A Qualitative Investigation into the Decision Making Patterns of Community Pharmacists

By

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Abstract

Context: There is a lack of literature describing the reasoning strategies utilized by pharmacists. Given the increasing complexity of pharmacists’ work this is a concern for pharmacy educators, regulators, employers and other stakeholders, including patients.

Purpose: The purpose of this study was to undertake preliminary research into clinical problem solving strategies utilized by pharmacists.

Design, Setting and Participants: 12 pharmacists were studied who had experience in community pharmacy in the Greater Toronto Area.

Methods: Using qualitative data collection and analysis techniques, participants’ responses to clinical case studies involving professional practice situations were evaluated.

Results: Managing cognitive dissonance between pharmacists’ conflicting identities was a primary motivation for responses to clinical cases. Participants predominantly relied upon three specific reasoning/problem-solving tactics: educating/relationship building, seeking advice/deferring to other professionals, and “following the rules”.

Conclusion: The data suggest that there is value to further education in the area of clinical reasoning and problem solving.
Acknowledgements

This research is a unique accomplishment in my life of which I am very proud. It pushed me to experience new realms of research practice as well as learn the important skill of being adaptable. Most importantly, it was fun and fulfilling and I can largely attribute that to the people who helped and guided me throughout the process.

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Prologue

The purpose of this prologue is to situate the reader to the structure of this thesis. The goal of this exploratory research study is to characterize the decision-making patterns of pharmacists in Ontario in a clinical setting. Policy makers are pushing for a change in the structure of the primary healthcare team, which aims to further incorporate pharmacists into patient care. It is currently unknown whether or not pharmacists have been adequately trained to assume the new responsibilities associated with these changes. My study is an investigative report on how pharmacists make decisions in the clinical setting.

At the beginning of this project, I wanted to explore how pharmacists make actual clinical decisions. For example, what type of drug would the participant prescribe in different situations? How much of a certain drug should be prescribed? Upon reflection of this clinical research question, my supervisor, Dr. Austin, and I decided that, since I am not a pharmacist, this project would be difficult for me to analyse. We suspected I would not be able to recognize the names of drugs or understand what the quantities of drugs really meant. The nuances of the participants’ clinical decisions would most likely be lost to me. Therefore, we decided that investigating pharmacists’ problem solving skills in difficult clinical settings would yield data and language that would be clearer for me to interpret. Even though I would not be analyzing clinical decisions, I believed that there was still value in understanding how pharmacists were problem solving.

Female and male pharmacists of varying ages and experiences from Toronto and the Greater Toronto Area (GTA) have been interviewed. These participants were presented with two case studies and asked to reason through their decision-making process. A general interview about their pharmacy practice was lead upon completion of their think-aloud responses to the case studies.

Pharmacists’ responses were examined and coded for recurring themes. These themes were analyzed and described in detail with the goal of determining patterns that may
characterize the clinical decision-making of these participants. Findings from this research may be of interest to educators who seek opportunities to enhance the quality of curriculum or continuing education programming for pharmacists, and for pharmacists themselves who are interested in the nature of their decision making.
Chapter 1

Background and Introduction

1.1 The Evolving Role of the Pharmacist

The health care system has been socially constructed in such a way that individual professions, including medicine, pharmacy or nursing, are seen as possessing privileged knowledge unique and specific to their respective fields (Pearson, 2007). This privileged access to specialized knowledge and skills traditionally defines a “profession” and produces a system whereby individuals within that profession have a high degree of autonomy and control over the practice of that profession within the broader health care system.

With this privileged access also comes certain social privileges related to socio-economic status, power/hierarchy, and resources (Tomey, Thomas, & Thomas, 1993). Prior to the 20th century, pharmacists were socially viewed as having elite occupational status as a result of their expertise and exclusive role in the compounding of medicines (DiBacco, 1995). Since then, however, pharmaceutical companies have aggressively taken over this function in drug therapy by their domination of mass production of medications: “In the span of about 50 years, the profession (of pharmacy) lost no less than three of the four functions that had been the mainstay of the work of pharmacists since at least the 8th century! The old mysteries of the art of apothecary, drug procurement, storage and compounding, had vanished” (Mertek & Catizone, 1989).

From this perspective, the loss in exclusivity of drug development knowledge had left pharmacists with a sense of demoted value vis-à-vis other health professions (notably medicine) and broader society (Edmunds & Calnan, 2001). An unfortunate popular notion emerged that pharmacists were overeducated and overqualified drug-dispensers
(Mesler, 1991). During this period, the profession itself entered a period of soul-searching, attempting to define itself and its relevance to patients, the health care system, and society.

With the core functions of manufacturing and compounding of pharmaceuticals no longer central to its professional mission, pharmacy sought opportunities to leverage specialized knowledge and skills in other domains of health more relevant to contemporary needs and realities (Rosenthal, Tsuyuki, & Austin, 2010). Pharmacists’ advancement and expanded involvement in health care had been hindered as a result of limitations to their professional autonomy due to their diminishing role in the health care system: as custodians of the drug distribution system and dependent professionals who acted upon prescriptions and orders from other professionals (notably physicians) pharmacists’ claims to a professional status equal to physicians were not supportable (Smith, Bates, Bodenheimer, & Cleary, 2010).

Professional autonomy plays a key role in the preserving the status and prestige of a profession, and differentiates it from an occupation. Historically, professions have been defined by their ability to attain economic, political and clinical autonomy. With respect to professional autonomy in pharmacy, clinical autonomy (the ability to make medical judgements) is tightly circumscribed and controlled as doctors maintain dominance over this domain (Elston, 1991). Arguably, as a result of this central challenge to the notion that pharmacy continues to be a profession, the political and economic autonomy associated with professional status may also be in question.

There has been significant debate within the pharmacy community and in the literature of the professions as to whether pharmacy is a profession or an occupation (Waterfield, 2010). In the absence of clear professional boundaries, and without clear economic, political and clinical autonomy, this has led some to suggest pharmacy is a “profession in search of a role” (Hepler & Strand, 1990). Over the past thirty years there have been significant attempts to “reprofessionalize” pharmacy and to reclaim the economic,
political, and clinical autonomy that is integral to an occupation’s claim to professional status.

This reprofessionalization project within pharmacy has resulted in attempts to revamp, expand, and redefine specific roles, responsibilities, and tasks of the pharmacist; it has been argued that this reprofessionalisation of pharmacy should not be seen as an attempt to lay claim to new and undeserved territory, but as the consolidation of their historical privileges and rights to professionhood/professional autonomy, and consistent with the historically established specialized knowledge and skill set that is an inherent part of the pharmacy profession itself (Edmunds & Calnan, 2001). Refocusing and applying pharmaceutical knowledge and skill towards direct patient care (rather than manufacturing and compounding) would therefore allow pharmacists to re-establish themselves as important to the patient and the health care system, and consequently reclaim status as a profession.

As part of this reprofessionalization project, there has been a recent push for pharmacists to assume a more clinical (i.e. patient centred), as opposed to technical, role in drug therapy. The National Pharmaceutical Association (NPA) in the UK, which has a powerful international influence on pharmacy practice, supports the inclusion of pharmacists in the primary health care team. In earlier years, the NPA launched a campaign called “Ask Your Pharmacist” with the goal of encouraging patient-pharmacist relations (Holloway, Jewson, & Mason, 1986). The primary care provided by pharmacists has been coined ‘pharmaceutical care’ by Helper and Strand and is defined as the ability to 1) identify potential and actual drug-related problems, 2) resolve actual drug-related problems, and 3) prevent potential drug-related problems (Hepler & Strand, 1990). Pharmacists are the most accessible health care professional (CPhA, 2007). Therefore, it has been argued that to promote the efficiency of Canadian health care, and to optimize the role of a well-educated but underutilized group of individuals within the health care system, pharmacists should be given more rights and responsibilities. Pharmaceutical care has been shown to be beneficial in clinical outcomes, prescribing, decreasing health-care utilization and medication costs (Dolovich, et al., 2008).
In addition to the NPA initiatives, the Canadian project SMART (Seniors Medication Assessment Research Trial) demonstrated that integrating pharmacists into the primary healthcare team had a significant positive impact on physician prescribing. In this cluster randomized controlled trial, pharmacists consulted patients alongside physicians. They were able to identify a mean of 2.5 drug related problems per patient and physicians incorporated 72% of the pharmacists’ recommendations into the course of treatment (Sellors, Kaczorowski, & Sellors, 2003). Findings such as this, bolsters the notion that pharmacists do indeed possess a unique and valuable knowledge base and skill set that contributes positively to health care outcomes, and that pharmacists should be therefore accorded the rights, responsibilities and privileges accorded to other professions with similar unique and valuable skills.

Of interest is the current evolution of pharmacy practice in Canada towards models of more independent prescribing and clinical decision-making. This independent role affords a form of socially sanctioned professional autonomy that is integral to the claims of professionhood to which pharmacy aspires. Though prescribing itself is an activity undertaken by many professionals in Canada (e.g. physicians, dentists, veterinarians, nurse practitioners, etc.), the desire to secure independent prescribing authorities for pharmacists is an important component of establishing a clinically relevant, patient-focused role for the profession, and consolidating or re-establishing its claim to be a profession on par with medicine.

1.2 Theories on Self-Identity
The need for pharmacy as a profession (and pharmacists as individuals) to recapture professional status and privilege raises important questions about the significance of professionhood to the psychology of individual pharmacists. In Erving Goffman’s renowned work *The Presentation of Self in Everyday Life* he describes a relationship between performance and life by using stage actors as a metaphor. Goffman’s theory proposes that people interact with each other like actors playing a specific role, with
coherency being the main goal. People tacitly play different roles depending on their present circumstance and audience (Goffman, 1959). For example, a pharmacist would strive to “act” how she believes her society expects her to act. When this same pharmacist goes home to her family she plays a different role of a mother or a wife.

