied with their pharmacist interaction and found the conversation effective as they had visited the pharmacist to address specific medication issues. For these patients, the pathway for communication – health outcome link is likely related to accessibility and trust in their relationship with the pharmacist, instead of commitment to therapy. Historically, proposed positive patient outcomes associated with patient counselling by pharmacists are attributed to medication adherence. Perhaps, the communication – health outcome pathways are broader than earlier suggested, and include other intermediate outcomes such as accessibility, trust or emotional management. In addition, it is possible that effective pharmacist-patient communication that encourages and empowers patients may also influence their self-efficacy leading to improved self-care skills. Medication taking behaviour measures used in future research should also include self-efficacy assessment to explore how effective communication might influence patients’ confidence in self-managing therapy.

While many interesting and valuable findings emerged from this research, there were also some limitations and issues that arose along with some lessons learned in the process.

10.2 Issues, limitations and lessons learned
A number of issues emerged throughout the course of this research including the choice of nomenclature used to describe pharmacist-patient interactions, the challenge of pharmacists’
time poor environment, theoretical “fuzzy coding” a limitation of CAT, and practical problems with misinterpretation of some semi-structured interview statements by patients.

10.2.1 “Patient Counselling” nomenclature
While conducting this PhD research, the question arose around what nomenclature should be used to describe pharmacist-patient communication exchanges about patient’s medication. As well, what would be the most accurate and what would be the appropriate? Traditionally, the communication exchanges between pharmacists and patients have been described as patient counselling, medication counselling or patient education.\textsuperscript{148,302} The term “counselling” may be a misleading term as pharmacists do not typically counsel patients or form therapeutic alliances, in the way that psychotherapists might do. In pharmacy practice, this term is often understood to mean that pharmacists are providing information to or educating patients about their medications. Many study pharmacists were observed to appropriately respond to patients’ emotional needs and one might argue their relationship involved “counselling” patients while providing reassurance; however, these pharmacists did not form therapeutic alliances with patients.

Sometimes in the pharmacy literature “patient counselling” or “patient education” are used interchangeably. However, “patient education” may not be an accurate general term for pharmacist-patient communication exchanges as many do not involve the provision of education. In situations such as a pharmacist interacting with and instructing a patient on proper inhaler use, this could be an example of patient education. However, in situations where a pharmacist reviews the contents of a medication list without patient engagement and assurance of patient understanding, this is unlikely to be an example of patient education. More importantly, using the term “patient education” to describe all interactions between pharmacists and patients is not aligned with a patient-centred approach to care delivery. It implies that the need for education is determined by the healthcare provider who delivers information to the patient as opposed to involving the patient in making decisions about their medication needs.

In this research, alternate terms such as “exchanges”, “interactions” and “conversations” have been employed in addition to the more traditional “medication counselling” phrase. Another name for a pharmacist-patient communication exchange and borrowed from physician
nomenclature could be “consultation”. Using “consultation” to denote conversations between pharmacists and patients conjures up images of formal meetings or appointments. However, with advanced practice roles for pharmacists such as (home) medicines reviews, prescriptive authority, ability to requisition laboratory tests, conduct physical assessments and provide immunisations, “consultations” may be an apt alternative to the dated “patient counselling” or “patient education” terms.

### 10.2.2 Challenge of pharmacists’ time poor environment

This research recognised that pharmacists often work under pressure and in a time poor environment. Focus group pharmacists described lack of time and high workload as barriers to communicating effectively with patients. This thesis has discussed ways in which pharmacists might address these issues on an individual level and within their own practices. For example, ensuring patients are included in the agenda setting phase of the conversation to allow patient input and focus the conversation on the patient’s medication needs. A discussion at the start of the counselling session to determine what particular issues the patient would like to discuss may actually preclude the usual review of the medication list for patients already knowledgeable about their medications. Several patients in the study had intimated that they already felt confident in managing their medications. Strategies to manage pharmacists’ time constraints have been suggested by others. These include breaking up medication counselling in chunks over the course of patients’ hospital stay to reduce the amount of information at discharge.153

While there is room for pharmacists to individually improve the effectiveness and efficiency of their communication with patients, there are system level barriers that interfere with pharmacists’ ability to be effective communicators. Some of these identified within the focus groups included noisy environments, insufficient notification of pending discharges and high workload volumes. This thesis discussed many of these issues as well as the enablers that allow pharmacists to meet their goals in medication counselling such as inter and intraprofessional collaboration, communication skills training, and expanded professional roles.
10.2.3 Theoretical framework issues (Fuzzy Coding)

Although the details of pharmacist-patient interactions and interviews were successfully interpreted invoking CAT as the theoretical framework in this research, a limitation of CAT was discovered when applying this theory to practice. The challenge in using CAT was related to the issue of “fuzzy coding”, where more than one CAT strategy could be associated with an observed communication behaviour. This multiple use of CAT strategies by speakers may reflect the numerous goals they hold for that exchange, and these goals can also change over the course of an interaction.379

An example of fuzzy coding in the context of this qualitative research took place where a pharmacist allowed a patient to “save face”. Jones (2007) describes this as face-maintenance, a discourse management strategy to ensure the conversation flows and speakers remain engaged in the conversation. The act of face-maintenance by one speaker allows the other person to maintain a positive self-image.229 However, in addition to being a discourse management strategy, “saving face” can also exemplify interpersonal control or emotional expression strategies. By down playing another person’s error or mistake, an individual avoids appearing critical or superior to the other and preserves or promotes equality between themselves and the other speaker. If this was the speaker’s motivation, then this behaviour would be an example of accommodative interpersonal control. On the other hand, if a speaker allows the other person to “save face” as a kindly respectful gesture, then this behaviour would be demonstrating appropriate emotional expression. Situations of “fuzzy coding” are challenging and require the analyst to accurately assess the intent or goal of the speaker at that particular time in order to select the most appropriate CAT strategy for that interaction.

