HOW DO THEY SEE IT? FAMILY PHYSICIANS' PERSPECTIVES ON & EXPERIENCES OF CONTINUING PROFESSIONAL DEVELOPMENT

by

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Abstract

Continuing professional development (CPD) is important for family physicians due to the complex and continually evolving nature of family practice. Family physicians need to keep abreast of scientific advances and current best practices in order to practice competently and effectively. As with many professions, family physicians are required to demonstrate participation in continuing professional development (CPD). Research suggests that organized CPD varies in the extent to which it influences physicians' practice. This study aimed to advance understanding of the complexities surrounding the role of CPD in family practice by examining family physicians' perspectives on and experiences of CPD. A mixed-method approach, incorporating a self-report survey and semi-structured interviews, investigated: (a) family physicians' participation in organized CPD; (b) family physicians' reasons, or motivations, for participating in organized CPD; (c) the relationship between family physicians' motivation for CPD and their organized CPD participation; and (d) factors that influence family physicians' motivation for and organized participation in CPD. Self-determination theory (SDT) was used as a sensitizing lens, providing relevant conceptual categories for interpreting family physicians' reasons for participating in CPD. Ninety-one family physicians completed a self-report survey and six of these participated in in-depth, semi-structured interviews. Overall, participants valued CPD and viewed it as important to practice. SDT concepts helped to create a more nuanced portrait of family physicians' motivation for learning and CPD than reflected in previous studies. Six overarching themes captured participants' motivations for, participation in, and experiences of organized CPD: *Maintaining Competence, Connection to Colleagues, Me as a Learner, Opinions on the 'CPD System', Practicalities of Participation,* and *Links to Informal Learning and Practice.* Relevance to research and practice are discussed.

Lay Abstract

Continuing professional development (CPD) describes activities that are intended to maintain and develop a professional's skills and knowledge. For family physicians, CPD is a way to stay current in an ever-changing field. Previous research shows CPD does not always lead to improvements in family physicians' practice, yet family physicians continue to participate in CPD. In this study, I examined family physicians' perspectives and experiences of CPD, with the goal of improving our understanding of the role CPD plays for family physicians. Ninety-one family physicians completed a self-report survey and six of these participated in semi-structured interviews, describing their participation in, motivation for, and experiences of CPD. Findings from the study provide an account of family physicians' perspectives on CPD and build understanding of the complexities surrounding family physicians' motivation for CPD. These findings are useful for enhancing CPD programming and for those involved in CPD research.

Preface

This study was approved by the University of British Columbia's Behavioural Research Ethics Board [certificate # H13-02900].

I was the lead investigator for this study and was responsible for all major areas of research, including data collection, analysis, and manuscript composition. Dr. Nancy Perry was the supervisory author and was involved throughout the study.

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CHAPTER 1: INTRODUCTION

"More clearly than any other [professional], the physician should illustrate the truth in Plato's saying, that education is a lifelong process." - Sir William Osler, founder of modern continuing medical education, 1900.

This statement is perhaps even more significant today than it was at the turn of the twentieth century; rapid scientific advances and the constant evolution of our understanding of health, well-being, and disease necessitate ongoing learning for physicians to stay current in the field. Family practice, which encompasses the full spectrum of human health, is characterized by complexity and uncertainty. While this undoubtedly makes the profession interesting, it also leads to the ongoing challenge of 'keeping up' with relevant research and current best practices. Today, family physicians' lifelong learning takes the form of continuing professional development (CPD). CPD is intended to provide physicians with the skills, knowledge, and confidence to be able to practice effectively and to a high standard. However, research suggests CPD varies in its effectiveness and influence on family physician's daily practice. My study was designed to examine how and why this may be the case by investigating the family physician's perspectives on and experiences of CPD.

In this introductory chapter, I describe the family physician's role, explain my interest in family physicians' CPD, provide a definition of CPD, briefly outline research into family physicians' CPD, and explain the purpose of this study. Next, I introduce motivation research and self-determination theory as a sensitizing lens for the study. Finally, I describe the study's research questions and explain the organization of this thesis.

The Family Physician's Role

According to the World Organization of Family Doctors (2013), the purpose of family practice is to provide personal, comprehensive, and continuing care for the individual in the context of the family and the community. The role of the family physician is complex and varied,

characterized by a broad scope of practice that continually evolves. Family practice includes preventative care, appropriate diagnostic testing, treatment, timely referral to specialist physicians or other healthcare providers, and overall coordination of care (College of Family Physicians of Canada, 2013).

In Canada, family physicians play a central role in the healthcare system, providing primary care to the population in clinics and hospitals alongside other physicians and healthcare providers, or as solo practitioners. Family physicians may practice privately or be employed by a public entity, such as a health authority; the overwhelming majority of private practitioners bill their work to the public healthcare system. As such, family physicians are often considered 'gatekeepers' of the healthcare system. They are expected to contribute to optimizing the health of individuals and the broader population, while also ensuring costs to the healthcare system are minimized, i.e., what is known as the 'Triple Aim' of healthcare (Institute for Healthcare Improvement, 2014). It is a challenging balance to strike and this, combined with the complex and continually evolving nature of the field, means family physicians must have a broad range of knowledge and skills to enable them to practice effectively and efficiently.