It is beneficial for human beings living in a society to interact this way, as having an understanding of roles allows for efficient communication. Therefore, how pharmacists self-identify – whether as members of an occupation simply carrying out other people’s orders, or as members of a profession actually making decisions and assuming responsibility for outcomes - greatly impacts how they choose to act in the clinical setting. Since the role of the pharmacist has changed, it could be suggested that the way pharmacists interact with patients, prescribers, caregivers and others needs to change as well. It is important to investigate if pharmacists are equipped to assume these new, more independent roles in the primary healthcare team or if it has just been “assumed that (they) already ha(ve) in (their) repertoire a large number of bits and pieces of performance that will be required in the new setting”, as Goffman writes. Goffman further notes:

“When the individual does move into a new position in society and obtains a new part to perform, he is not likely to be told in full detail how to conduct himself, nor will the facts of his new situation press sufficiently on him form the start to determine his conduct without his further giving thought to it. Ordinarily he will be given only a few cues, hints, and stage directions, and it will be assumed that he already has in his repertoire a large number of bits and pieces of performance that will be required in the new setting (Goffman, 1959, pp. 72-73).”

In such cases, individuals can have conflicting roles and conflicting identities leading to cognitive dissonance. Leon Festinger first coined the term cognitive dissonance in his books *When Prophecy Fails* (1956) and *A Theory of Cognitive Dissonance* (1957). It is considered one of the most influential and extensively studied theories in social psychology (Alfines, 2010). This theory is based on the idea that there is consistency between what a person knows and believes and what he/she does (Festinger, 1957).
When these cognitive states do not match, a sense of disequilibrium and discomfort is created. This discomfort is what Festinger labeled as ‘cognitive dissonance’. In order to correct the disequilibrium and alleviate the discomfort, people will seek to alter existing cognitions or create excuses that will satisfy a conflicting cognition (Festinger, 1957). Knowledge of cognitive dissonance is not required to take action to resolve the discomfort. These actions are usually reactive, momentary and fast (Jarcho, 2011).

1.3 The Role of Legislation in the Pharmacy Practice

Prescribing rights for pharmacists have become a popular topic of discussion amongst policy-makers of late. Nominally, the main driving force behind this push for pharmaceutical legislative reform is the efficient allocation of professional expertise (Currie, 2009). In order to prescribe medication, the professional must possess extensive knowledge of adverse effects, optimal routes, drug-drug and drug-food interactions, pharmacokinetics, pharmacodynamics and monitoring of effects of drugs (Emmerton, Marriott, Bessell, Nissen, & Dean, 2005). Upon reflection of the skills required to prescribe, it would seem clear that pharmacists, having privileged and specialized knowledge in this field, would be well suited to assume new responsibilities to prescribe independently. The president of the Alberta Pharmacists’ Association (APhA) has said, “With 5 years of university study, pharmacists have by far the most drug education. It makes sense that they be involved in drug therapy decisions” (Mackay, 2003, p. 77). As a result of the historical regulatory and legislative status of pharmacists and pharmacy practice, pharmacists usually only intervene in drug therapy retrospectively, reinforcing an occupational, rather than professional status. If pharmacists are given the opportunity to prescribe medication, they will have earlier involvement in patient care, greater autonomy and responsibility for decision making, which will ultimately lead to optimised drug use (Emmerton, Marriott, Bessell, Nissen, & Dean, 2005). At present, pharmacists have some prescribing power in seven provinces. In three provinces (Newfoundland, New Brunswick and Alberta) pharmacists are able to independently initiate a new prescription and in four provinces (Newfoundland, New Brunswick, Alberta and British Columbia) pharmacists can adapt existing prescriptions (Law, Ma, Fish, & Sketris, 2012).
In order to gain access to prescribing rights, pharmacist must go through additional formal training to demonstrate their proficiency in the domain.

1.3.1 Alberta: The Alberta College of Pharmacists has been a leader in advocating prescribing rights for pharmacists in Canada. In May 2006, the Pharmacists Profession Regulation to the Health Professions Act was approved. Alberta pharmacists are now able to prescribe Schedule F drugs and blood products and administer medications for subcutaneous and intramuscular injection (Pearson, 2007).

1.3.2 Manitoba: In 2006, the Pharmaceutical Act (Bill 41) was passed. This bill allows Manitoba pharmacists to prescribe certain drugs and order diagnostic tests (Legislative Assembly of Manitoba, 2006). These prescriptions must be for long-term chronic care medications, with which the patient has established a history. Narcotics may not be prescribed by pharmacists.

1.3.3 Saskatchewan: The Saskatchewan College of Pharmacists released a position statement in 2008 proposing the inclusion in legislation of prescribing rights for pharmacists working in collaborative practice environments (Saskatchewan College of Pharmacists, 2008). In 2011 these bylaws were implemented, which allow pharmacists to renew prescriptions, prescribe medication in emergency situations and initiate drug therapy for minor ailments (Law, Ma, Fish, & Sketris, 2012).

1.3.4 British Columbia: After completing an orientation process as outlined by the Professional Practice Policy 58, pharmacists in British Columbia are permitted to renew prescriptions that were originally made no longer than six months prior and are also permitted to prescribe medication in emergency situations. Pharmacists are not approved to renew psychiatric medication (Pharmacists' Expanded Scope of Practice, 2014).

1.3.5 New Brunswick: Pharmacists can refill prescriptions that have run out and prescribe medication for minor ailments or in emergency situations where the physician
cannot be contacted. Independent prescribing for minor ailments is pending (Pharmacists' Expanded Scope of Practice, 2014).

**1.3.6 Ontario:** Bill 179, introduced in 2009, was passed in 2012, which has changed the scope of pharmacy practice in Ontario (Solomon, 2010). Ontario pharmacists are now permitted to administer the influenza vaccine as well as prescribe specific drugs for the purpose of smoking cessation. Currently, they are unable to make therapeutic substitutions or prescribe medication for minor ailments.

**1.3.7 Nova Scotia:** According to The Continued Care Prescriptions Agreement of 2006 pharmacists can provide continued care prescriptions under certain circumstances for patients with an established stable history on a medication, not including narcotics or controlled substances. Pharmacists are also allowed to prescribe for minor ailments (Pharmacists' Expanded Scope of Practice, 2014).

**1.3.8. Newfoundland:** Pharmacists are permitted to initiate a new prescription under emergency situations. Only the minimum amount of medication may be prescribed, allowing the patient enough time to visit their physician. The physician must be notified within 72 hours of the pharmacist’s prescription having been filled (Law, Ma, Fish, & Sketris, 2012)

**1.4 Interprofessional Collaboration**

More than 70% of pharmacists work in a community practice setting (Pottie K., et al., 2009). This isolation may act as a barrier to pharmacists being incorporated into primary care, as they lack access to patient health records, laboratory data, or opportunities for direct interactions with prescribers and other health care professionals. This isolation further hampers attempts to establish an autonomous, professional role for pharmacists recognized by patients, other health care providers and society as a whole. Pharmacy primary care integration (and consequently the professional role of the pharmacists) is optimized in the clinical setting where pharmacists have access to patient history
information and interaction with other health professionals. These necessary conditions could be met through the development of interprofessional collaboration, which can be defined as “members transcending separate disciplinary perspectives and attempting to weave together tools, methods, procedures, etc., to overcome common problems or concerns” (Gilbert, 2005, p. 89).

The Integrating Family Medicine and Pharmacy to Advance Primary Care Therapeutics (IMPACT) project was designed in response to Ontario’s plan to reform primary health care and is supported by the Ontario Primary Health Care Transition Fund (2004-2006) (Dolovich, et al., 2008). IMPACT demonstrated how interprofessional care can be provided by using a practice model of integrating pharmacists into family practices. Physicians consulted the pharmacist before providing treatment to a patient. This interprofessional interaction was beneficial in term of optimizing prescribing and medication use (Pottie K., et al., 2009). Importantly, this model helped establish a clinical, patient-centered role for pharmacists that is more consistent with the traditional understanding of the term “professional”, and as a result has been broadly embraced by pharmacists as a potential vehicle towards re-professionalization.

1.5 Room for Improvement

In addition to their findings, which demonstrate the advantages of interprofessional collaboration, the IMPACT project uncovered an underlying need for the ‘reskilling’ of pharmacists in order to sustain their role in primary care and to perform these new clinical, patient-centred professional roles safely and effectively (Pottie K., et al., 2009). Pharmacists, themselves, acknowledged the necessary improvement of certain skills that are presently insufficient to manage clinical uncertainties, communicate with other health care team members and make clear decisions about drug recommendations. While the re-professionalization project within pharmacy has been built upon the assumption that existing pharmaceutical knowledge and skills traditionally used for compounding and manufacturing activities could be repurposed and applied to patient-care and clinical decision-making, there is insufficient evidence to actually establish this as fact. Therefore,
pharmacy research into clinical health care delivery (rather than technical drug
distribution) provides important opportunities for future studies. Moreover, recent trends
which push for increased pharmacists’ clinical responsibilities will propel the need for
continued relevant research.

Most recently, a new pharmacy research program has been developed in Ontario called
the Ontario Pharmacy Research Collaboration (OPEN). The main objective of OPEN is
to examine how new legislative changes to pharmacists’ role in primary healthcare has
affected and shaped their practice. More specifically, it aims (1) to evaluate Ontario’s
MedsCheck and Pharmaceutical Opinions Programs, (2) to determine the impact of
pharmacists’ authority to renew and adapt prescriptions, and (3) to assess the effect of
pharmacist-administered influenza injections on immunization rates (Research Projects).
Preliminary unpublished findings from this study suggest that pharmacists’ trajectory
towards a more independent, autonomous and professional role continues to evolve.
Importantly this work highlights the uncertainty and self-doubt that continues to affect
pharmacists, including their unwillingness at times to actually make clinical decisions
and assume responsibility for outcomes. Despite now having opportunities (such as
Pharmaceutical Opinions) to demonstrate their clinical skills and professional status, the
quality of these opinions has been questioned, and the extent of uptake of this program
has been uneven. Further work in this area with the OPEN project is ongoing and as
results become available, our understanding of how pharmacists actually take on
professional responsibilities will improve.