10.2.4 Issues with Methods (Misinterpretation of semi-structured interview statements)

Patient misinterpretation of a few pharmacist behavioural statements came to light during the study. Statement 1 “The pharmacist spoke clearly - so I could understand what they were saying.” was interpreted by many patients to be asking how well the pharmacist enunciated as opposed to mean that the pharmacists used adequate speech volume and rate. Even after clarifying the statement’s intent, some patients interpreted the statement to be predominantly about understanding information provided by the pharmacist, an interpretability statement. Changes, prior to future use, will be made to both the patients’ and pharmacists’ versions to make it clear that this statement is asking about how well pharmacists adjust their speech.
production to match that of the patients’. For the patients’ interviews, Statement 2 was reverse worded. Again, even with explanation, the wording remained confusing for a few patients who interpreted the statement incorrectly. Reverse worded statements will be avoided or used cautiously in future versions. Statement 5 “The pharmacist paid attention and listened to my concerns about my medications.” included the word “concerns” which led some patients to think this statement was asking about pharmacists’ caring behaviours related to emotional expression. In the next version, “concerns” will be replaced with another word such as “issues”. Fortunately, most of the confusion and misinterpretation was mitigated by being present to clarify any statements patients were uncertain about.

10.3 Research Implications

Results of this research have implications for both pharmacy students’ & practitioners’ communication skills training. A communication skills workshop incorporating CAT strategies in reflective, active learning and peer evaluation activities has been designed and delivered to final year pharmacy students with positive feedback from participants. Similar CAT based communication skills workshops could be expanded within our pharmacy school and offered to practicing pharmacists to increase their awareness of CAT strategies and further integrate these behaviours into their conversations with patients. In addition, CAT based communication skills training could be extended to students and providers in other healthcare professions. The inclusion of CAT communication behaviours as criteria in hospital pharmacists’ assessment tools such as the Society of Hospital Pharmacists of Australia’s clinCAT may provide a more comprehensive understanding of pharmacists’ communication skills. For example, the current clinCAT assessment tool includes “Agree on an agenda with the patient” as a performance criteria with “Explain purpose of discussion [to patient]” as the behaviour on which to base the evaluation. Perhaps, the performance criteria “Agree on agenda with the patient” could be expanded to include behaviours that reflect shared decision making around setting the agenda. An alternative behaviour to assess how well the pharmacist has “Agreed on agenda with a patient” might be, “Explain why you've come to speak with them, and use open-ended questions to ascertain whether they have any medication related questions or concerns they would like to discuss.”

The Discursis software program would be a useful tool in communication skills training where easily generated Discursis plots could provide feedback to pharmacy students or
practitioners about their communication performance through a visual representation of their patient interaction. In addition, Discursis software would assist qualitative researchers in their analysis where large data sets could be scanned quickly and areas of interest targeted for more detailed study. There are some limitations to the Discursis software. At present, Discursis uses transcripts as the data source to generate visual representations of conversations. This is a limitation as nuances such as speech rate and pauses cannot be detected on the plots. However, in conversation with D Angus (April 2017), an upgraded version of Discursis software that accepts audio recordings as its input is underdevelopment and should be available in the near future.

10.4 Future directions for research

There are many opportunities for continuing and expanding communication research using CAT as the theoretical framework. The observation of CAT behaviours in pharmacists should be expanded to include exchanges between pharmacists and other healthcare professionals as well as with patients in different healthcare settings such as primary care or community pharmacies. As CAT strategies are integrated into healthcare professional communication skills training in universities and in healthcare facilities, research evaluating its impact and effectiveness needs to be conducted. Interpretation of CAT strategies in future research would be enhanced through the use of video recording to be able to capture non-verbal communication such as facial expressions, posturing and physical contact. Many of these features may be captured in written form as observational notes. However, video recordings would allow for increased accuracy of data analysis and enhanced interpretation of results, compared to relying on observational notes only. Concerns about privacy breeches through unintentional recording of adjacent patients, their families and healthcare professionals are often described as impediments to using video recording in research. These concerns are not insurmountable and could be overcome by establishing private rooms for recording.

Research using CAT strategies to educate and empower patients and care givers to effectively navigate the healthcare system could provide improved health outcomes to patients as well as benefits to society and the public health system. This type of research might include evaluating the impact of coaching patients and their caregivers about effective ways to ask the healthcare providers questions to receive the desired information. An example would be patients asking open-ended questions such as, “What are the main side effects of that
medication? How likely am I to experience these? What actions do I take if I experience these?"

Finally, further investigations need to be conducted that build on the preliminary pathways already established for communication-patient health outcomes research. An example might be a randomised control study that investigates the effect of CAT based communication skills training for healthcare professionals. Outcomes could include indirect outcomes (proximal and intermediate) as well as direct outcomes (symptom or disease resolution and emotional well-being) as described by Street. Medication taking behaviour measures should be expanded to include self-efficacy tools to capture additional effects of communication exchanges.

10.5 Conclusion

Results of this thesis research provide an important contribution to the pharmacist-patient communication literature. Invoking CAT as the theoretical framework allowed for the detailed analysis of pharmacist-patient conversations. Discursis software enhanced the qualitative analysis of the pharmacist-patient exchanges through its depiction of engagement episodes. Pharmacist and patient interviews provided their valuable perspectives about what makes pharmacist-patient conversations effective. Strong associations between patient assessed pharmacist communication behaviours and patient satisfaction highlighted aspects of pharmacist-patient exchanges necessary for effective communication. This thesis has research implications in communication training for pharmacy and other healthcare students as well as for practicing clinicians. Future health communication research opportunities include further studies between patients and pharmacists or other healthcare professionals, in different practice settings, and to continue to progress communication-patient outcome investigations.
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APPENDICES

Appendix 1 – Phase 1 Royal Brisbane & Women’s Hospital Human Research Ethics Committee Approval Letter

Ms Bernadette Chevalier
School of Pharmacy
Pharmacy Australia Centre of Excellence
The University of Queensland
20 Cornwall Street
Woolloongabba Q 4102

Dear Ms Chevalier,

Re: Ref N°: HREC/14/QRBB/546: Hospital Pharmacists’ Opinions and Perceptions of Discharge Medication Counselling

Thank you for submitting the above research project for single ethical review. This project was received by the Royal Brisbane & Women’s Hospital Human Research Ethics Committee (RBWH HREC) (EC00172) on 01 December, 2014 and was considered by a sub-Committee of the HREC.

I am pleased to advise that the sub-Committee has approved of this low risk project. This approval will be notified by the RBWH Human Research Ethics Committee at its 09 February, 2015 meeting. A further letter will be sent after that meeting.

The nominated participating sites for this project are:

- Royal Brisbane & Women’s Hospital, Qld
- Princess Alexandra Hospital, Qld

Note: If additional sites are engaged prior to the commencement of, or during the research project, the Coordinating Principal Investigator is required to notify the RBWH HREC. Notification of withdrawn sites should also be provided to the RBWH HREC in a timely fashion.