As with all professions, there is considerable variation in family physicians' practice performance. Evidence suggests physicians' understanding of recommendations for screening, referrals, and options for care are varied and often incomplete (Marinopoulos et al., 2007), with some physicians overusing, under using, or misusing therapeutic and diagnostic interventions (Chassin & Galvin, 1998; McGlynn, 2003) and failing to adopt guidelines (Cabana et al., 1999).

The Researcher's Interest in Family Physicians' CPD

My interest in this area developed through my role as an educator involved in designing, developing, and evaluating CPD activities for family physicians. Through this work I endeavour to enable family physicians to practice at the highest possible standard. A lot of my recent work has involved trying to understand and enhance the connection between CPD and practice. Discussions

in the literature on this issue have generally focused on identifying which CPD formats are most effective; that is, CPD activities that have the strongest association with changes or improvements to practice are emphasized. Although this perspective is undoubtedly important, I was interested in delving further into the nuances of the role of CPD in family practice by investigating family physicians' perspectives, which are largely missing from previous research in this area. I believed that examining the ways in which family physicians describe and understand their CPD experiences could enrich our understanding of the role CPD plays in family practice and thus help to inform future CPD planning. Thus, this study was an opportunity to investigate family physicians' perspectives on CPD, examining their motivations for engaging in CPD, the ways they described their CPD experiences, and the relationships between their motivations for, participation in, and experiences of CPD.

CPD for Family Physicians

Broader Landscape and Definition

Participation in CPD is increasingly considered necessary and important in many occupational fields. Rothwell and Arnold (2005) attributed this to the increase in the number of occupations that consider themselves professionals, as well the increasingly rapid pace of change in many professional occupations. The perceived importance of CPD is exemplified by the fact many professions now have a CPD requirement for their members (Crawford, 2009). This is true for family physicians, who are required to demonstrate participation in CPD activities to maintain membership with the College of Family Physicians of Canada (CFPC). Activities are tracked through a credit system.

In spite of widespread use of the term 'CPD', there are varied perspectives on what constitutes CPD (Friedman & Phillips, 2004). CPD is often defined in terms of specific, organized activities, such as a conference or training day, that are distinctly separate from day-to-day professional practice. In the context of family physicians' practice, this conceptualization is

consistent with the type of CPD known as continuing medical education (CME), which Marinopoulos et al. (2007) define as "educational activities that serve to maintain, develop, or increase the knowledge, skills, performance, and relationships a physician uses to provide services for patients, the public, or the profession" (p. 1). Peck McCall, McLaren, & Rotem (2000) noted broader definitions of CPD are increasingly used, including both formal and informal learning about medical, managerial, social, and personal skills in recognition of the multifaceted nature of patient care. This broader definition of CPD is reflected in the CFPC's CPD program, which recognizes a wide variety of CPD activities, including structured activities that are organized by a physician organization or other group and are distinct from practice, such as conferences and workshops and self-directed activities such as reading a journal or looking up information at the point of care (CFPC, 2014).

Definitions for this study. As I researcher, I used Marinopoulos et al.'s (2007) definition of CPD with the minor adaptation of 'educational activities' to 'learning activities'. Based on this definition, CPD is recognized as an activity that is embedded in the context of physicians' everyday practice (e.g., seeking information about a particular condition, perhaps relevant for treating a group of patients) as well as through specific, organized educational events (e.g., to gain information on new standards or requirements in care).

For the purpose of this study, I focused on organized CPD. That is, I focused on activities encompassed by Marinopoulo's et al.'s (2007) original definition of CPD as structured educational activities that are distinct from practice, such as conferences, workshops, webinars, and skills-based courses. Focusing on organized CPD provided opportunity to gain detailed insight into a specific area of CPD. Furthermore, for most physicians, the largest proportion of their CPD falls into the category of organized CPD (Goulet et al., 2013) and this definition is consistent with their understanding of CPD. Thus, focusing on organized CPD meant participants were likely to share a similar understanding when responding to questions about their CPD experiences.

However, throughout the study, I also attended to family physicians' experiences involving informal learning. For the purpose of this study, I defined informal learning as any learning that takes place through practice that serves to maintain, develop, and increase the physician's knowledge, skills, performance, and relationships with patients. Informal learning activities were included in analyses and proved useful in interpreting the results of the study.

CPD Effectiveness Research

A substantial body of research has investigated the effectiveness of organized CPD in terms of its ability to improve practice and patient outcomes. A number of systematic reviews and meta-analyses have concluded that organized CPD has a moderate, positive effect on physician competence, practice performance, and patient health (e.g. Bloom, 2005; Cervero & Gaines, 2015; Forestlund et al., 2009; Marinopoulos et al., 2007; Robertson, Umble, & Cervero, 2003). However, their findings also indicate different types of CPD activity vary in the extent of effectiveness. Other research suggests CPD effectiveness also varies based on the overall quantity of CPD in which a physician participates (e.g. Goulet et al., 2013), the choice of CPD topic or focus (e.g. Miller, 2005), and the physician's approach to participating in CPD (e.g. Mazmanian & Davis, 2002). In short, research has shown organized CPD can be effective in certain circumstances.