1.6 Clinical Reasoning and Problem Solving

As pharmacists become more involved in primary care, clinical decision making, and try
to reassume professional status and responsibilities, they are increasingly drawn into
complex, ambiguous, and sensitive cases, situations, and decisions. In order to address
the ‘reskilling’ of pharmacists to ensure they are capable of working in such situations, it
is important that researchers investigate and better understand the problem solving skills
of pharmacists. The new clinical roles of pharmacists bring with them an abundance of
ambiguity and uncertainty, where easy clear answers supported by evidence and data may not always be possible.

Importantly, in a more technical model of practice emphasizing dispensing and drug distribution, pharmacists knew if they were right or wrong in an objective and certain manner: did the right medication get in the right vial at the right time for the right patient? Moving beyond drug distribution requires decision making when information is not available or imperfect, or when there is no clear single correct answer. This is particularly important in areas such as primary care where clear diagnoses are routinely absent and where treatment decisions are still made even though critical information (for example laboratory tests) may not yet be available. The ability of pharmacists to practice and make clinical decisions in information-imperfect environments has not been clearly established. Prior to assuming new, advanced, and sensitive clinical responsibilities that directly impact upon patients’ health and wellbeing, it is valuable to establish whether pharmacists are indeed capable of assuming advanced clinical roles and responsibilities in a safe and effective manner and whether they feel willing and confident in repurposing existing pharmaceutical knowledge and skills for patient-centred clinical care decisions.

At present, much literature exists detailing the clinical decision-making patterns of doctors and nurses, but very little (if any at all) has been written about these phenomena in pharmacy (Eva, 2005). An accepted and widely-cited model of cognition in medicine is clinical reasoning.

1.7 Components of Clinical Reasoning

The key components of clinical reasoning can be broken down into two categories: content knowledge and problem solving (Pinnock & Welch, 2014).

1. Content Knowledge:

Content knowledge is a combination of declarative and procedural knowledge.

Declarative knowledge is based on facts and rules that are usually learned in texts and
discussions. For example, declarative knowledge would be knowing how much an antibiotic to prescribe to an infected patient. Procedural knowledge, on the other hand, is a skill that is often learned through practice. An example of procedural knowledge would be the ability to stitch up a wound (Pinnock & Welch, 2014).

2. Problem Solving:

Health care providers have very little notion of the reasoning patterns at play when interacting with a patient. It is difficult for a physician, for example, to step back and analyze how he/she came to a diagnostic decision. In his book How Doctors Think, Groopman writes: “According to Hamm and other researchers on physician cognition, if I had asked John Burnside [doctor] what was going on in his head [when arriving at a diagnosis], he would have been hard-pressed to describe it. It simply happened too fast” (Groopman, 2008, p. 34).

No generic process for problem solving exists, but a number of aspects of cognition can be discussed. An accepted model of problem solving in clinical reasoning is that of dual-processing. The dual-processing model stipulates that problem-solving can be separated into analytical and non-analytical mental processes (Evans, 2008). Analytical processing is slow because it is conscious and deliberate. It involves a logical flow of thought to come to a final decision. This type of mental processing purposely and sequentially refers to and relies on its content knowledge in order to problem solve. Clinicians employ analytical processing when they consciously call upon the rules of diagnosis to come to a decision about a patient (Norman & Eva, 2010).

In contrast, non-analytical processing is quick, unconscious and context dependent. It is often difficult for people to describe their understanding of non-analytic mental processes (Evans, 2008). The word “hunch” is frequently associated with this type of cognitive processing. Much research has been dedicated to uncovering the common elements behind physicians’ non-analytical decision making. An accepted component of this unconscious cognitive process is pattern recognition.
Doctors employ pattern recognition techniques, which allow them to quickly diagnose patients. Pattern recognition is supported by available heuristics, which are understood to be intuitive judgements based on experience which allow a person to quickly problem solve and come to decisions without conscious analysis (Eva, Hatala, LeBlanc, & Brooks, 2007). A recognized disadvantage of heuristics is their susceptibility to biases. As heuristics are engaged in situations to hasten the speed of arriving at a diagnosis, they sometimes cause the physician to ignore outlier symptoms or focus too heavily on unnecessary details.

Moreover, since heuristic devices are founded on experience, senior or expert physicians have a greater propensity towards using them: “I [Dr. Orwig, radiologist] have to keep reminding myself to be systematic. The more experience you have, the more seasoned you are, the greater the temptation to rely on gestalt” (Groopman, 2008, p. 186). This citation mentions the requirement for doctors to continually double-check themselves through rational, analytical processes, such as Bayesian methods. Bayesian strategies are dependent on explicitly assessing the probability of certain diagnosis based on patient signs and symptoms and utilizing diagnostic algorithms. It is generally agreed that heuristics are beneficial to decision-making, as they are adaptive and assist in managing information that is constantly bombarded at doctors. Consequently, the combination of pattern recognition and analytic reasoning is optimal.

These findings demonstrate how research into cognition can have a significant impact on improving the quality of health care. From these findings, doctors are made aware of the potential biases inherent to their decision-making methods and are hopefully persuaded to consciously modify these methods in order to incorporate more analytical techniques. This example into clinical reasoning in medicine further reveals how the lack of comparable information in the field of pharmacy is detrimental to practice progress: “Unfortunately, we do not know how clinical pharmacists think… Not knowing how clinical pharmacists think is perhaps the greatest barrier to teaching and evaluating students, and to practicing clinical pharmacy in a systematic, consistent manner” (Morley & Strand, 1989, p. 329). Though close to 25 years old, this insight is still relevant today.
1.8 Qualitative Research

When little is known about a particular field, qualitative research is the most natural approach, especially in realm of psychology (Munhall, 2007). The goal of qualitative research is to gain a deeper understanding of how a particular group of people make sense of their social world or environment: “The goal of qualitative research is the development of concepts which help us to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to the meanings, experiences, and views of all the participants” (Pope & Mays, 1995).

In response to the value attributed to quantitative forms of research, qualitative research may be asked to produce concrete facts or truths. To impose the belief that emergent themes from data are inherently objective would be to assume a positivist ontological perspective (Eakin & Mykhalovskiy, 2003). This stance posits that there exists only one truth. This study will assume a realist outlook by embracing the intrinsic subjectivity of qualitative research. Taking a realist perspective makes this type of experimental methodology feasible, as it proposes that the notion of truth is interpretive and rests on the judgment of the researcher and his/her interaction with participants. This research relies on an epistemological perspective that embraces human beings’ innate abilities to interpret, analyze and deduce subjective information. Themes from data will be compiled and analyzed in order to provide a starting point for the better understanding of pharmacists’ clinical and ethical reasoning and problem solving, with the hopes of better understanding how ready the pharmacists are to assume the clinical autonomy, responsibility, and roles it aspires to fulfill – in short how ready pharmacists are to reassume a professional status that has been lost.

1.9 Summary

The evolution of pharmacy today brings with it both opportunities and challenges that need to be addressed by relevant research that currently does not exist. There is a push for
pharmacy practice to be more prominent and assume greater responsibility in primary care. This push is driven, in part, by identified gaps in the health care system and by a desire for pharmacy to reprofessionalize and reassume autonomous, important, and relevant roles within the health care system. Canadian pharmacists are assuming new roles in interprofessional collaborative settings and gaining access to prescribing rights, despite lack of evidence that repurposing of existing pharmaceutical knowledge and skills towards complex, ambiguous, and sensitive patient care situations actually occurs. These new responsibilities should not necessarily be seen as an encroachment on territory belonging to other health care professionals. Further research is required to provide pharmacists, other health care professionals, society and most importantly patients with the assurance that pharmacists are ready and able to take on increasingly autonomous responsibilities appropriate for a health care professional, not a health care occupation.
Chapter 2

Methodology

2.1 Study Objectives

**Primary Objective:** to identify patterns of reasoning and problem solving used by practicing community pharmacists in Ontario, Canada, to assess readiness to assume broader clinical responsibilities.

**Secondary Objective:** to interpret and analyze pharmacists’ decision-making processes using written, hypothetical case studies depicting complex and challenging situations in community pharmacy practice.

2.3 Methodology

This study used a qualitative methodological approach, as described by Wuest (2007). This approach uses inductive reasoning to identify, develop and describe themes based on observational data. This methodology has been used in situations where there is scant evidence, data, or theory in existence and where researchers are interested in beginning to develop a more rigorous understanding of a process, situation or phenomenon. When using this approach, one does not begin with a specific research question or hypothesis to be tested; instead, the researcher frames research objectives based on known problems, issues, or concerns in the field. For this study, the key concerns in the field relate to a paucity of data, theory, or evidence regarding clinical reasoning approaches used by community pharmacists to address complex and challenging situations in practice. Since there is little current literature available in this area, this methodological approach provides an opportunity to begin to address a complex and important issue in pharmacy practice and education.

This methodological approach is grounded in the analysis of data generated through observational research, for the purpose of generating themes and an emergent theoretical framework to account for observed behaviours (Pope and Mays, 1995). No prior
hypothesis is generated or tested for this research, since there is insufficient evidence currently available to do so. Instead, data, analysis, and findings from this sort of research may be used in the future to guide subsequent research.