This letter constitutes ethical approval only. This project cannot proceed at any site until separate research governance authorisation has been obtained from the CEO or Delegate of the institution under whose auspices the research will be conducted at that site.
The approved documents include:

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<td>Low or Negligible Risk Research Application (Submission Code: AU/10/9B0C115)</td>
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Approval of this project from the RBWH HREC is valid from **12.12.2014** to **12.12.2017** subject to the following conditions being met:

- The Coordinating Principal Investigator will immediately report anything that might warrant review of ethical approval of the project.

- The Coordinating Principal Investigator will notify the RBWH HREC of any event that requires a modification to the protocol or other project documents and submit any required amendments in accordance with the instructions provided by the HREC. These instructions can be found at [http://www.health.qld.gov.au/rbwh/research/hrec.asp](http://www.health.qld.gov.au/rbwh/research/hrec.asp).

- The Coordinating Principal Investigator will submit any necessary reports related to the safety of research participants in accordance with the RBWH HREC policy and procedures. These instructions can be found at [http://www.health.qld.gov.au/rbwh/research/hrec.asp](http://www.health.qld.gov.au/rbwh/research/hrec.asp).

- In accordance with Section 3.3.22 (b) of the National Statement the Coordinating Principal Investigator will report to the RBWH HREC annually in the specified format, the first report being due on **12.12.2015** and a final report is to be submitted on completion of the study. These instructions can be found at [http://www.health.qld.gov.au/ohmr/html/regu/reporting_templates.asp](http://www.health.qld.gov.au/ohmr/html/regu/reporting_templates.asp).

- The Coordinating Principal Investigator will notify the RBWH HREC if the project is discontinued before the expected completion date, with reasons provided.
• The Coordinating Principal Investigator will notify the RBWH HREC of any plan to extend the duration of the project past the approval period listed above and will submit any associated required documentation. Instructions for obtaining an extension of approval can be found at http://www.health.qld.gov.au/rbwh/research/hrec.asp.

• The Coordinating Principal Investigator will notify the RBWH HREC of his or her inability to continue as Coordinating Principal Investigator including the name of and contact information for a replacement.

• A copy of this ethical approval letter together with completed Site Specific Assessment (SSA) and any other requirements must be submitted by all site Principal Investigators to the Research Governance Office at each participating institution in a timely manner to enable the institution to authorise the commencement of the project at its site/s.

• Should you have any queries about the RBWH HREC’s consideration of your project please contact the HREC Coordinator on 07 3646 5490. The RBWH HREC’s Terms of Reference, Standard Operating Procedures, membership and standard forms are available from http://www.health.qld.gov.au/rbwh/research/hrec.asp.

The RBWH HREC wishes you every success in your research.

Yours sincerely,

[Signature]

Dr Conor Brophy
Chairperson RBWH Human Research Ethics Committee
Metro North Hospital and Health Service
12.12.2014

This HREC is constituted and operates in accordance with the National Health and Medical Research Council’s (NHMRC) National Statement on Ethical Conduct in Human Research (2007). The processes used by this HREC to review research proposals have been certified by the National Health and Medical Research Council.
Appendix 2 – Phase 1 University of Queensland, School of Pharmacy Approval Letter

25th February 2015

Ms Bernadette Chevalier
58 Bovelles Street
CAMP HILL QLD 4152

Dear Bernadette,

Ethics Committee Approval – (2015/1)
‘Hospital Pharmacists’ Opinions and Perceptions of Discharge Medication Counselling – Protocol’

I am pleased to advise that the School of Pharmacy Ethics Committee has given approval to your application for the above project.

However, should any deviation from the approved research protocol occur please inform the Committee as it may be necessary to resubmit an amended protocol for ethical approval.

We note that we have received your Ethics approval paperwork from the RBWH HREC. Ref. No. (HREC/14/QRBW/546).

The Committee would like to wish you every success for the outcome of your project.

If you have any further queries please do not hesitate to contact me.

Yours sincerely,

Vanessa King
Secretary
School of Pharmacy
Ethics Committee
Appendix 3 – Phase 1 Participant Information, Consent & Withdrawal Forms

PARTICIPANT INFORMATION FORM

Full Project Title: Hospital Pharmacists’ Opinions and Perceptions of Discharge Medication Counselling

Lay Project Title: Hospital pharmacists’ beliefs and opinions about talking to patients about their medications before they leave hospital

Principal Researcher:
- Bernadette Chevalier, PhD Student, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

Associate Researchers:
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

1. Your Consent

You are invited to take part in this research project.

This Participant Information contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project before you decide whether or not to take part in it.

Please read this Participant Information carefully. Feel free to ask questions about any information in the document.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing it you are telling us that you:
- Understand what you have read;
- Consent to take part in the research project;
- Consent to participate in the research processes that are described;
- Consent to the use of your personal information as described

You will be given a copy of the Participant Information and Consent Form to keep as a record.
2. Purpose and Background
The purpose of this project is to explore the views of hospital pharmacists on the purpose and goals of the discharge counselling they conduct with their patients. Discharge and other transitions such as admission to hospital or transfers within a hospital have been identified as times when patients may be at a higher risk of experiencing medication errors and adverse events. Therefore, discharge counselling is a key time for a pharmacist to speak to patients about their medications and the changes made to their therapies during their hospital stay.

The investigating team are from the School of Pharmacy, The University of Queensland and the Pharmacy department at the Royal Brisbane and Women’s hospital.

3. What does participation in this research project involve?

Participation in this project will involve taking part in a one hour focus group with other pharmacists from your workplace to discuss topics related to your experience of discharge medication counselling. The focus group will be held during a normally scheduled break time to minimise the impact on your workplace. A light lunch will be provided.

Prior to the participating in the focus group, you will be asked to complete a demographic questionnaire that will be used to capture information about the participants in the focus groups to ensure we have participants that reflect the demographic characteristics of pharmacists practicing in Australian hospitals. The questionnaire will take about five minutes to complete.

You will not be paid for your participation in our study.

4. What will happen to my information provided?

For the purposes of this research, information collected from you will be coded and will only be re-identifiable by the Principal researcher. Only coded, de-identified data will be used in the analysis for this study and this information will be available to all of the investigating team.

In all reports from this research, information will be provided in such a way that you cannot be identified. The results will be such that the individual responses could not be linked to that participant.

The participant codes will be stored in a password protected file on a computer in the School of Pharmacy at The University of Queensland. Recordings of the audio tapes will be stored on compact discs and completed demographic questionnaires will be stored in a locked cupboard in a secure office in the School of Pharmacy at The University of Queensland. All study materials will be stored for a period of 7 years at which point they will then be destroyed.