One perspective missing from this body of research is that of the family physicians themselves. How do family physicians see the role of CPD in their practice? Why do they participate in CPD in the ways that they do? How do they view the CPD in which they participate and what do they see themselves 'taking' from the experience? This was the focus for my study. A few existing studies have investigated physicians' perspectives on and motivations for CPD (e.g. McLeod & McLeod, 2004; Harrison & Hogg, 2003). These studies concluded physicians viewed CPD as consistently valuable to their practice, which appears to be in contrast to the aforementioned CPD efficacy research. These studies focus on a single CPD activity or collected solely survey data. Although these approaches offer their own strengths, they provide limited opportunity to examine

the ways physicians describe their overall perspectives on and motivations for CPD. Furthermore, the volume of research into family physicians' perspectives on and motivations for CPD is limited, particularly when considered in the context of the large volume of literature that has investigated CPD effectiveness to date. In my study I built on CPD motivation research, using a self-report survey and in-depth, semi-structured interviews to investigate family physicians overall motivations for, participation in, and experiences of CPD. The following section provides an overview of the role of physician motivation in CPD.

Role of Physician Motivation in CPD

Defining Motivation

The term 'motivation' is used frequently in everyday language and is defined by the Oxford English Dictionary (2013) as "the reason a person has for acting in a particular way." In the field of motivational research this definition has been elaborated in numerous ways, providing more nuanced depictions of the concept of motivation. For example, Schunk, Meece, and Pintrich (2012) defined motivation as "the process whereby goal-directed activities are instigated and sustained" (p. 4). Ryan and Deci (2000) described motivation as a process of "activation and intention" that involves "energy, direction, and persistence" (p. 69); later, the same authors describe the construct of motivation as that which "energizes and gives direction to behaviour" (Ryan & Deci, 2017, p. 13). These definitions place the focus on the process rather than the outcome, emphasize the directed nature of motivation, and highlight the element of persistence in motivation. For the purpose of this study I drew on each of these definitions, attending to the reasons family physicians gave when they explained why they participated in CPD and considering the processes that could be inferred from their described actions and experiences of CPD.

Motivation for CPD

Physicians' motivation for CPD is an important factor when examining CPD and its role in practice. Research has demonstrated motivation plays an important role in terms of approaches to

learning and learning outcomes in the contexts of general education (e.g. Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004) and medical education (e.g. Kusurkar, Ten Cate, Van Asperen, & Croiset, 2011).

In the context of physicians' CPD, some motivation research has focused on identifying 'enablers' for participating in CPD, such as keeping up to date or gaining CPD credits, and 'barriers' to participation, such as lack of time (e.g. Bower, Choi, Becker, & Girard, 2007). However, this research does not attempt to explain the broader role that motivation may have in CPD and learning. A small number of studies have found that, in parallel with the findings from general education and medical education more broadly, motivation influences both the CPD in which physicians participate and the way in which they approach their chosen CPD activities (e.g. Chambers et al., 2000; Delva et al., 2002).

In this study I built on previous research on physicians' motivation for CPD. As far as I am aware, this is the first study to investigate family physicians' motivations for, participation in, and experiences of CPD by using both self-report surveys and in-depth semi-structured interviews. I drew on self-determination theory, which is a broad social-cognitive theory of human motivation, as a sensitizing lens for the study. Considering the complexities involved, which encompass both the environmental context and the individual physician, self determination theory was an apt theoretical lens for this study.

Self-Determination Theory

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000, 2002, 2017) is a broad framework for the study of human motivation, which is centrally concerned with the social conditions that facilitate or hinder human flourishing. SDT has been widely researched and applied in numerous contexts, including medical education.

A fundamental tenet of SDT is that individuals have different qualities of motivation and the quality of an individual's motivation is associated with very different experiences and outcomes

(Ryan & Deci, 2000, 2017). SDT differentiates between intrinsic motivation, the natural tendency to act for the inherent satisfaction of the action itself, and extrinsic motivation, an action carried out to achieve an outcome that is separable from the activity itself. However, SDT views motivation as a continuum rather than an intrinsic-extrinsic dichotomy. There are several types of extrinsic motivation, which may be experienced as controlled or autonomous. Intrinsic motivation and more autonomous forms of extrinsic motivation are all considered autonomous forms of motivation.

Research in multiple educational contexts has demonstrated autonomous motivation is associated with deeper approaches to learning (e.g. Grolnick & Ryan 1987), improved problem solving (e.g. Boggiano, Flink, Shields, Seelbach, & Barrett, 1993), increased persistence (e.g. Hardre & Reeve 2003; Vallerand and Bissonette 1992), and greater creativity (e.g. Koestner, Ryan, Bernieri, & Holt (1984). In the context of physicians' CPD, autonomous motivation has been associated with enhanced learning and improvements to practice (e.g. Williams, Levesque, Zeldman, Wright, and Deci, 2003; Kosmala-Anderson, Wallace, and Turner, 2010).

SDT posits an individual's level of autonomous motivation depends on their satisfaction of three basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2002, 2017). According to SDT motivation is not fixed, it changes over time and across contexts. Contexts that support satisfaction of autonomy, competence, and relatedness enhance autonomous motivation. In addition, the satisfaction of these needs plays a vital role in well-being and growth (Ryan & Deci, 2002, 2017). In the context of physicians' CPD, research has found CPD activities that support physicians' satisfaction of autonomy, competence, and relatedness result in increased autonomous motivation and improved learning outcomes (e.g. Williams et al., 2003; Kosmala-Anderson et al., 2010).

SDT is an ideal lens for advancing understanding of family physicians' CPD. It identifies the different types of motivation physicians may have for CPD and specifies the ways in which different types of motivation are expected to influence participation in CPD. SDT's explanation of the

individual's needs for autonomy, competence, and relatedness provide a lens through which to understand how physicians' experiences of CPD may, over time, influence their motivation for and participation in CPD, as well as their broader well-being and growth. For CPD educators and planners, understanding family physicians' CPD through the lens of SDT has the potential to enhance the ways in which physicians' CPD is designed and supported. To my knowledge, this is the first study to examine physicians' overall motivation for CPD using the lens of SDT.