When using this approach, a realist stance is frequently adopted. In doing so, this research design represented an epistemological standpoint defined by a notion that meaning is contextually bound and devoid of a singular and objective truth (Duncan, Duff Cloutier, & Bailey, 2007). Realists believe that there does not exist a single truth that can explain a certain phenomenon. Instead, ‘multiple valid descriptions and explanations of the same phenomenon are always available’ (Porter, 2007). These valid descriptions are rooted in a socially constructed context, and there is explicit recognition that individuals’ interpretations of reality are shaped by a variety of social, psychological, and interpersonal forces that should be acknowledged and accounted for. At the same time, realists reject the constructivist idea that all truths are of equal value, and instead strive to utilize techniques for adjudicating the value of competing truths within specific contexts and to surface misconstructions that may exist. For example, when using this approach, the frequency of recurrence of specific ideas, phrases, words, or concepts within a data set may be used to drive data analysis and to permit identification of an emergent context-specific important theme (Silverman, 2000). This does not mean that infrequently raised ideas, phrases, words or concepts within the data set have no value or meaning, but rather that this approach emphasizes a method of constructing understanding of a phenomenon through multiple confirmatory recurrences rather than single isolated instances.

This methodology also acknowledges that research of this sort is fundamentally social in its nature, and that researchers themselves have a position within the process, one that is shaped/affected by social forces and that is in turn shapes/affects the research process itself (including data gathering and analysis) (Salmon et al. 1992). To account for this, it is useful for the researcher to explicitly state/frame his/her own position(s) to allow readers to identify potential biases or preconceptions that may be of importance in interpreting the work.
2.3.1. The Researcher’s Position

I, the primary researcher for this project, am not a pharmacist and therefore had no specific allegiance to the profession and similarly no “insider” knowledge or understanding of the professional practice or education. The case studies were chosen because they did not require specific knowledge of drug therapy. My position as an “outsider” was thought to be beneficial by eliminating certain professional biases or self-interests, as I do not have a vested interest in the occupation vs. profession distinction. I am, however, a consumer of health care services, and have personal interest in ensuring safe and effective delivery of health care. I am also interested in the continuing evolution of the pharmacist’s role, having known pharmacists and worked in pharmacies over the years.

2.4 Think-Aloud

In order to achieve research objectives, the methodological approach described previously was used to develop a method. While there is scant literature examining community pharmacists’ clinical reasoning and practice-based problem solving methods, there is evidence from other professions – notably medicine – that was of relevance. Given the significant differences between medical and pharmacy education, professional practice, and professional culture, the actual conclusions/findings from such studies cannot be applied directly from medicine to pharmacy (Elston, 1991). However, these studies were informative in providing methods, approaches, and techniques for studying clinical reasoning and problem solving in pharmacy.

A commonly used method within the medical community to study problem solving is referred to as “think-aloud”. Newell and Simon (1972) describe the think-aloud technique as being a qualitative method for collecting verbal data about cognitive processes during a problem task. Through this technique, they contributed to the development of information processing theory, which proposes that a stimulus (for example, a patient’s signs and symptoms) enter the working part of the brain where short-term memory is
connected to long-term memory, which in turn produces clinical decisions. In other words, information from the external clinical environment is handled in the limited-capacity short-term memory and made relevant by associating the information with stored knowledge in the large-capacity long-term memory. The information held in short-term memory can be verbalized, while information in long-term memory must be first brought to short-term memory in order to be verbalized. Working memory exists as the active processor that links short and long-term memory (Ericsson & Simon, 1984).

Think-aloud protocols are based on the assumptions that: (a) human cognition is information processing; (b) cognitive processes can be verbalized; and (c) thinking aloud indicates on what information is being concentrated at the time (Ericsson & Simon, 1984). According to the literature, think-aloud methods are one of the most useful observation techniques because they reveal what is going on in working memory by linking thought processes with concurrent perceptions of the given task. They can be used either concurrently or retrospectively. In retrospective data collection, the task is videotaped and the participant is asked to provide commentary during playback. When a participant thinks aloud, he/she is interpreting the cognitive processes that occur during problem solving (Lundgrén-Laine & Salantera, 2009).

Think-aloud techniques have been criticized for being too subjective by asking the participant to be introspective, thus, leaving data vulnerable to subjective, internal and consequently difficult-to-detect biases. In addition, researchers are at risk of missing information by trying to combine both observation and interpretation at the same time. The rationale for the difficulty of combining these two steps is that participant introspection is not always congruent with observable behaviour (Someren, Barnard, & Sandberg, 1994). In order to avoid these issues, researchers can use think-aloud techniques to collect data (eg. by using audiotaped recordings) while focusing more attention on observing the participant as he/she verbalizes his/her thoughts. The main purpose of a think-aloud technique should be to collect the truest response from the participant (Lundgrén-Laine & Salantera, 2009). In order to accomplish this task, during the talk-aloud, I would constantly press the participant to continuously clarify, define,
and extend their thinking to the logical endpoint. By doing so, I hoped to elicit an actual action-based explanation of how the participant would handle the case study scenarios. Further, the first “gut response” from the participant might not accurately represent the reality of how the participant would actually react in the case scenarios. This pushing of the participant to logical endpoints was intended to force him/her to more deeply reflect on his/her response, which would result in insightful and more meaningful data.

Building upon this tradition in the medical education literature, and applying it to the pharmacy education arena, a think-aloud was the primary technique used in this study, followed by supplemental qualitative interviews to provide me with insight into participants’ professional history and context. During the think-aloud, pharmacists were presented with two case studies and asked to reason through how they would react in each situation. The subsequent interview focused on the participant’s personal experiences in making difficult decision in the clinical setting.

2.5 Protocol Analysis

Protocol analysis offers insight into the step-wise succession of a participant’s problem-solving abilities when verbalized, with the ultimate goal of providing perspective into decision-making processes and to facilitate development of decision making models within specific contexts (Jones, 1989). The strength of this analytic technique resides in its ability to reveal what the participant is focusing on during a problem task (Ericsson & Simon, 1984). The ability to identify the participant’s priorities, focus, and what elements of a problem or data set prompt deeper attention allows for identification of how participants value different aspects of a case. Another advantage of protocol analysis is the systematic and orderly way in which data are examined. Its process can be reduced into three stages: input, coding and output. Input can include pauses, words, phrases, etc. Coding is the logical classification of inputs into themes, and output is a protocol generated from analysing the coding (Lundgrén-Laine & Salantera, 2009).
Like the think-aloud technique, protocol analysis is based on information processing theory in the understanding that thoughts can be appropriately and sufficiently verbalized (Phansalkar, Patel, Hoffman, Pharm, & Hurdle, 2006). Levels (first, second and third) of verbalization are essential to systematic analysis after data transcription (Nielson, Clemmensen, & Yssing, 2002). First level verbalization includes participant articulation that is directly related to the task and easily fit into pre-determined codes without further manipulation. At this level, verbal data are largely representative of activity in the working memory. Second level classification is verbal data that are more abstract and cannot be encoded as is. The researcher must analyse and generalize these data in order to encode, while ensuring that the focus of the information is preserved. Last, the third level category is often excluded in the output of protocol analysis because, at this point, verbal data are no longer representative of the observed task. These data are usually illustrative of cognitive processes connected to information that is anchored in long-term memory, as opposed to the targeted working-memory.

1) Phases of Analysis: The analytic process can be broken down into three phases: referring phrase analysis, assertional analysis and script analysis (Simmons, Lanuza, Fonteyn, Hicks, & Holm, 2003; Lundgrén-Laine & Salantera, 2009).

**Referring Phrase Analysis:** Encoding occurs by separating verbal protocol into segments – sentences, words, clauses. These segments are reviewed and coded according to concepts that they represent. This step isolates ideas on which the participant concentrates during problem solving.

**Assertional Analysis:** During this phase, the researcher draws conclusions about the meanings held by the participants of the relationships amongst the concepts identified in the referring phrase analysis.

**Script Analysis:** This phase presents a summary of thinking strategies and cognitive processes used by participants during the task. The researcher evaluates the clinical reasoning protocol, determines how the processes developed and in what sequence.
2) **Open-Coding:** Analysis through open-coding was the initial stage in the process of data interpretation. It requires the interviewer to ask: “What is the participant trying to say and how is he/she saying it?” Each line of the transcript is read with these questions in mind and coded appropriately. The end goal of open-coding is to yield emergent themes. Since there is no “right way” to open-code, it was necessary that I maintained a reflexive standpoint by acknowledging the biases that I brought to the interpretive process.

3) **Focused-Coding:** In this step, themes that were uncovered during the open-coding stage were used to guide the coding of the transcript a second time. The objective of focused-coding was to unveil and analyse thematic patterns in the data.

It was imperative that after every encounter with a participant, data were coded and analysed. The analyzed themes that emerge from each interview helped further guide and navigate subsequent ones. This process was also beneficial in identifying gaps that may have existed in the data sooner rather than later and, therefore, afforded me the opportunity to address them in following interviews.

This method of data collection is especially useful to qualitative research because the interviewer and the informant work together to give voice to new knowledge (Hsiung, 2010). The participant is the expert of his/her story and the role of the interviewer is to facilitate the telling of this story. Qualitative interviews are rich in data, as they convey facts about the participant’s life in addition to their emotions and understanding of their social world. With respect to the realist perspective of this research design, these stories were essential because they situate life events within a cultural context (Hsiung, 2010). These interviews allow insight into principles, decision-making practices and frameworks that informed their think-aloud case studies.
Chapter 3

Method

3.1 Procedure Overview

A. Developed a research protocol in collaboration with supervisor and advisory committee, including selection of case studies and development of semi-structured post-case study qualitative interview questions
B. Submitted and received ethics approval
C. Recruited participants
D. Arranged in-person interviews
E. After each interview, transcripts were generated
F. After each interview, coding was conducted which was then used by the researcher to shape the direction of the next interview:
G. This process continued until no new themes emerged from data analysis/coding (saturation)
H. Validation of coding was undertaken by supervisor (second-check of data analysis and themes generated)
I. Once all transcripts had been analyzed a working model was generated
J. This working model was presented to a validation group (OCP standards of practice committee members) for input and refinement
K. Final model evolved from themes

3.1.1 Case Studies

The two case studies used in this study presented difficult, practice-based dilemmas that could occur in a community pharmacy setting. Originally, I planned to use case studies that involved a challenging pharmacotherapeutic clinical situation. Since I am not a pharmacist, however, it would be difficult for me to understand and interpret the clinical dialogue that would no doubt appear in the transcripts. Therefore, presenting the participants with practice-based, rather than pharmacotherapeutic, dilemmas appeared to be a better option given my background. I made the assumption that language, which
would describe these scenarios, would be more readily comprehendible to a non-
pharmacist.