5. What are the possible benefits?

We cannot guarantee or promise that you will receive any benefits from this research; however possible benefits may include better understanding of how you and your peers perceive your involvement in the discharge medication counselling process.
6. **What are the possible risks?**

This study involves completing a questionnaire and participating in a focus group discussion with your pharmacist colleagues. There is no foreseeable added risk to you above the risks of everyday living.

7. **Do I have to take part in this research study?**

Participation in our research study is voluntary. If you do not wish to take part you do not have to. If you decide to take part and later change your mind, you are free to withdraw from the study at any stage.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with [RBWH or PAH] or The University of Queensland.

8. **What if I withdraw from this research project?**

If you decide to withdraw, please notify a member of the research team before you withdraw. If you decide to leave the project, the researchers would like to keep your information that has already been collected. This is to help make sure that the results of the research can be measured properly. If you do not want them to do this, you must indicate this on the withdrawal of consent form.

9. **What else do I need to know?**

- **What will happen to information about me?**
  Once your information is collected it will be de-identified, however in accordance with [RBWH or PAH] and Qld Health policy we are required to keep this information for at least 7 years and then we will be destroying this information.
  In any publication or presentation that results from this study, information will be provided in such a way that you cannot be identified.

- **How can I access to information from this study?**
  Sharing the results of the focus group with participants will be delayed until after the second part of the study is completed. This is because data gained in the focus groups may influence the design of the second part of the study.

- **Is this research project approved?**
  The ethical aspects of this research project have been approved by the Human Research Ethics Committees of the Royal Brisbane and Women’s Hospital, the Princess Alexandra Hospital and The University of Queensland.
  This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007) produced by the National Health and Medical Research Council of Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies.
10. **Who can I contact?**

If you want any further information concerning this study you can contact Bernadette Chevalier by email b.chevalier@uq.edu.au.

**For complaints:**
If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the [Chair or Coordinator of the HREC, Royal Brisbane and Women’s Hospital on 07 3636 5490 or 07 3636 6132] or [Coordinator, Metro South Hospital and Health Service Human Research Ethics Committee for the Princess Alexandra Hospital on 07 3343 8049.]

This study has been cleared by one of the human ethics committees of the University of Queensland in accordance with the National Health and Medical Research Council’s guidelines. You are of course, free to discuss your participation in this study with project staff (contactable by email b.chevalier@uq.edu.au). If you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Officer on 3365 3924.
Consent Form

**Full Project Title:** Hospital Pharmacists’ Opinions and Perceptions of Discharge Medication Counselling

**Lay Project Title:** Hospital pharmacists’ beliefs and opinions about talking to patients about their medications before they leave hospital

**Principal Researcher:**
- Bernadette Chevalier, PhD Student, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

**Associate Researchers:**
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

I have read, or have had read to me in a language that I understand, this document and I understand the purposes, procedures and risks of this research project as described within it.

I give permission for the researchers to audio record my conversations within the focus group discussions and use the information from these recordings and my completed questionnaire for this project. I understand that any information I provide will be coded and the results aggregated to protect my identity and privacy.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described.

I understand that I will be given a signed copy of this document to keep.

*Participant’s name (printed) .................................................................
Signature ................................................................. Date

Declaration by researcher*: I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

*Researcher’s name (printed) .................................................................
Signature ................................................................. Date

* A senior member of the research team must provide the explanation and provision of information concerning the research project.
Note: All parties signing the consent section must date their own signature.
WITHDRAWAL OF Consent Form

**Full Project Title:** Hospital Pharmacists’ Opinions and Perceptions of Discharge Medication Counselling

**Lay Project Title:** Hospital pharmacists’ beliefs and opinions about talking to patients about their medications before they leave hospital

**Principal Researcher:**
- Bernadette Chevalier, PhD Student, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

**Associate Researchers:**
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT jeopardise my relationship with the Royal Brisbane and Women’s Hospital or The University of Queensland.

With regards to any information that the investigating team has collected, I would like the following action taken:

- [ ] Investigators can keep my information for use in their study and be destroyed as per guidelines
- [ ] Investigators should destroy any information I have already provided for this study

**Name**.......................................................... ................................................ ................................

...  .......................................................... ................................................ ................................

**Signature**........................................Date ....../....../......

**Address** ................................................................................................................................

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Appendix 4 – Phase 2 Royal Brisbane & Women’s Hospital Human Research Ethics Committee Approval Letter

Royal Brisbane & Women’s Hospital
Human Research Ethics Committee

Enquiries to: Ann-Maree Gordon
Head Coordinator
Telephone: 07 3646 5490
Facsimile: 07 3646 5849
File Ref: HR/EC/15/QRBW/433
Email: RBWH-Ethics@health.qld.gov.au

Ms Bernadette Chevalier
20 Cornwall Street
Woolloongabba Q 4102

Dear Ms Chevalier,

Re: Ref No: HREC/15/QRBW/433: Effectiveness of communication between hospital pharmacists and patients during medication counselling

Thank you for submitting the above research project for single ethical review. This project was considered by the Royal Brisbane & Women’s Hospital Human Research Ethics Committee (RBWH HREC) (EC00172) at its meeting held on 14 September 2015.

I am pleased to advise that the RBWH Human Research Ethics Committee has granted ethical approval of this research project.

The nominated participating site for this project is:

- Royal Brisbane & Women’s Hospital, Qld

This letter constitutes ethical approval only. This project cannot proceed until separate research governance authorisation has been obtained from the CEO or Delegate of the Royal Brisbane & Women’s Hospital under whose auspices the research will be conducted.