The Present Study

Overview

I used a mixed-method design to examine the role of organized CPD in family practice. Specifically, I used self-report questionnaires followed by in-depth, semi-structured interviews to investigate: (a) family physicians' participation in organized CPD; (b) family physicians' reasons, or motivations, for participating in organized CPD; (c) the relationship between family physicians' motivation for CPD and their organized CPD participation; (d) factors associated with family physicians' motivation for and participation in organized CPD. I drew on SDT by using constructs of the continuum of motivation and basic psychological needs to guide the study design, including the research questions and data collection instruments. In analyzing the data, I drew on these constructs as a way of interpreting the data and enhancing understanding of family physicians' perspectives on and experiences of CPD.

Research Objective & Questions

The main objective for this study was to advance understanding of the role of organized CPD in family practice by examining family physicians' perspectives on and experiences of organized CPD. The study addressed the following research questions:

1. How do family physicians describe their participation in organized CPD activities? Specifically, how do family physicians describe:

a. The organized CPD in which they participate (including quantity, type, and learning focus)?
b. Their approach to organized CPD (including planning of CPD activities, relating CPD to existing knowledge and practice, and changing practice based on CPD)?

2. How do family physicians describe their reasons for participating in organized CPD? I.e. what motivates their participation in organized CPD?
3. How does family physicians' motivation for organized CPD relate to their participation in organized CPD?
4. What factors are associated with family physicians' motivation for and participation in organized CPD?
    a. To what extent is satisfaction of autonomy, competence, and relatedness associated with motivation for and participation in organized CPD?
    b. To what extent is perceived value of organized CPD and perceived value of informal learning associated with motivation for and participation in organized CPD?
    c. To what extent are years in practice, gender, and type of practice associated with motivation for and participation in organized CPD?

Organization of My Thesis

Chapter 2 presents a review of CPD literature followed by a review of relevant motivation research, incorporating applicable research on SDT. Chapter 3 describes the methods I used to conduct my study. Chapter 4 provides an analysis of the results of my study. Chapter 5 discusses the contributions and implications of the study results and identifies directions for future research.

CHAPTER 2

Chapter two is presented in two parts. In Part 1 I describe relevant literature in the field of CPD for family physicians, identifying the purpose of CPD and reviewing research on CPD effectiveness in the context of family physicians' practice. In Part 2, I describe relevant literature regarding family physicians' perspectives on and motivation for CPD. I then introduce self-determination theory as a useful framework for interpreting motivation for CPD. I review applicable SDT research and consider how the SDT framework relates to previous CPD motivation research.

Continuing Professional Development (CPD)

Purpose of CPD

In general, the purpose of professional learning, or CPD, is to maintain and develop professionals' knowledge and skills in a way that enables competent practice in their chosen professional field (Rothwell & Arnold, 2005). In the context of family practice, the purpose of CPD is to ensure family physicians are knowledgeable and discerning about developments in their field and are able to apply their knowledge and skills to provide high quality, patient-focused care (CFPC, 2013). CPD is viewed as an essential part of professional practice for family physicians; the CFPC requires members to participate in an average of 50 hours of CPD per year over a five year period. Physicians track their CPD through a system of credits, which are assigned to different CPD activities.

CPD Effectiveness

In CPD generally, Rothwell and Arnold (2005) noted that, in spite of the abundance of literature on CPD and professional learning, there is a lack of high quality empirical research identifying what constitutes effective CPD and why it works. A recent report on best practices in CPD for teachers (Cordingley et al., 2015) synthesized reviews of CPD research from around the world (e.g. Timperley, Wilson, Barrar, & Fung, 2007) to conclude that CPD for teachers was most

effective when it took place over a period of several months, considered participants' needs, allowed opportunity to create shared goals, and made connections across multiple programs and activities.

In the context of physician's CPD, several meta-analyses and systematic reviews have addressed the question of whether organized CPD is effective. Researchers have concluded that, overall, organized CPD has a moderate, positive impact on physician competence, performance, and patient health status (Bloom, 2005; Cervero & Gaines, 2015; Forestlund et al., 2009; Marinopoulos et al., 2007; Robertson, et al., 2003). However, the authors also found that CPD only meets these goals in certain circumstances. Recently, Olson (2016) called for CPD researchers to examine when, why, and how CPD activities are effective in improving practice and patient outcomes. The following section summarizes what the current literature can tell us about these questions, identifying what is known about the ways in which the format, topic, and overall volume of physicians' CPD, as well as their approach to participating in CPD, influence the overall efficacy of CPD.

CPD Format. The systematic reviews and meta-analyses on CPD effectiveness have largely focused on examining the effectiveness of various formats of CPD (Bloom, 2005; Cervero & Gaines, 2015; Davis et al., 1999; Forestlund et al., 2009; Mansouri and Lockyer, 2007; Marinopoulos et al., 2007; Robertson et al., 2003). Findings indicate different CPD formats vary in the extent to which they impact practice performance and patient outcomes. In regards to organized CPD, a universal finding is that activities with an interactive component, such as a small group workshop, is more effective than didactic CPD, such as a lecture, in increasing knowledge, changing practice behaviour, and improving practice outcomes.