These case studies were selected from an undergraduate pharmacy course (PHM 120Y) focusing on introducing the profession of pharmacy practice-based problem solving to novice students at the University of Toronto. One component of this course introduced students to problem-solving of non-pharmacotherapeutic practice-based dilemmas encountered by clinicians using the framework of Beauchamp and Childress (Beauchamp & Childress, 2001). In this component of the course, several cases had been developed for use in classroom-based discussion, to illustrate application of Beauchamp and Childress’ ethics case analysis within a practice setting. These cases were meant to provide a brief introduction to a practice-based dilemma, with sufficient detail to provide context but enough latitude to foster discussion and inquiry. Given the level (year I) of student involved, cases involved little-to-no pharmacotherapeutic knowledge or decision making and were generally 250 – 500 words in length, composed in a narrative style to facilitate reading comprehension by learners.

For this research, two of the cases developed for PHM 120Y were utilized, with the consent of the author (who was also the course instructor). Briefly, the first case study presented a scenario in which the pharmacist discovered that parents were refusing to give their children lifesaving medication because of religious reasons. The second case study asked participants what they would do if they found out through a breach of patient confidentiality that their much loved cousin was dating someone with HIV.

**Figure 1.**

| Case Study #1 | Sarah and Don Hill have four children under the age of seven, three of whom have a congenital heart defect requiring medication use. They belong to a religious group that firmly believes in non-interference in life-threatening medical conditions. Though insurance pays for the medications, the Hills don’t believe they should interfere with fate. Under pressure from Don’s employer (a family friend) they have visited a physician, received prescriptions and have come to the pharmacy to get them filled. In dialogue, you learn they have no intention of administering the medications, but have had them filled simply to placate Don’s employer. |
Case Study #2

Signet Wilkinson is a pharmacist working in a busy community practice. She has an excellent rapport with her patients and provides effective patient centred care. Recently, her cousin Fanny told her about a terrific new guy she met. Fanny has been dating (unsuccessfully) for many years and is very keen on meeting someone, settling down, and starting a family. Signet is thrilled for Fanny, as the two cousins are very close. Fanny’s new boyfriend is called Joe Johnson. From what Signet is told by Fanny, Joe is a sweet and sensitive fellow. Signet has also seen pictures of Joe, and he appears to be a strapping young man.

Today in the pharmacy, Signet received a prescription for anti-retroviral drugs used to treat HIV. These prescriptions are for Joe Johnson. The person presenting the prescriptions looks very similar to the photographs Fanny has shown, but Signet is not 100% certain.

It is important to note that these cases were explicitly constructed by the course coordinator to force pharmacists to make decisions under ambiguous and challenging conditions. There are no prescribed “correct answers” for these cases, but instead only a series of contingencies to explore, risks requiring mitigation, and ultimately a series of “least worst alternatives” from which to select. In the absence of a single correct answer, participants in this research would be required to continue a process of reflection and problem solving that would ultimately uncover a pattern of decision making. Within this study, the interviewer was trained to not allow facile or obvious solutions to stand. For example, if a participant in this study responding to Case #1 said “Well, I would explain the importance to the parents of taking medications as they are prescribed, and they would listen to me”, the interviewer would respond, “Let’s say they don’t listen to you…what do you say or do next?” By pressing participants in this way, and ensuring unrealistic or naïve options were not simply allowed to proceed, participants were required to engage with each case in a thorough and realistic manner.

3.2 Interviewing

The interviews with pharmacists took place outside of the clinical setting. Each participant pharmacist was presented with the same two case studies without being made aware of the underlying themes. By not alerting them to the fact that this study was looking at practice-based decision-making, certain biases were eliminated, as the participants were made to interpret the cases without influence from my disclosing of the
study objective. The informant was simply asked to think aloud as he/she reasoned through each scenario. Such a methodology is generally not considered to be deception and is well-accepted within the talk-aloud methodological tradition as it allows participants to shape the discussion in whatever way they see fit and deem appropriate without direction or influence by me.

Once the think-aloud step was completed, an interview was conducted between the informant and me. The interview was centred on the participant’s personal experiences with making decisions in his/her pharmacy practice.

Each interaction between the participant and me was recorded and transcribed. I made notes during the experiment. Each interview took approximately 30 minutes. Written consent was obtained from each participant.

For this research, a semi-structured qualitative interview was appended to the talk-aloud case-study component of the process. The main rationale for this was to allow me to gain better insight into the unique history, context, and professional practice of each participant, including their experiences dealing with similar practice-based non-pharmacotherapeutic dilemmas. Much of this interview focused on demographic details (education, practice history, etc.) though opportunities were provided to participants to discuss their subjective responses to the case studies, and to reflect upon similar situations they may have encountered in practice.

Sample Coding

Table 1

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Transcript</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
<td>Well, I guess the thing is, I don’t think that they would tell me right away that they aren't going to administer it. My guess is if a situation like this would happen -- well, I guess maybe they tell me upon entry because when I first read it, I was thinking that they'll tell me as I tell them about the side effects and such.</td>
<td></td>
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</table>
So if it was that type of situation, I don’t think I would make another appointment with them because I don’t think they’d come back. I would probably...

<table>
<thead>
<tr>
<th>Interviewer</th>
<th>You'd be kind of realistic about it.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
<td>Yeah. So I mean if it was right at -- if they did not tell me at entry, they just dropped it off. I filled it. <strong>Then I got them at the counter and I was counseling them, and then that’s when they would tell me.</strong> I would say, no, I understand your beliefs. But just so that you know, yadda, yadda, yadda. <strong>But if you do need any information, if you want to call me and ask me, don’t be afraid. If you come on too strong, they won't call you.</strong> <strong>And they won't look for further information.</strong> <strong>And they won't try to make decisions on their own.</strong> <strong>So I'd rather be there as an information giver as opposed to somebody that’s going to be scolding them saying they’re doing a bad job.</strong></td>
</tr>
<tr>
<td></td>
<td>Building a Relationship</td>
</tr>
<tr>
<td></td>
<td>Building a Relationship</td>
</tr>
<tr>
<td></td>
<td>Education</td>
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<tr>
<td></td>
<td>Deflecting Responsibility</td>
</tr>
<tr>
<td></td>
<td>Education/Building Relationship</td>
</tr>
<tr>
<td>Interviewer</td>
<td>So building rapport and a relationship…</td>
</tr>
<tr>
<td>Participant</td>
<td>Yeah… <strong>I wouldn't want some stranger telling me that I'm being a bad parent because I'm following a belief that I've always believed in. So I'm not one to judge.</strong> I guess even at entry I would still fill it anyway in hopes that after I fill it at least the medications will be in their house. <strong>And if they choose to do it or if they choose not to do it, then that's their decision.</strong> But at least having it close to them gives them a higher chance of using it. <strong>If I don’t fill it at all, then there's no chance of them using the medication.</strong></td>
</tr>
<tr>
<td></td>
<td>Building Relationship</td>
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<td></td>
<td>Deflecting Responsibility</td>
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<tr>
<td>Speaker</td>
<td>Transcript</td>
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</tr>
<tr>
<td>Participant</td>
<td>So basically there's a cost. I know that we don’t see the third-party plan that’s in this situation. We don’t see them. We don’t think of them. We don’t pay their bills. So by being a non-entity in our mind we think that it's okay to do what we're doing. <strong>But when we put costs that are unnecessary to them, it also places a cost on this fellow's employer, and then overall the entire system</strong>.</td>
</tr>
<tr>
<td>Interviewer</td>
<td>It’s a waste.</td>
</tr>
<tr>
<td>Participant</td>
<td>Yeah, it’s a waste. And <strong>costs trickle down</strong>.</td>
</tr>
<tr>
<td>Interviewer</td>
<td>Okay, so say he understands but he's like, it’s my decision. I'm paying for it. I can do whatever I want. If I don’t want to give it to my kid then --.</td>
</tr>
<tr>
<td>Participant</td>
<td>To be honest, I'd have to even look into this. I don’t think it would be in our place to call the third-party plan. <strong>I don’t know if it's -- patients can do what they choose to do. Who am I to tell them what's right and what's wrong.</strong></td>
</tr>
<tr>
<td>Participant</td>
<td>But I'm thinking do I -- I know there's an ethical responsibility for me. But do I have a -- am I allowed to call a third-party plan, who's paying for the medication, to talk to them about the drug habits of their clients without them calling me. Now, I know that they're providing the money. <strong>But I still think there's some confidentiality here.</strong> So I think ethically I would feel that their third-party probably should know. But I don’t think that I'm in the right place to call them.</td>
</tr>
<tr>
<td>Interviewer</td>
<td>Who would you consult if you were to consult anyone about that?</td>
</tr>
<tr>
<td></td>
<td>Good question. That’s a good question. I wouldn’t even know who to call. Obviously start with the college. But they're not going to know for sure. This is more of -- you just end up with an ethical situation. You start talking about ethical discussions but you're not going to really get to the heart of what you need to get to. <strong>You'd have to go to the college.</strong> I don’t even know if the college would even answer that question because they play the fence a lot.</td>
</tr>
</tbody>
</table>
### 3.3 Sampling

The aim of this research design was to obtain in-depth data. As an exploratory study, the objective was to identify topics, themes, and ideas for future exploration. A small sample size (ten to twelve participants) was acceptable, especially given resource constraints and practical limitations. At this point, it was expected that data saturation would be met (i.e. the point at which no new data would emerge that would result in identification of a new or different theme). The quality of the participants was more important than the quantity: seeking pharmacists who had strong verbal skill yielded richer data (Lundgrén-Laine & Salantera, 2009). Convenience sampling was used in order to maximize the probability that the participants shared a similar social context, which allowed for a more accurate data analysis and comparison to occur. Some examples of inclusion criteria for
participants in this study were: voluntary, speaks English well, competent in verbal communication, currently practicing pharmacy in Ontario, Canada.