The approved documents include:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
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<tbody>
<tr>
<td>Covering Letter</td>
<td></td>
<td>18 August 2015</td>
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<tr>
<td>Application: NEAF (Submission Code: AU/1/E0D0219)</td>
<td>2.2 (2014)</td>
<td>18 August 2015</td>
</tr>
<tr>
<td>Protocol</td>
<td>1.0</td>
<td>18 August 2015</td>
</tr>
<tr>
<td>Patient Demographics and Data Collection Form</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Document</td>
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<tr>
<td>Pharmacist Demographic Questionnaire</td>
<td></td>
<td>29 July 2015</td>
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<td>Patient Semi-Structured Interview Guide</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Pharmacist Semi-Structured Interview Guide</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Medication Adherence Questionnaires</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Pharmacist Recruitment Email Invitation</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Patient Participant Consent and Withdrawal Form</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Pharmacist Participant Consent &amp; Withdrawal Form</td>
<td>1.0</td>
<td>18 August 2015</td>
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<tr>
<td>Curriculum Vitae of Bernadette Chevalier</td>
<td>1.0</td>
<td>18 August 2015</td>
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<td>Curriculum Vitae of Bernadette M Watson</td>
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<td>Curriculum Vitae of Michael Barras</td>
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<td>Curriculum Vitae of William Neil Cottrell</td>
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<td>18 August 2015</td>
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<tr>
<td>Response to Request for Further Information</td>
<td></td>
<td>23 September 2015</td>
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<tr>
<td>Patient Participant Information Sheet</td>
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<tr>
<td>Pharmacist Participant Information Sheet</td>
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Approval of this project from the RBWH HREC is valid from **25.09.2015** to **25.09.2018** subject to the following conditions being met:

- The Coordinating Principal Investigator will immediately report anything that might warrant review of ethical approval of the project.

- The Coordinating Principal Investigator will notify the RBWH HREC of any event that requires a modification to the protocol or other project documents and submit any required amendments in accordance with the instructions provided by the HREC. These instructions can be found at [http://www.health.qld.gov.au/rbwh/research/hrec.asp](http://www.health.qld.gov.au/rbwh/research/hrec.asp).

- The Coordinating Principal Investigator will submit any necessary reports related to the safety of research participants in accordance with the RBWH HREC policy and procedures. These instructions can be found at [http://www.health.qld.gov.au/rbwh/research/hrec.asp](http://www.health.qld.gov.au/rbwh/research/hrec.asp).

- In accordance with Section 3.3.22 (b) of the National Statement the Coordinating Principal Investigator will report to the RBWH HREC annually in the specified format, the first report being due on **25.09.2016** and a final report is to be submitted on completion of the study. These instructions can be found at [http://www.health.qld.gov.au/ohmr/html/regu/reporting_templates.asp](http://www.health.qld.gov.au/ohmr/html/regu/reporting_templates.asp).

- The Coordinating Principal Investigator will notify the RBWH HREC if the project is discontinued before the expected completion date, with reasons provided.
The Coordinating Principal Investigator will notify the RBWH HREC of any plan to extend the duration of the project past the approval period listed above and will submit any associated required documentation. Instructions for obtaining an extension of approval can be found at http://www.health.qld.gov.au/rbwh/research/hrec.asp.

The Coordinating Principal Investigator will notify the RBWH HREC of his or her inability to continue as Coordinating Principal Investigator including the name of and contact information for a replacement.

A copy of this ethical approval letter together with completed Site Specific Assessment (SSA) and any other requirements must be submitted by the Coordinating Principal Investigator to the Research Governance Office at the Royal Brisbane & Women’s Hospital in a timely manner to enable the institution to authorise the commencement of the project at its site.

Should you have any queries about the RBWH HREC’s consideration of your project please contact the HREC Coordinator on 07 3646 5490. The RBWH HREC’s Terms of Reference, Standard Operating Procedures, membership and standard forms are available from http://www.health.qld.gov.au/rbwh/research/hrec.asp.

The RBWH HREC wishes you every success in your research.

Yours sincerely,

Dr Conor Brophy
Chairperson RBWH Human Research Ethics Committee
Metro North Hospital and Health Service
25.09.2015
Appendix 5 – Phase 2 University of Queensland, School of Pharmacy Approval Letter

8th October 2015

Ms Bernadette Chevalier
56 Bovelles Street
CAMP HILL QLD 4152

Dear Bernadette,

Ethics Committee Approval – (2015/13)
‘Effectiveness of communication between hospital pharmacists and patients during medication counselling’

I am pleased to advise that the School of Pharmacy Ethics Committee has given approval to your application for the above project, in conjunction with the Royal Brisbane and Women’s Hospital HREC approval already received. (Ref No. HREC15/QRBW/433).

Should any deviation from the approved research protocol occur please inform the Committee as it may be necessary to resubmit an amended protocol for ethical approval.

The Committee would like to wish you every success for the outcome of your project.

If you have any further queries please do not hesitate to contact me.

Yours sincerely,

Vanessa King
Secretary
School of Pharmacy
Ethics Committee
Appendix 6 – Phase 2 Pharmacist Information, Consent & Withdrawal Forms

PHARMACIST PARTICIPANT INFORMATION FORM

Full Project Title: Effectiveness of communication between hospital pharmacists and patients during medication counselling.

Lay Project Title: Investigating how well hospital pharmacists communicate with patients about their medications during medication counselling

Principal Researcher:
- Bernadette Chevalier, PhD Candidate, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

Associate Researchers:
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

2. Your Consent

You are invited to take part in this research project.

This Participant Information contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project before you decide whether or not to take part in it.

Please read this Participant Information carefully. Feel free to ask questions about any information in the document.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing it you are telling us that you:
- Understand what you have read;
- Consent to take part in the research project;
- Consent to participate in the research processes that are described;
- Consent to the use of your personal information as described

You will be given a copy of the Participant Information and Consent Form to keep as a record.

2. Purpose and Background

The purpose of this project is to investigate whether effective communication takes place between hospital pharmacists and patients during medication counselling. We want to know how patients view the medication counselling session with their pharmacist and what aspects of the communication they found helped in the discussions and their understanding about their medications. We are interested to see how the patient’s opinions compare with those of
the participating pharmacist. We also want to explore how the features of effective communication identified by patients may be related to their medication adherence.

The investigating team are from the School of Pharmacy, The University of Queensland and the Pharmacy department at the Royal Brisbane and Women’s Hospital.

3. **What does participation in this research project involve?**

Participation in this project will first involve completing a demographic questionnaire that will be used to capture information about the pharmacists participating in the study to ensure we have participants that reflect the demographic characteristics of pharmacists practicing in Australian hospitals. The questionnaire will take about five minutes to complete.

Then the medication counselling sessions you provide to patients as part of their usual patient care will be observed and audio recorded by the researcher. Following the medication counselling session with patients, the researcher will interview you to understand your perspective and get your opinions about the medication counselling session you just had with the patient. This audio recorded interview is expected to take about 15-20 minutes to complete.

You would be asked to participate in a total of four medication counselling sessions with patients followed by an interview with the researcher. Patients will also be interviewed separately by the researcher for their opinions following the medication counselling session. Patients will have a second interview by telephone with the researcher about four weeks after hospital discharge.

You will not be paid for your participation in our study.

4. **What will happen to my information provided?**

For the purposes of this research, information collected from you will be coded and will only be re-identifiable by the Principal researcher.