Specific elements of interactive CPD have been found to be particularly effective. For example, Robertson et al. (2003) found that interactive CPD was most effective when it was contextually relevant and based on a needs assessment. In one of the articles reviewed, Hodges,

Inch, and Silver (2001) suggested this was due to the enhanced learning that occurs when CPD is closely connected to the learner's experience, for example when it is based on the learner's patients. In regard to the way in which interactive CPD is delivered, Mansouri and Lockyer (2007) found CPD that utilized a range of interactive methods was most effective. Davis et al. (1999), Marinopoulos et al., (2007), and Roberston et al. (2003) found that sequential CPD activities (i.e. two or more sessions) were more effective than standalone sessions. These findings are explained in terms of the benefits of reinforcing learning; authors concluded single exposures are often insufficient in enhancing knowledge and even less so in leading to practice change. Finally, CPD activities with a reflective or feedback component, such as asking physicians to reflect on a recent learning experience, clinical encounter, or practice data, are also believed to be highly effective in terms of improving physician performance and patient care due to the opportunity to ground learning in actual practice (e.g. CFPC, 2014; Sargeant, Bruce, & Campbell, 2013).

An advantage of the reviews cited here is that they provide a reliable 'birds-eye view' of the literature. Based in part on this literature, the CFPC ascribes variable credit values to different CPD activities (CFPC, 2014). For example, conferences or lectures have a lesser credit value than small group, interactive CPD or CPD that involves a self-reflective component. However, the findings of this research should be interpreted with a degree of caution. In a similar vein to Rothwell and Arnold's (2005) complaint regarding low quality research in CPD generally, Marinopoulos et al. (2007) emphasized the low quality of study designs, the variable quality of reporting, and the lack of valid and reliable evaluation tools in CPD research. Davis et al. (1999) pointed out that determining whether CPD was 'interactive' or 'didactic' was based on the researchers' description of the intervention, which was often limited. In my study, I sought to build on our understanding of various formats of CPD by examining the types of CPD that family physicians chose and investigating how they described their experiences of various CPD formats.

CPD Topics/Focus. In addition to the format of their CPD, family physicians must determine the areas of practice on which to focus their CPD. It may seem logical to assume that physicians will participate in CPD that addresses deficiencies in knowledge. However, Miller (2005) described how many physicians participate in CPD on topics in which they are confident and experienced rather than those in which they lack experience or knowledge. This may, in part, be due to the ways in which physicians choose their CPD. Chambers et al. (2000) found that only a third of physicians had a plan for future CPD activities. Furthermore, those who plan their CPD may not choose topics based on identified deficiencies in knowledge. Focusing learning in areas of weakness is challenging, and physicians may choose to select CPD based on other factors, such as a general interest, format, location, or timing. Finally, even when physicians plan CPD based on perceived areas of need, literature in both the field of CPD (Eva & Regehr, 2008) and cognitive psychology (Kruger & Dunning, 1999) suggests our ability to self-assess learning needs is often poor. Thus, even physicians who plan their CPD may not choose activities based on their genuine needs. My study examined how family physicians choose to focus their CPD and investigated their reasons for these choices.

CPD Volume. In spite of the requirement to complete a minimum number of hours of CPD per year, family physicians vary widely in the amount of CPD in which they participate. Goulet et al. (2013) found family physicians who reported more than 50 hours of CPD per year were more accurate in their diagnoses and more appropriate in their treatment and follow-up plans than those who reported less than 10 hours of CPD per year. Similarly, Forestlund et al.'s (2009) systematic review found higher attendance in CPD activities was associated with improved practice. Thus, there is evidence higher rates of overall CPD participation are associated with overall improved practice performance. Although the authors did not provide an explanation for this association there are various potential reasons for this finding. It may be that physicians make specific improvements to their practice as a result of participation in CPD. It may be that, in a broad sense,

participation in CPD encourages physicians to take an active, critical approach throughout their practice. It is also possible that more engaged, competent physicians choose to participate in a higher volume of CPD. In this study, I collected data on family physicians' reported hours of CPD to form part of my overall understanding of their CPD participation.

Physicians' Approach to CPD. Most research into CPD efficacy has focused on the effect of the CPD activities themselves. However, it is also important to consider that the CPD activity, in and of itself, is not the only factor that influences CPD efficacy. The manner in which physicians' approach CPD also has a role in CPD effectiveness. Davis and Galbraith (2009) suggested the ways physicians' approach a CPD activity could have a greater impact on CPD outcomes than the CPD activity itself. Physicians who take an active, self-regulating approach to learning are likely to have deeper learning outcomes and subsequently greater improvements in practice than those who take a more surface approach to learning. Specifically, CPD is argued to be more effective for physicians who engage more actively in CPD by: (a) attempting to assess their own learning needs and choosing CPD accordingly; (b) linking their CPD learning to existing knowledge and practice; and (c) applying what has been learned to practice in a deliberate way (e.g. Delva, Kirby, Knapper, & Birtwhistle, 2002; Mazmanian & Davis, 2002; Sandars, 2009). In this study I examined physicians' approaches to CPD, using the criteria described above to identify how they described participating in CPD activities.

Summary

Ongoing learning is an important part of professional practice. This is particularly true for family physicians who are required to participate in CPD activities throughout their years of practice. There is a wide range of accredited CPD activities available to family physicians and physicians have choices about what CPD they do and how they participate. Research suggests CPD is most effective when physicians choose CPD formats that encourage interaction, reflection, and

feedback, focus on unfamiliar as well as familiar topics, participate in a higher volume of CPD, and actively plan, participate, and act on CPD in a way that relates to their practice.