Chapter 4

Results

4.1 Participants
A call was put out for participants with the above-mentioned criteria through various forums and media such as: rxchat.org, craigslist, pharmacy alumni resources (University of Toronto, University of Waterloo, University of British Columbia). Twelve pharmacists participated in this study. All pharmacists involved in this study practiced within the community setting, and were also involved (to varying degrees) in the teaching of undergraduate pharmacy students at the Leslie Dan Faculty of Pharmacy (for example, as structured practical experience program preceptors, laboratory demonstrators, or lecturers in different courses). All participants were from the Greater Toronto Area.

4.2 Demographics
Twelve pharmacists participated in this study. Nine participants were community based and three held a teaching position at the University of Toronto with substantial experience in the community setting. The three pharmacists in a teaching position comprised the pilot phase of this study. The remaining nine pharmacists participated in the actual study. The pilot study was lead in the same manner as the actual project, with participant feedback given at completion. The pilot study confirmed that the procedure was conducted smoothly. Four participants were male and eight were female. Data saturation was reached at the sixth interview. Six more interviews (twelve in total) were conducted to ensure study relevancy. See Appendix, Figure 1 for further details.
4.3 Coding and Results

As previously mentioned, it is important to note that the cases themselves were constructed in a deliberate attempt to avoid facile or obvious “right answers”. Participants themselves would frequently try to contrive character traits or situational factors that would make their decisions easy and obvious; when they did so, I would push back with prompts such as “what if they don’t listen to you?” or “imagine it didn’t proceed the way you would have liked, what do you do or say next?” This technique of forcing participants to engage with each case in a deep and realistic manner surfaced a consistent trend amongst all participants: the emergence of cognitive dissonance, as Leon Festinger described in his work *A Theory of Cognitive Dissonance* (Festinger, 1957) and previously detailed in Chapter 2. This was evidenced through, for example, pharmacists’ reluctance to actually ever make an independent decision and a strong desire to ensure a “happily ever after” ending to each case in which the pharmacist does not come into any conflict with the patients involved and everyone agrees on a course of action.

“I don’t know. Like, if I go to my college, if they would do anything on the children’s behalf.” (Participant 4)

“I guess what I’m hoping is that the college would say it’s actually your responsibility to call Children’s Aid or to call some sort of agency and let them know about it and they would take over from there.” (Participant 1)

The data also suggest that pharmacists may have conflicting beliefs between their view of themselves as a professional and as a businessperson, or their professional and occupational roles. This was evidenced by the pharmacists unwillingness to take responsibility for a decision, and instead their very strong preference to “refer” decision making to a perceived higher authority (e.g. a physician).
“I’m going to contact the doctor and tell him that you [the patient] have no intention of filling it… At least through medical records it’s documented that we tried our best.” (Participant 3)

“I would probably call the police for information gathering, because I’ve done that a lot here… You speak to a staff member of the police department and they give you advice” (Participant 4)

Participants demonstrated a strong preference to “educate” and “recommend” rather than “decide” or “act”, and articulated their discomfort at the thought that they may actually be forced into a decision by the circumstances of the case. This desire to be seen as “friendly”, “supportive”, and “nice” rather than “decisive”, “right” or “principled” was a strong and consistent theme in the interviews.

“…Educate the patient at the same time, so you know, maybe make myself feel a little better.” (Participant 9)

“If I got this feeling that I’m bothering them at the time of counseling, I probably wouldn’t call them again. But if they seem like they want to talk about it I would probably call them.” (Participant 5)

Of interest, in most cases, pharmacists indicated they would not interfere or make a decision and let the situation unfold as it would; when I pointed out to them that not making a decision in this circumstance actually WAS a decision of sorts, this provoked discomfort and some defensiveness.

“It’s their choice to come to me. It’s their choice to go to somebody else and just get no information or whatever. This is 100 percent the parents’ decision.” (Participant 7)

“I will give them all the information… But I can’t get involved because religion can be very important to a lot of people and it’s not my decision to force them to do something.” (Participant 6)
“Everyone has to have their own decisions and I'm not here to judge... I will tell them the consequences of the medication not being taken.” (Participant 12)

This behavioural pattern is in contrast to the post case-study discussion focused on practice, at which time most participants asserted their belief that pharmacists are professionals, autonomous, and clinical decision makers. When confronted with their own behavior during the previous case study, participants experienced difficulty justifying their actions.

“I guess it requires ethical and moral and all that OCP grey area, which is everything with the OCP is grey. So I don’t like that sort of thing. I’d sometimes help the patient out and sometimes I wouldn’t... It depends how the patient acts towards me. It’s basically you have a relationship with the patients, you know their history. It’s a little bit of trust.” (Participant 2)

“That’s part of being a professional. Taking responsibilities yourself. I’d educate him so he knows what he’s doing and then he can make his choice for himself.” (Participant 9)

As described earlier, Goffman (1959) makes the distinction between actors and roles, and notes that individuals have strong need to present a “face” to the world that may not be consistent with either their behaviours or their underlying beliefs.

Using this Goffmanian framework, in this study, participants were playing the role of a professional (healthcare provider) as well as a businessperson. The case studies forced the participants to reason between the attitudes presented by the two roles, which at time may produce inconsistent or frankly divergent outcomes. As a professional (health care provider) they are concerned for the best possible outcome for the patient. As a businessperson, the participants were primarily focused on two ideas:

1. Ingratiating themselves to the patient so they would not lose a customer

“I’m one of the pharmacists who believe if I don’t do it then they’re just going to go somewhere else.” (Participant 5)
“If you come on too strong they won’t call you.” (Participant 6)

2. The risk of losing their pharmacy license (which may result if they make an error or offend anyone), which would disable them from making a living

“If I’m the owner of the pharmacy then I’m losing money.” (Participant 11)

“As a business owner you’ve got to make sure you’re paying the bills or you’re not going to be around. But if you’re doing things that are illegal you’re going to potentially get caught and then you’re going to end up closing the door.” (Participant 12)

“I would do everything to protect my license.” (Participant 6)

“Once again it’s the privacy law and my license at stake.” (Participant 8)

In order to alleviate cognitive dissonance people will adjust their attitudes in order to support their decision. This phenomenon is called post-decisional attitude change (Jarcho, 2011). The pharmacists underwent post-decisional attitude changes by reconceptualizing their understanding of responsibility for a patient using three tactics. This reconciliation of attitudes is the central theme guiding the participant’s choices throughout the study. By deflecting their professional responsibilities, they could satisfy the disequilibrium between their views of professionalism and business. Participants used personal self-interest as a lever for decision-making. Self-interest can be defined as a focus on the needs, desires, or well-being of oneself (Merriam-Webster Inc., 2013). In this case, personal self-interest caused the participants to favour decision paths that did not compromise their business and license. Using deflection tactics reduced their accountability, which is in keeping with the participants’ ultimate goal of decreasing the role they played in the outcome of each scenario. The participants preferred that either the patient makes their own decision or that another professional makes the final decision.
“Yeah, I’d probably go and see what they [OCP] would recommend, because I mean, they’re the licensing body, right?” (Participant 9)

“I would call another counselor… Anybody for information because I know that actions that I take can make me lose my license. So it’s very important that I follow the law and I just don’t fly off by emotion.” (Participant 8)

“I know they have a lawyer there that you can speak to confidentially so I think I would get somebody else’s expertise.” (Participant 6)

“I would try to get them [the patient] to make the decision.” (Participant 7)

As Goffman notes, this discrepancy between roles produces contradictory actions and behaviours: the confusion pharmacists may feel as to whether they are truly professionals or actually occupationalists or business people leads them to avoid the responsibility for making difficult decisions in ambiguous and complex situations such as those depicted in the case study.

**Tactic 1: Relationship Building/Education**

The participants’ first tactic was, in all cases and all 12 interviews, to educate the patient. They believed that if they gave the patient enough information, the patient would ultimately be convinced to make the right decision for himself/herself. The participants would try to form a trusting relationship with the patient in the hopes that the information they were providing would have a greater impact. In this scenario, the patient would be responsible for the outcome and would therefore free the pharmacist from his/her obligations to that patient. The pharmacists reframed their understanding of patient responsibility. Instead of focusing on the best possible outcome clinically, responsibility means educating/informing people to make their own decision. By using this tactic, the participants found an alternative path that was less confrontational but allowed them to feel as if they were still taking some action – in short allowing them to play the
Goffmanian role of “professional” without actually assuming the responsibilities inherent with the term.

“What I didn’t realize was pharmacy allows me to be the teacher that I wanted to be too.” (Participant 10)

“So I still feel like – like yes, you’re teaching at the counter. But I still feel like that’s pharmacy.” (Participant 1)

Our dialogue we would start to develop a professional relationship… At this point in time what would be going through my head is there might be still a chance he might change his mind and provide the medication.” (Participant 3)

Tactic 2: Seeking Advice/ Deferring to other professionals

Since many of the participants appeared influenced and motivated by self-protection, seeking outside counsel was used as a strategy to eliminate personal or professional responsibility for the outcome. Professionally they would not want to see someone harmed but they also did not want to risk losing their license. Therefore, the participants could satisfy their professional/business dissonance by taking comfort in the fact that some other professional body told them what to do.