Only coded, de-identified data will be used in the analysis for this study and this information will be available to all of the investigating team.

In all reports from this research, information will be provided in such a way that you cannot be identified. The results will be such that the individual responses could not be linked to that participant.

All collected information will be stored in a password protected file on a computer in the School of Pharmacy at The University of Queensland. Recordings of the audio tapes will be stored on a password protected UQ database and completed demographic questionnaires will be stored in a locked cupboard in a secure office in the School of Pharmacy at The University of Queensland. All study materials will be stored for a period of 7 years at which point they will then be destroyed.
5. **What are the possible benefits?**

We cannot guarantee or promise that you will receive any benefits from this research; however possible benefits may include better understanding of how effective communication takes place between hospital pharmacists and patients during medication counselling sessions.

6. **What are the possible risks?**

This study involves completing a demographic questionnaire, audio recording and observation of medication counselling sessions taking place between you and patients, and participating in an audio recorded interview after the medication counselling session with the researcher.

There is no foreseeable added risk to you above the risks of everyday living.

7. **Do I have to take part in this research study?**

Participation in our research study is voluntary. If you do not wish to take part you do not have to. If you decide to take part and later change your mind, you are free to withdraw from the study at any stage.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with your supervisors, the Royal Brisbane and Women’s Hospital or The University of Queensland.

8. **What if I withdraw from this research project?**

If you decide to withdraw, please notify a member of the research team before you withdraw.

If you decide to leave the project, the researchers would like to keep your information that has already been collected. This is to help make sure that the results of the research can be measured properly. If you do not want them to do this, you must indicate this on the withdrawal of consent form.

9. **What else do I need to know?**

- **What will happen to information about me?**

Once your information is collected it will be de-identified, however in accordance with Royal Brisbane and Women’s Hospital and Queensland Health policies, we are required to keep this information for at least 7 years and then we will be destroying this information. In any publication or presentation that results from this study, information will be provided in such a way that you cannot be identified.

- **How can I access to information from this study?**
A summary of the study results will be shared with interested pharmacists after the study is completed. As well, individual pharmacists requesting patients’ feedback about their communication skills will receive an aggregate summary of the assessments made by patients with whom they conducted medication counselling sessions.

- **Is this research project approved?**

The ethical aspects of this research project have been approved by the Human Research Ethics Committees of the Royal Brisbane and Women’s Hospital and The University of Queensland. This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007) produced by the National Health and Medical Research Council of Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies.

10. **Who can I contact?**

If you want any further information concerning this study you can contact Bernadette Chevalier by email b.chevalier@uq.edu.au.

**For complaints:** If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the [Chair or Coordinator of the HREC, Royal Brisbane and Women’s Hospital on 07 3646 5490 or 07 3646 6132].

This study has been cleared by one of the human ethics committees of the University of Queensland in accordance with the National Health and Medical Research Council’s guidelines. You are of course, free to discuss your participation in this study with project staff (contactable by email b.chevalier@uq.edu.au). If you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Officer on 3365 3924.
**Pharmacist Consent Form**

**Full Project Title** Effectiveness of communication between hospital pharmacists and patients during medication counselling.

**Lay Project Title:** Investigating how well hospital pharmacists communicate with patients about their medications during medication counselling

**Principal Researcher:**
- Bernadette Chevalier, PhD Candidate, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

**Associate Researchers:**
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

I have read, or have had read to me in a language that I understand, this document and I understand the purposes, procedures and risks of this research project as described within it.

I give permission for the researchers to audio record my conversations with patients during the medication counselling sessions and the interviews with the researcher following each medication counselling and to use the information from these recordings and my completed questionnaire for this project. I understand that any information I provide will be coded and the results aggregated to protect my identity and privacy.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described.

I understand that I will be given a signed copy of this document to keep.

*Participant’s name (printed)………………………………………………………..
Signature…………………………………………….. Date*

*Declaration by researcher*: I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

*Researcher’s name (printed)………………………………………………………..
Signature…………………………………………….. Date*

*A senior member of the research team must provide the explanation and provision of information concerning the research project.
Note: All parties signing the consent section must date their own signature.*
I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT jeopardise my relationship with my managers, the Royal Brisbane and Women’s Hospital or The University of Queensland.

With regards to any information that the investigating team has collected, I would like the following action taken:

☐ Investigators can keep my information for use in their study and be destroyed as per guidelines

☐ Investigators should destroy any information I have already provided for this study

Name ...........................................................................................................................................

Signature .............................................. Date ....../....../........

Address ...................................................................................................................................
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Appendix 7 – Phase 2 Patient Information, Consent & Withdrawal Forms

PATIENT PARTICIPANT INFORMATION FORM

Full Project Title: Effectiveness of communication between hospital pharmacists and patients during medication counselling.

Lay Project Title: Investigating how well hospital pharmacists communicate with patients about their medications during medication counselling.

Principal Researcher:
- Bernadette Chevalier, PhD Candidate, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

Associate Researchers:
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

3. Your Consent

You are invited to take part in this research project.

This Participant Information form contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project before you decide whether or not to take part in it.

Please read this Participant Information carefully. Feel free to ask questions about any information in the document.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing it you are telling us that you:
• Understand what you have read;
• Consent to take part in the research project;
• Consent to participate in the research processes that are described;
• Consent to the use of your personal information as described

You will be given a copy of the Participant Information and Consent Form to keep as a record.

2. Purpose and Background

The purpose of this project is to investigate how well hospital pharmacists communicate with patients about their medications during medication counselling.

We want to know how patients view the medication counselling session with their pharmacist and what they found helpful in understanding their medications. We are interested to see how the patient’s opinions compare with those of the participating pharmacist. We also want to
explore how effective communication described by patients may be related to patients’ ability to take their medications regularly.

The investigating team are from the School of Pharmacy, The University of Queensland and the Pharmacy department at the Royal Brisbane and Women’s Hospital.

3. **What does participation in this research project involve?**

The researcher will ask you to provide some information about yourself such as your age and contact information. As well, the researcher will ask you questions about your beliefs about your medications and how you take your medications. This will take about 10-15 minutes to complete.

Then, the researcher will record and observe a conversation you have with your pharmacist about your medications. Following this conversation with the pharmacist, the researcher will interview you to understand your views and opinions about this medication conversation you just had with the pharmacist. This interview is expected to take about 15-20 minutes to complete. The pharmacist you spoke with will also be interviewed separately by the researcher for their opinions following the medication counselling session.