Given the self-regulatory nature of CPD and the range of CPD choices available, it is important to examine not only what CPD physicians choose and how they approach the CPD in which they participate but also *why* they participate in and approach CPD in the ways that they do. As noted, there is limited research on the role of physician motivation in the context of understanding CPD effectiveness. The following section reviews the literature pertaining to motivation for learning, focusing on physician motivation for CPD and elaborating on self-determination theory as a framework for understanding the complexities involved in family physicians' motivation for, participation in, and experiences of CPD.

Role of Motivation in Education and Learning

The role of motivation in learning and education has been extensively theorized and researched in general education, where motivation has been shown to predict academic success, persistence, and overall well-being (e.g. Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Research on motivation in medical education has received less attention, although studies suggest motivation is as important in medical education as it is in the general field of education, influencing both approaches to learning and learning outcomes (Kusurkar et al. 2011).

In the context of medical education, motivation can influence both learning behaviour and achievement. For example, Wilkinson Wells and Bushnell (2007) found that medical students who were more motivated to have a career in medicine spent more time studying. Moulaert, Verwijnen, Riker, and Scherpbier (2004) investigated various factors believed to influence undergraduate medical students' achievement and found a positive correlation between motivation and study achievement.

In the context of CPD, various studies have focused on identifying the presence, or absence, of motivation for CPD, identifying 'barriers' and 'enablers' to participation in CPD. For example,

Bower, Dongseokchoi, Becker, and Girard (2007) surveyed physicians regarding their motivations for recertification and concluded physicians participated in CPD to demonstrate expertise, ensure knowledge was up to date, and ensure they were providing competent patient care. In contrast, they found lack of time was a barrier to participation. Harrison and Hogg (2003) used interviews to investigate physicians' motivations for participating in a CPD conference. They concluded that physicians participated to be updated on the latest information, gain reassurance on their practice, and to hear from specialists. Allaire, Labrecque, Giguere, Gagnon, and Légaré (2012) examined physicians' reasons for participating in CPD on shared decision-making through surveys and focus groups. They concluded physicians' primary reasons were interest, pleasure of learning, and professional stimulation. While these studies offer value in explaining what factors may encourage or discourage attendance in a particular CPD activity, they provide little insight into the broader role that motivation may play in learning and behaviour within the CPD context.

Cervero and Gaines (2015), Lowe, Bennett, and Aparicio (2009), and Bower et al. (2007) noted a lack of research on the role that personal motivation plays in physicians' CPD. A limited number of studies have investigated the ways in which motivation influences physicians' participation in CPD, suggesting that motivation influences both choices regarding CPD participation and approaches to learning. For example, Chambers et al. (2000) surveyed UK anaesthetists on their reasons for participating in CPD. The study found physicians who described participating in CPD for enjoyment or to stay up to date placed significantly more importance on small group learning than those who described participating due to employer requirements. Delva et al. (2002) surveyed specialists and family physicians regarding their approaches to workplace learning and compared these with various factors, including their type of motivation for learning. A deeper approach to learning was positively correlated with internal motivation (the pleasure of learning something new) and negatively associated with external motivation (professional college requirements; fear of a lawsuit).

Thus, research indicates physicians have varied motivation for CPD and these variations in motivation appear to influence their participation in and approach to CPD. However, these studies were not conducted specifically with family physicians and a number of questions regarding family physicians' motivation for CPD remain. What motivates family physicians' overall participation in CPD? Is motivation for CPD associated with different approaches to CPD, as the aforementioned studies suggest? If so, in what ways, and why? Considering the findings regarding the important role of motivation in educational contexts, addressing these questions is important for advancing our understanding of the role of CPD in family practice. This was a key focus for my study.

Cook and Artino (2016) pointed out that much of the research on motivation in the context of medical education does not use a theoretical framework. With this in mind, I introduce self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2002, 2017) as a framework through which to address the questions raised by current literature and advance understanding of family physicians' motivations for CPD. In the next section I elaborate on self-determination theory and provide a review of relevant literature, demonstrating the value of using this theory as a sensitizing lens through which to further understand the role of CPD in family practice.

Self Determination Theory

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2002, 2017) is a broad framework for the study of human motivation, which is centrally concerned with the social conditions that facilitate or hinder human flourishing. SDT posits humans have an inherent tendency towards growth, engagement, and wellness (Ryan & Deci, 2017). Thus, humans are viewed as fundamentally growth-oriented. However, SDT recognizes this inherent tendency is not always realized; indeed, research provides a wealth of examples of individuals with varying degrees of self-motivation (Ryan & Deci, 2000, 2017). SDT is a social cognitive theory, emphasizing the role environmental contexts may play in either supporting or thwarting an individual's tendency towards growth and integration of new experiences. Environments affect the individual both

proximally in specific contexts and developmentally over time. Thus, the interaction between the individual and the social context supports understanding of human behaviour, experience, and development (Ryan & Deci, 2002, 2017).

For the purpose of this study I focused on three key concepts of SDT: (i) human's basic psychological needs for autonomy, competence, and relatedness, (ii) the continuum of motivation, and (iii) the process of internalization/externalization of motivation. Next, I describe these concepts, highlighting the ways in which they may apply in the context of family physicians' CPD.