“I try to find out facts and facts only and even if I have to call a whole bunch of difference resources. Even if I have to call an AIDS doctor or something to ask what is the law about this.” (Participant 6)

“I would just have to know from each department exactly what’s the law. What am I allowed to do.” (Participant 5)

“Another things is talk to a lawyer, because what risk am I taking right now. Is my license at risk?” (Participant 7)

“I would call the college and speak to someone there to try and get some more information about what to do.” (Participant 2)
Again, a Goffmanian analysis would suggest a discrepancy between real and perceived roles: by deferring responsibility to a more powerful professional (e.g. physician), pharmacists were able to manage their cognitive dissonance (and maintain their desire to be seen as “nice” and “helpful”), but at the cost of authentically inhabiting the role of “professional” within a complex and ambiguous situation.

**Tactic 3: Following The Rules**

In order avoid confrontation with a patient, the participants would default to a very basic and technical definition of what was legally required of them. They would base their actions on a legalistic interpretation and their understanding of the rules that govern their profession since this tactic reduced their responsibility for the outcome. The pharmacists reasoned that they were unable to intervene further because the law dictated so. This excuse allowed them to avoid confrontation by doing what was comfortable rather than what might be right or optimal for the patient and his/her outcomes.

“I would probably look into legally to see what the requirements are.” (Participant 5)

“I have my obligation to the patient, confidentiality-wise.” (Participant 12)

“I definitely can’t go and talk to their employer, because that’s, you know, confidential and you’d be passing that line.” (Participant 4)

“I know it makes it different, but at the same time, legally I can’t.” (Participant 10)

“Your gut may not always be right and it can get you into trouble.” (Participant 11)

“I chose to be a pharmacist. I have to follow those rules… If I join the team I’ve got to follow those rules or step out of the team.” (Participant 10)
4.4 Outlier

In only one interview did the participant (Participant 10) choose personal responsibility over professional responsibility. While reasoning through Case Study #2, the participant concluded that he would tell Fanny that Joe probably had HIV. He is willing to give up his role of a pharmacist in order to satisfy his role as a decent human being.

“I think people’s lives are more important… I guess I would have to be okay with it [losing pharmacy license]. My question is would I be okay with the consequences of not doing anything. So I might still be a pharmacist, but I don’t know if I could live with myself down the road. Obviously it would bother me but it would be a choice I’d have to make. I love the person. We’re talking about life and death. You may not be happy with the decision you make.”

He even goes on to contrast this case study with the first one. Since he is personally not affected by the outcome presented in Case Study #1, he has an easier time choosing professional preservation over moral responsibility.

“In that one [Case Study #1], if I step out of the picture, I don’t feel the direct result of what I do, whether I do or don’t. So why would I put my profession on the line even though I know it affects society. I think it is a tougher decision because you’re going to make the decision based on principle on that one [Case Study #1]. This one [Case Study#2] you’re going to make decisions based on emotions.”

One could argue that this participant is still basing his decisions on self-protection in Case Study #2 as the determining factor for action is the risk of being personally affected by the outcome. In Case Study#1, the participant stated that not feeling the direct result of the outcome guided his decision to choose protecting his license over helping the sick children. In the second case, he was willing to break confidentiality in order to protect his self-interest, which was protecting a family member. As stated earlier, self-interest can be defined as a focus on the needs, desires, or well-being of oneself. Therefore, one could conclude that for this participant, protecting a loved one was more valuable in preserving his self-interest than was keeping his professional license.
The application of Goffmanian analysis of the cognitive dissonance demonstrated by participants yields important insights to be discussed in Chapter 4. Overall, the participants in this study demonstrated a strikingly similar pattern of decision-making behavior across both cases, one that favoured education, referral to a higher authority, or recourse to legalism rather than responsible, professional decision making. This pattern raises important questions about the readiness of community pharmacists to assume the risks, rewards, and responsibilities inherent in professional work and their ability to transcend their previous occupational status.

Chapter 5

Discussion, Limitations and Future Studies

5.1 Discussion

The purpose of this study was to characterize the reasoning patterns of pharmacists in the clinical setting as a preliminary investigation into the current state of pharmacists’ decision-making capabilities. These findings will hopefully influence future curricular design with the goal of improving decision-making skills. We have discovered that the pharmacist participants were uncomfortable with taking responsibility for the outcome of a patient. As professional healthcare providers they value the well-being of their patients. At the same time, these pharmacists were motivated by self-interest with pressure coming from their need to sustain a thriving business and their desire to appear “nice” and “helpful”. The role of businessperson seemed to require that they maintain positive relationships with patients by avoiding confrontation. It also appeared to lead them to avoid difficult situations, which could put their license at risk. Without a license, they can no longer work. Their view of themselves as a healthcare provider and as a businessperson created cognitive dissonance. The pharmacists attempted to reconcile this problem by reframing their attitude toward their responsibility of the situation. They acted to reduce their accountability for the outcome of the situation through three tactics.
The first tactic employed by the participants was educating the patient about drug use. Being an educator allowed the pharmacists to take a non-confrontational path hopefully towards a solution. The participants deflected responsibility away from themselves and rested it in the patients’ hands. They believed that if they informed the patient fully about drug use, the patient would logically make the right decision for themselves in the end. The participants were able to protect their self-interest while at the same time reasoning that they were taking a “professional” action.

The participants also reduced their responsibility for patient outcome by seeking advice from and referring difficult situation to other professionals. They were comfortable with deferring to the opinions of doctors, nurses, police officers or the OCP when having to make a difficult decision. The pharmacists thought they were able to protect themselves by shifting responsibility away from themselves to another professional. The pharmacists possibly thought they would not be accountable for the decision as others in the system had greater training, responsibility, and experience in dealing with complex situations.

The last tactic used by the participants to diminish responsibility for the patient was relying on laws and regulations in a rigid and inflexible manner. The pharmacists referred to rules set out by the OCP and especially in the Code of Ethics. Participants often referenced their obligation toward patient confidentiality and cited it as the reason for the lack of action taken. Following rules exactly as written was important to the pharmacists as it seemed that they would not be held responsible for any negative outcomes or suffer any ensuing repercussions.

These three tactics demonstrated the pharmacists’ attempts to reconcile the conflicting values of being a professional and healthcare provider and those of a person working in an occupation and a businessperson. These results suggest that these pharmacists were unwilling to take responsibility for patient outcome and therefore might not be necessarily psychologically equipped to take on a larger role in the primary healthcare team commensurate with professional status. Specific to this study, participants admitted
to having very rudimentary knowledge of pharmacy ethics. Ethics education could be a beneficial area to focus on while training pharmacists to make difficult decisions in complex cases. The ambiguity of different scenarios could help the student learn to reason through the situation using his/her own judgment. Therefore, not only the principles of pharmacy ethics should be taught, but also the realistic application of these principles within a clinical context.

When comparing these findings with the clinical reasoning patterns of physicians, as discussed in the introduction, it is difficult to draw any similarities between the decision-making processes of pharmacists and doctors. Unlike physicians, it appears that pharmacists do not exhibit a dual-processing system of clinical reasoning. This notion is especially true when considering the non-analytical process. This study suggests that pharmacists are unwilling to trust their unconscious, gut reaction when interacting with a patient. One could even argue that it is not even a matter of not trusting this non-analytical process because it may not exist in the first place.

On the other hand, this study demonstrates that these pharmacists are more inclined toward analytical mental processing. Tactic 2 (referring to other professionals) and Tactic 3 (rule following) reveal the stepwise analysis/progression of problem solving. The pharmacist is presented with a problem, he/she analyses the facts and then determines that either (1) he/she does not have the skills to make the decision and must consult another profession or (2) the decision lies within the rules and regulations of the profession.

The fact that the participants were eager to educate the patients also suggests a confidence in their content knowledge. As previously mentioned, doctors rely on content knowledge, both declarative and procedural, in order to make clinical decisions. Being able to educate patients on what they could/should do, indicates that they do possess a pool of information upon which to confer. The difference surfaced in this study was that pharmacists were not comfortable with using their content knowledge to make a clinical decision.
This study also sheds light on the importance of role identity within a profession. The way professionals understand their identity greatly influences the way they interpret and perform their job (Chreim, Williams, & Hinings, 2007). Further, the way that they perform these roles gives rise to role identity, “the goals, values, beliefs, norms, interaction styles and time horizons that are typically associated with a role… a role-identity provides a definition of self-in role (Ashforth, 2001).” The findings from this study suggest that pharmacists’ find their role identity confusing. Because they assume two conflicting professional identities – that of businessperson and healthcare provider, or that of an occupation vs. a profession – they are uncertain how to interpret their role.

The results of this study support the findings of the IMPACT Project, whose main objective is to incorporate pharmacists into the Canadian primary healthcare team. In their 2009 study, they discovered that incorporating pharmacists into the primary healthcare team shifted their interpretation of professional self-identity away from the businessperson mindset to focus mainly on the role of healthcare provider, “Pharmacists also noted a number of significant differences in the family practice setting that enhanced their sense of professionalism… and a move away from the dispensing/business role of community pharmacy (Pottie K. , et al., 2009).” Therefore, integrating pharmacists into the primary healthcare team may actually (over time) alleviate their sense of cognitive dissonance by allowing them to “let go” of their business or occupational identity role. In this scenario, pharmacists would assume a new role in healthcare, which could ultimately lead to a shift in self-identity that could reconcile their current state of cognitive dissonance, “Because new roles require new skills, behaviours, attitudes and patterns of interactions, they may produce fundamental changes in an individual’s self-definition (Ibarra, 1999).”