The researcher will then contact you again by telephone at an agreed time about four weeks after the medication conversation with the pharmacist to complete the questionnaire again about your beliefs about your medications and how you take your medications. This telephone conversation will not be recorded and should take 10-15 minutes to complete.

You will not be paid for your participation in our study.

4. **What will happen to my information provided?**

For the purposes of this research, information collected from you will be coded and can only be identified to you by the Principal researcher. Only coded, de-identified data will be used in the analysis for this study and this information will be available to all of the investigating team.

In all reports from this research, information will be provided in such a way that you cannot be identified. The results will be such that the individual responses could not be linked to you.

All information collected will be stored in a password protected file on a computer in the School of Pharmacy at The University of Queensland. Recordings of the audio tapes will be stored on a password protected UQ database and completed questionnaires will be stored in a locked cupboard in a secure office in the School of Pharmacy at The University of Queensland. All study materials will be stored for a period of 7 years at which point they will then be destroyed.

5. **What are the possible benefits?**

We cannot guarantee or promise that you will receive any benefits from this research; however possible benefits may include better understanding of how effective communication takes place between hospital pharmacists and patients during medication counselling sessions.
6. What are the possible risks?

This study involves completing a questionnaire through one interview and one telephone call, audio recording and observation of the medication conversation with you and the pharmacist, and participating in an audio recorded interview after the medication counselling session with the researcher.

There is no foreseeable added risk to you above the risks of everyday living and participation will not affect your standard of care.

7. Do I have to take part in this research study?

Participation in our research study is voluntary. If you do not wish to take part you do not have to. If you decide to take part and later change your mind, you are free to withdraw from the study at any stage.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with your treating doctors, the Royal Brisbane and Women’s Hospital or The University of Queensland.

8. What if I withdraw from this research project?

If you decide to withdraw, please notify a member of the research team before you withdraw.

If you decide to leave the project, the researchers would like to keep your information that has already been collected. This is to help make sure that the results of the research can be measured properly. If you do not want them to do this, you must indicate this on the withdrawal of consent form.

9. What else do I need to know?

- What will happen to information about me?
  Once your information is collected it will be de-identified, however in accordance with Royal Brisbane and Women’s Hospital and Queensland Health policies, we are required to keep this information for at least 7 years and then we will be destroying this information.
  In any publication or presentation that results from this study, information will be provided in such a way that you cannot be identified.

- How can I access to information from this study?
  A summary of the study results will be shared with interested participants after the study is completed.

- Is this research project approved?
  The ethical aspects of this research project have been approved by the Human Research Ethics Committees of the Royal Brisbane and Women’s Hospital and The University of Queensland.
  This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007) produced by the National Health and Medical Research Council of
Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies

10. Who can I contact?

If you want any further information concerning this study you can contact Bernadette Chevalier by email b.chevalier@uq.edu.au.

For complaints: If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the Chair or Coordinator of the HREC, Royal Brisbane and Women’s Hospital on 07 3646 5490 or 07 3646 6132.

This study has been cleared by one of the human ethics committees of the University of Queensland in accordance with the National Health and Medical Research Council’s guidelines. You are of course free to discuss your participation in this study with project staff (contactable by email b.chevalier@uq.edu.au). If you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Officer on 3365 3924.
**Patient Consent Form**

**Full Project Title** Effectiveness of communication between hospital pharmacists and patients during medication counselling.

**Lay Project Title:** Investigating how well hospital pharmacists communicate with patients about their medications during medication counselling

**Principal Researcher:**
- Bernadette Chevalier, PhD Candidate, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

**Associate Researchers:**
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

I have read, or have had read to me in a language that I understand, this document and I understand the purposes, procedures and risks of this research project as described within it.

I give permission for the researchers to audio record my conversations with patients during the medication counselling sessions and the interviews with the researcher following each medication counselling and to use the information from these recordings and my completed questionnaire for this project. I understand that any information I provide will be coded and the results aggregated to protect my identity and privacy.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described.

I understand that I will be given a signed copy of this document to keep.

*Participant’s name (printed) .................................................................
Signature  Date*

Declaration by researcher*: I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

*Researcher’s name (printed) .................................................................
Signature  Date*

* A senior member of the research team must provide the explanation and provision of information concerning the research project.

Note: All parties signing the consent section must date their own signature.
Patient WITHDRAWAL OF Consent Form

**Full Project Title** Effectiveness of communication between hospital pharmacists and patients during medication counselling.

**Lay Project Title:** Investigating how well hospital pharmacists communicate with patients about their medications during medication counselling.

**Principal Researcher:**
- Bernadette Chevalier, PhD Student, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland

**Associate Researchers:**
- Dr Neil Cottrell, Associate Professor, School of Pharmacy, Pharmacy Australia Centre of Excellence, The University of Queensland
- Dr Bernadette Watson, Director, Master of Applied Psychology Program and Senior Lecturer, School of Psychology, The University of Queensland
- Dr Michael Barras, Assistant Director (Clinical), Dept. Pharmacy, RBWH

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT jeopardise my relationship with my managers, the Royal Brisbane and Women’s Hospital or The University of Queensland.

With regards to any information that the investigating team has collected, I would like the following action taken:

- [ ] Investigators can keep my information for use in their study and be destroyed as per guidelines
- [ ] Investigators should destroy any information I have already provided for this study

Name.........................................................................................................................
Signature........................................Date ......./......../........
Address
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## Appendix 8 – Phase 2 Cronbach Alpha details

1. **Patient Responses Cronbach**

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Appendix 9 – Phase 2 Consolidated criteria for reporting qualitative studies (COREQ)