Basic Psychological Needs

Central to SDT is the notion that humans have three basic psychological needs: the need for autonomy, competence, and relatedness (Ryan & Deci, 2000; Ryan & Deci, 2002). Autonomy refers to the need to have choice in one's life and achieve congruence between one's actions and identity. In the context of CPD, this may involve having meaningful choice regarding participation in CPD activities and having the latitude to make decisions about what to learn. Competence refers to the need to have an effect on the environment and achieve desired outcomes. For example, CPD activities that make physicians feel efficacious about their practice may support the need for competence. Relatedness refers to the need to feel connected to and care for others. CPD activities that provide opportunity for physicians to interact with one another may support the need for relatedness; physicians may also satisfy their need for relatedness through interacting with and caring for patients.

Ryan and Deci (2017) explained "these satisfactions reflect, in the deepest sense, the essence of human thriving and they predict any number of indicators of wellness and vitality" (p. 5). Research has shown social contexts that support individual's satisfaction of autonomy, competence, and relatedness have a positive effect on overall well-being and stimulate curiosity, creativity, productivity, and compassion (Ryan & Deci, 2000, 2017; Sheldon, Elliot, Kim, & Kasser, 2001). In the context of CPD, SDT would suggest that, when family physicians experience autonomy,

competence, and relatedness through CPD, they will experience more positive effects in terms of both their proximal experience of the CPD activity and their overall well-being and growth. Examining the extent to which CPD satisfied physicians' needs for autonomy, competence, and relatedness was a key component of my study.

Continuum of Motivation

SDT explains motivation in terms of the quality of an individual's motivation. As with other theories of motivation (e.g. Eccles & Wigfield, 2002), SDT differentiates between intrinsic motivation, defined as the natural tendency to act out of interest and inherent satisfaction of the action itself, and extrinsic motivation, defined as an action carried out to achieve an outcome separable from the activity itself (Ryan & Deci, 2000, 2017). However, SDT takes this distinction a step further. Rather than viewing motivation as an intrinsic-extrinsic dichotomy, SDT describes motivation as a continuum. This perspective on motivation as a continuum or process views motivation as dynamic rather than static. Based on the context, an individual's motivation can move along the continuum. The location on the continuum affects individuals' persistence, behaviour, and well-being (Ryan & Deci, 2000, 2017).

Figure 1 displays the continuum of motivation posited by SDT. At the far right, *amotivation* describes a lack of intention to act. Moving left, the least internalized form of extrinsic motivation is *external motivation*. Externally motivated action is performed to satisfy an external demand or reward, or to avoid punishment. In the context of CPD, a family physician that participates in CPD solely to obtain the required credits would be said to have external motivation. Next, *introjected motivation* is characterized by acting to avoid feelings of guilt, shame, or to enhance feelings of self-worth. A family physician who participates in CPD to demonstrate their ability to others, enhancing their sense of self-worth would be an example of this kind of motivation. Although internally driven, introjected motivation has an external locus of causality and, like external motivation, the individual does not experience them as self-determined. Some researchers have combined external

and introjected motivation into a composite of *controlled motivation* (Kusurkar, Croiset, Kruitwagen, & Ten Cate, 2010; Ryan & Deci, 2000; Williams, Grow, Freedman, Ryan & Deci, 1996).

Identified motivation is a more autonomous form of extrinsic motivation, reflecting action that is consciously valued by an individual, and accepted as his or her own. An example of identified motivation for CPD would be a family physician that participates in CPD because they recognize and value the ways in which CPD improves practice.

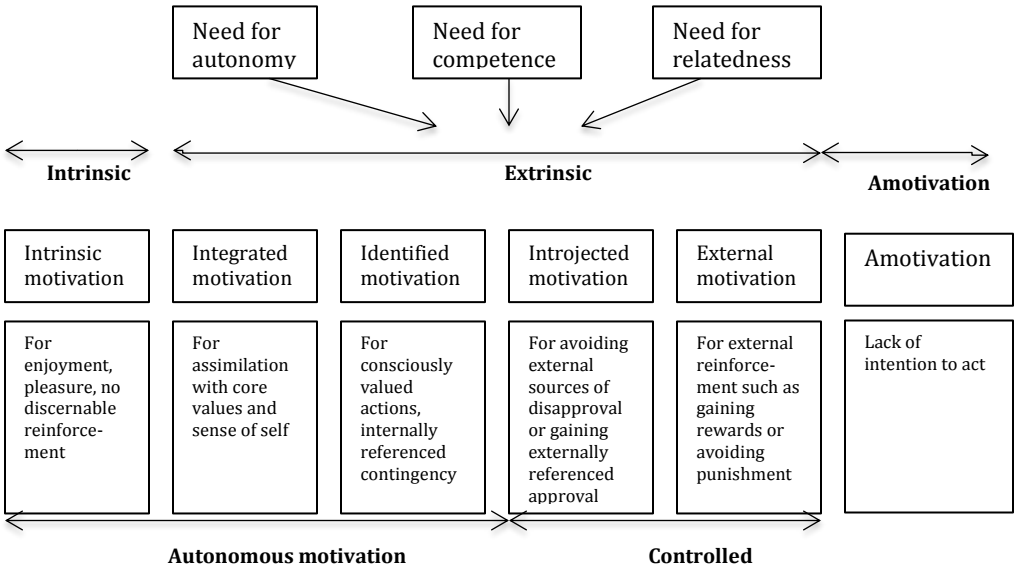

Figure 1 *Self-Determination Theory Continuum of Motivation (adapted from Ryan & Deci, 2000)*