5.2 Limitations

This study was designed as an exploratory investigation into the reasoning patterns of pharmacists. This research was meant to generate a broad understanding of pharmacists’
clinical reasoning and problem solving skills. In addition, the participants were solely community-based pharmacists. Interviewing only community pharmacists does not allow us to draw conclusions about all pharmacists. These participants also only worked within the Greater Toronto Area. Studying pharmacists living in more rural locations might have yielded additional themes.

This study does not purport to be generalizable to other pharmacy contexts or pharmacists: the data speak for themselves and for the participants who generously gave of their time and energy to participate. The cases used in the study were contrived and explicitly designed to be complex and ambiguous with no single right solution. The talk-aloud protocol utilized forced participants to move beyond their comfort zones in a way that was not realistic or representative of real-world practice, where pharmacists would not face an external force (such as the interviewer) constantly pushing their thinking and questioning their reasoning and justification for behavior. In this way, the study context did not replicate the real world of practice in any discernible way. Further, in the real world, pharmacists generally do not “talk-aloud” or speak through their decision making process. The simple act of hearing oneself think aloud may actually influence the decision making pattern itself, and is a general limitation of the talk-aloud protocol (Eva, 2005). Nonetheless as a new method to explore a complex phenomenon, this method was an appropriate choice for this study.

5.3 Recommendation for Future Studies

This study focused on exploring reasoning patterns of community pharmacists within the Greater Toronto Area. It demonstrated the conflicting roles assumed by some pharmacists. Further research should be conducted to investigate other patterns of decision-making within pharmacy. For example, a study should be led to examine how pharmacists make pharmacotherapeutic decisions. Pharmacotherapeutic decisions could include responsibilities such as drug prescribing, chronic disease care and emergency care. Observing patterns in all aspects of clinical care will help further reveal which areas of the pharmacy curriculum need to be modified and improved.
In addition to looking at pharmacotherapeutic decision-making, further research could be conducted to evaluate reasoning patterns of pharmacists working in different locations around Canada. Pharmacists working in rural conditions may have a very different relationship with patients than those working in cities. Due to the smaller population and close-knit societies, it would be interesting to investigate whether or not rural pharmacists assume a more professional (rather than occupational) role in providing healthcare. Last, future studies should compare and contrast the decision-making skills of community pharmacists and pharmacists involved in the primary healthcare team. This research could paint a very clear picture of the potential benefits of incorporating pharmacists in family medicine.

Chapter 6

Conclusion

The purpose of this study was to identify patterns of clinical reasoning and problem solving in community pharmacists in Ontario, Canada, using a qualitative methodological approach. Its secondary objectives were to interpret, analyze and evaluate how pharmacists make clinical decisions and to apply these findings in support of pharmaceutical curricular design at the undergraduate, graduate, post-graduate and continuing education levels. Data from this study suggested that community pharmacists experienced cognitive dissonance when faced with complex or ambiguous situations due to conflicting professional role identities related to “health care provider” and “business person” or “profession” vs. “occupation”. In an attempt to manage this cognitive dissonance, participants consistently utilized a series of three strategies: education, referral to a higher authority, and deference to rules/policies/laws. These strategies were used as a way to avoid actually making a decision, assuming responsibility for an outcome, and deflecting any potential personal or professional liability or risk.
Participants talked themselves into knots attempting to avoid making a decision about the case studies. We did not previously predict the importance of self-identity in relation to the understanding of professional roles. This study showed that community pharmacists’ conflicting interpretations of their identities (business person and healthcare provider) and their roles (profession vs. occupation) resulted in cognitive dissonance. The reconciliation of this cognitive dissonance was the driving force behind their patterns of problem solving and clinical reasoning. Ultimately, the participants in this study consistently chose to act on self-interest to help guide their answers. This study highlighted the frequently leveraged tactic of using “education” as a crutch for resisting the responsibility of actual and active clinical decision-making. Upon reflection, using education as a first line tactic to dealing with awkward situations is an obvious strategy as pharmacists are trained to inform patients about their drug therapies.

This research supports the IMPACT project whose aim is to incorporate pharmacists into the primary healthcare team. The results of our study demonstrate that having both business and healthcare identities may be detrimental to the profession of pharmacy’s attempts to reprofessionalize itself and assume new roles (such as prescribing) that require autonomous, confident, and responsible decision making. The study also raises questions as to whether the foundation of this reprofessionalization project – that pharmacists can repurpose existing pharmaceutical knowledge, skills, and experience developed in the context of drug product manufacturing, compounding, and stewardship towards clinical and patient care contexts – is defensible. The IMPACT project illustrated that removing pharmacists from the community drug store setting helped to refocus their interpretation of their professional role. In other words, they could focus solely on their responsibilities as a healthcare provider and downplay the businessperson or occupational component of their identity. This study raises important questions as to the viability of the current pharmacy practice model, which suggests it is possible to be both a businessperson and a health care provider and to fulfill both objectives safely, effectively, and efficiently.
These findings suggest that steps should be taken to train pharmacists to manage new positions in primary care. While there have been significant changes in undergraduate pharmacy (professional) education over the past decade to support new roles such as autonomous prescribing, it is important to note that the vast majority of practicing community pharmacists are not new graduates and consequently did not have access to this type of education and socialization. Further work is required to determine what type and quality of continuing professional development may be necessary for this cohort to evolve into new roles and responsibilities. There are also further opportunities to examine the experience of recent graduates from these state-of-the-art curricula, to determine whether the practice context adversely affects or actually negates the idealistic education they have received: do new graduates suffer the same cognitive dissonance as more experienced pharmacists upon starting their professional life, despite receiving an education more squarely focused upon “health professional” rather than “business person”? Does the practice context trump education?

Ultimately, the reprofessionalization project of pharmacy will depend upon pharmacists themselves being ready, willing, and able to assume the clinical responsibility and decision-making autonomy that are hallmarks of professionals. This study suggests there may be further work required to achieve these objectives: beyond the rhetoric of pharmacists as “drug experts”, results of this study suggest a pattern of clinical decision making and problem solving amongst community pharmacists that requires further investigation.
Bibliography


Appendices

Figure 1. Participant Details

| Participant 1 | Age/Sex: 50/Female  
Pharmacy Practice: pharmacy teaching position at UofT with extensive community pharmacy experience |
| Participant 2 | Age/Sex: 55/Female  
Pharmacy Practice: pharmacy teaching position at UofT with extensive community pharmacy experience |
| Participant 3 | Age/Sex: 60/Female  
Pharmacy Practice: pharmacy teaching position at UofT with extensive community pharmacy experience |
| Participant 4 | Age/Sex: 32/Female  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 5 | Age/Sex: 38/Female  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 6 | Age/Sex: 39/Female  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 7 | Age/Sex: 46/Female  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 8 | Age/Sex: 55/Female  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 9 | Age/Sex: 32/Male  
Pharmacy Practice: community pharmacist in the downtown Toronto core |
| Participant 10 | Age/Sex: 35/Male  
Pharmacy Practice: community pharmacist in the Mississauga area |
| Participant 11 | Age/Sex: 45/Male  
Pharmacy Practice: community pharmacist in North Toronto |
| Participant 12 | Age/Sex: 70/Male  
Pharmacy Practice: retired with extensive community pharmacy experience in the downtown core of Toronto |
Figure 2. Information Processing Theory (Newell & Simon, 1972)

Figure 3. Example of data analysing process (Lundgrén-Laine & Salantera, 2009)
Figure 4. Critical Appraisal Skills Programme tool for the adherence to rigorous standards of qualitative research (Methodologies, 2006)

### Screening Questions

1. **Was there a clear statement of the aims of the research?**
   
   Consider:
   
   – what the goal of the research was
   
   – why it is important
   
   – its relevance

2. **Is a qualitative methodology appropriate?**
   
   Consider:
   
   – if the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants

### Detailed questions

**Appropriate research design**

3. **Was the research design appropriate to address the aims of the research?**
   
   Consider:
   
   – if the researcher has justified the research design (e.g. have they discussed how they decided which methods to use?)

**Sampling**

4. **Was the recruitment strategy appropriate to the aims of the research?**
   
   Consider:
   
   – if the researcher has explained how the participants were selected
   
   – if they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
   
   – if there are any discussions around recruitment (e.g. why some people chose not to take part)
Data collection

5. Were the data collected in a way that addressed the research issue? Write comments here

Consider:
– if the setting for data collection was justified
– if it is clear how data were collected (e.g. focus group, semi-structured interview etc)
– if the researcher has justified the methods chosen
– if the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, did they used a topic guide?)
– if methods were modified during the study. If so, has the researcher explained how and why?
– if the form of data is clear (e.g. tape recordings, video material, notes etc)
– if the researcher has discussed saturation of data

Reflexivity (research partnership relations/recognition of researcher bias)

6. Has the relationship between researcher and participants been adequately considered? Write comments here

Consider whether it is clear:
– if the researcher critically examined their own role, potential bias and influence during:
  – formulation of research questions
  – data collection, including sample recruitment and choice of location
  – how the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Ethical Issues

7. Have ethical issues been taken into consideration? Write comments here

Consider:
– if there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
– if the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
– if approval has been sought from the ethics committee
Data Analysis

8. Was the data analysis sufficiently rigorous? Write comments here

Consider:
– if there is an in-depth description of the analysis process
– if thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?
– whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
– if sufficient data are presented to support the findings
– to what extent contradictory data are taken into account
– whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

Findings

9. Is there a clear statement of findings? Write comments here

Consider:
– if the findings are explicit
– if there is adequate discussion of the evidence both for and against the researcher's arguments
– if the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst.)
– if the findings are discussed in relation to the original research questions

Value of the research

10. How valuable is the research? Write comments here

Consider:
– if the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?)
– if they identify new areas where research is necessary
– if the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used