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</tr>
<tr>
<td>1. Interviewer/facilitator</td>
<td>Which author/s conducted the interview or focus group?</td>
<td>No interviews or focus groups held for this part of the PhD research; BC audio recorded, observed, and took notes during pharmacist-patient medication counselling sessions</td>
</tr>
<tr>
<td>2. Credentials</td>
<td>What were the researcher’s credentials?</td>
<td>Title Page BC (PhD Candidate)</td>
</tr>
<tr>
<td>3. Occupation</td>
<td>What was their occupation at the time of the study?</td>
<td>Title Page</td>
</tr>
<tr>
<td>4. Gender</td>
<td>Was the researcher male or female?</td>
<td>Female</td>
</tr>
<tr>
<td>5. Experience and training</td>
<td>What experience or training did the researcher have?</td>
<td>Experience conducting and analysing data from focus groups of pharmacists; Formal training through specialised qualitative methods courses and instruction from experienced advisors/coresearchers.</td>
</tr>
<tr>
<td><strong>Relationship with participants</strong></td>
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<tr>
<td>6. Relationship established</td>
<td>Was a relationship established prior to study commencement?</td>
<td>BC had met many of the pharmacists who had been involved in earlier focus groups, but has never worked as a pharmacist with any of the pharmacists; BC did not know any of the patients prior to the study</td>
</tr>
<tr>
<td>7. Participant knowledge of interview</td>
<td>What did the participants know about the researcher? E.g. personal goals, reasons for doing research</td>
<td>All participants knew that the researcher was an experienced hospital pharmacist; participants were aware that the study was part of researcher’s PhD project</td>
</tr>
<tr>
<td>8. Interviewer characteristics</td>
<td>What characteristics were reported about the interviewer/facilitator? E.g. Bias, assumptions, reasons and interests in research topic</td>
<td>Discussed in the sub-heading Reflexivity within the Methods section.</td>
</tr>
<tr>
<td><strong>Domain 2: Study design</strong></td>
<td></td>
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<tr>
<td><strong>Theoretical framework</strong></td>
<td></td>
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<tr>
<td>9. Methodological orientation and theory</td>
<td>What methodological orientation was stated to underpin the study?</td>
<td>Communication Accommodation Theory (CAT)</td>
</tr>
<tr>
<td><strong>Participant selection</strong></td>
<td></td>
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<tr>
<td>10. Sampling</td>
<td>How were the participants selected? E.g. purposive, convenience, consecutive, snowball</td>
<td>All pharmacists were invited to take part. Then demographics verified to reflect that of department and national hospital pharmacists. (Convenience and purposive); Convenience sample of patient participants admitted to pharmacists’ practice area and meeting criteria</td>
</tr>
<tr>
<td>11. Method of approach</td>
<td>How were participants selected? E.g. face-to-face, telephone, mail, email</td>
<td>Pharmacists – email; Patients – face-to-face</td>
</tr>
<tr>
<td>12. Sample size</td>
<td>How many participants were in the study?</td>
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<tr>
<td>13. Non-participation</td>
<td>How many people refused to participate or dropped out? Reasons?</td>
<td>Pharmacists – all 12 pharmacists who consented completed the study; Patients – all 48 patients who consented completed the study</td>
</tr>
<tr>
<td>Setting</td>
<td></td>
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<tr>
<td>14. Setting of data collection</td>
<td>Where was the data collected? E.g. home, clinic, workplace</td>
<td>All pharmacist-patient medication counselling sessions took place within the hospital either on inpatient wards or within outpatient clinics</td>
</tr>
<tr>
<td>15. Presence of non-participants</td>
<td>Was anyone else present besides the participants and researchers?</td>
<td>Yes, most inpatient interactions took place at the patient’s bedside, therefore other patients, their families and other healthcare professionals were nearby; outpatient conversations took place in both private clinic rooms as well as shared open areas with other patients and healthcare professionals present</td>
</tr>
<tr>
<td>16. Description of sample</td>
<td>What are the important characteristics of the sample? E.g. demographic data, date</td>
<td>(Tables 1 and 2) Pharmacist and patient demographic tables include this data. Data collection occurred from November 2015- April 2016.</td>
</tr>
<tr>
<td>Data collection</td>
<td></td>
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<tr>
<td>17. Interview guide</td>
<td>Were questions, prompts, guides provided by the authors? Was it piloted tested?</td>
<td>Not for this study.</td>
</tr>
<tr>
<td>18. Repeat interviews</td>
<td>Were repeat interviews carried out? If yes, how many?</td>
<td>N/A</td>
</tr>
<tr>
<td>19. Audio/visual recording</td>
<td>Did the research use audio or visual recording to collect the data?</td>
<td>All pharmacist-patient interactions were audio recorded by BC.</td>
</tr>
<tr>
<td>20. Field notes</td>
<td>Were field notes made during/or after the interview or focus group?</td>
<td>Field notes were taken during pharmacist-patient interactions, and reviewed at time of analysis.</td>
</tr>
<tr>
<td>21. Duration</td>
<td>What was the duration of the interviews or focus groups?</td>
<td>Patient counselling sessions took an average of 13.6 minutes to complete (range 3.8-45.2 min)</td>
</tr>
<tr>
<td>22. Data saturation</td>
<td>Was data saturation discussed?</td>
<td>Saturation of data determined after 40 medication counselling sessions (no new applications of the five CAT strategies observed.)</td>
</tr>
<tr>
<td>23. Transcripts returned</td>
<td>Were transcripts returned to participants for comment and/or correction?</td>
<td>No</td>
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<tr>
<td>Domain 3: analysis and findings</td>
<td></td>
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<tr>
<td>Data analysis</td>
<td></td>
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<tr>
<td>24. Number of data coders</td>
<td>How many data coders coded the data?</td>
<td>Mainly BC; however, coding samples with audio recordings were verified by co-researcher/advisor BW</td>
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<tr>
<td>Question</td>
<td>Answer</td>
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<tr>
<td>25. Description of the coding tree</td>
<td>Did the authors provide a description of the coding tree? No. Selective coding was conducted and based on the five CAT strategies.</td>
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<tr>
<td>26. Derivation of themes</td>
<td>Were themes identified in advance or derived from the data? Themes were identified in advance (i.e. data was selectively coded)</td>
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<tr>
<td>27. Software</td>
<td>What software, if applicable was used to manage the data? Coding was done manually; NVivo 11 used to help organise the codes</td>
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<tr>
<td>28. Participant checking</td>
<td>Did participants provide feedback on the findings? No</td>
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<tr>
<td><strong>Reporting</strong></td>
<td></td>
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<tr>
<td>29. Quotations presented</td>
<td>Were participant quotations presented to illustrate themes/finding? Was each quotation identified? E.g. participant number Quotations from pharmacists were identified by pseudonyms (actual names were not used).</td>
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</tr>
<tr>
<td>30. Data and finding consistent</td>
<td>Was there consistency between the data presented and the findings? Yes</td>
<td></td>
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<tr>
<td>31. Clarity of major themes</td>
<td>Were major themes clearly presented in the findings? Yes</td>
<td></td>
</tr>
<tr>
<td>32. Clarity of minor themes</td>
<td>Is there a description of diverse cases or discussion of minor themes? Data was themed by the five CAT strategies; findings and discussion included description and examples of both accommodative and non-accommodative behaviours</td>
<td></td>
</tr>
</tbody>
</table>