Integrated motivation is the most autonomous form of extrinsic motivation and is characterized by action that is assimilated with an individual's core values and sense of self. A family physician that participates in CPD because they view lifelong learning as an integral part of their sense of self as a doctor could be acting through a sense of integrated motivation. Ryan and Deci (2000) acknowledged that integrated motivation shares many qualities with intrinsic motivation, but maintained the distinction between the two, emphasizing that action associated with integrated motivation is enacted for a separable outcome. As with the controlled motivation

composite, some researchers have created a composite *autonomous* or *self-determined motivation* by combining identified and integrated motivation with intrinsic motivation (Kusurkar et al., 2010; Ryan & Deci, 2000, 2017; Williams et al., 1996). For the purposes of this study, I focused primarily on the composites of controlled and autonomous motivation as these categories provide a useful and clear understanding of the ways in which family physicians' types of motivation are expected play a role in their CPD. I made use of the four types of extrinsic motivation to the extent that I deemed them to be useful in making sense of the data.

Process of Internalization/Externalization

According to SDT, the dynamic nature of motivation means that motivation for specific actions or behaviours can change over time. The social context may either support or thwart an individual's autonomous motivation. Conversely, the context may support or thwart controlled motivation. This is known as internalization or externalization, depending on the direction of movement along the continuum.

Given the appropriate context, individuals tend to internalize extrinsic motivation as, over time, the individual comes to recognize the value of their behaviour and its associated outcomes. Basic psychological needs of autonomy, competence, and relatedness play a key role in internalization. The process of internalization usually starts when extrinsically motivated actions are prompted, modeled, or valued by others to whom the individual feels attached or related. Thus, contexts that provide a sense of relatedness can initiate the process of internalization. Perceived competence is also necessary; people are more likely to internalize and value a specific action when they feel efficacious about that action. Finally, the experience of autonomy is particularly important for internalization. To achieve integrated motivation, the most autonomous form of extrinsic motivation, the individual must understand the meaning and value of the action, and integrate it with their goals and values. This active, constructive process requires volition and freedom from excessive external pressure (Ryan & Deci, 2000, 2017).

The social context can also lead to externalization of motivation (Deci, Koester, & Ryan 1999, Ryan & Dec, 2017). That is, autonomous motivation may come to be experienced as controlled over time. Again, basic psychological needs of autonomy, competence, and relatedness play a key role. Extrinsic motivators such as rewards and punishments may create pressure and reduce autonomy, which can thwart an individual's autonomous motivation. Absence of a sense of relatedness or competence can also thwart autonomous motivation. My study examined the extent to which needs for autonomy, competence and relatedness appeared to support internalization or externalization of family physicians' motivation for CPD.

Role of Autonomous Motivation in Education & CPD

There is a considerable body of research demonstrating the value of autonomous motivation in educational settings. Various studies have found that students with higher levels of autonomous motivation for learning have higher levels of achievement than those with less autonomous motivation, in both absolute and incremental terms (Grolnick, Ryan, & Deci, 1991; Miserandino, 1996; Black and Deci, 2000). In addition to objective achievement, autonomous motivation for a specific learning task has been associated with deeper approaches to learning and conceptual understanding (Grolnick & Ryan, 1987). Ryan and Connell (1989) demonstrated differences among students with controlled or autonomous motivation: although both groups appeared to be motivated in school, those with controlled motivation reported more anxiety, evidenced more maladaptive coping strategies, and had lower performance levels than those with autonomous motivation. Vallerand and Bissonette (1992) reported college students with autonomous motivation for study were less likely to drop out than those with controlled motivation for study, indicating autonomous motivation enhances persistence. In a laboratory based study, Boggiano et al. (1993) randomly assigned students to an autonomous or controlled learning environment. They found students in the autonomous learning environment demonstrated greater

problem solving skills, suggesting that the learning environment could play a role in students' motivation for and approach to learning

In the context of medical education, Kusurkar and colleagues examined students' motivation by measuring the difference between their autonomous and controlled motivation for studying medicine and obtaining a relative autonomous motivation score. They found students with high levels of relative autonomous motivation for studying medicine demonstrated increased study effort, deeper study strategies, greater persistence, and improved learning outcomes than those with low levels of relative autonomous motivation (Kusurkar, Croiset & Ten Cate, 2013; Kusurkar, Ten Cate, Vos, Westers, & Croiset 2013). Similarly, Sobral (2004) grouped medical students based on their levels of autonomous and controlled motivation for learning and identified four motivational groups: (a) students with high levels of both autonomous and controlled motivation; (b) students with high autonomous but low controlled motivation; (c) students with low autonomous but high controlled motivation; and (d) students low in both autonomous and controlled motivation. Consistent with SDT, groups with high autonomous motivation were more persistent and demonstrated a greater degree of reflective learning and meaning orientation than other groups. There was no statistically significant difference among students with any type of motivation in terms of academic achievement, although those with low autonomous and low controlled motivation had lower levels of academic achievement. Sobral concluded that, for these medical students, both autonomous and controlled motivation appeared to support academic achievement. However, they suggested increased persistence, reflective learning, and meaning orientation, which were associated with autonomous motivation, were particularly important for the challenges of medical school and subsequent years of practice.

In the context of CPD for family physicians, Delva et al.'s (2002) categorization of internal and external motivation accords with SDT categories of autonomous and controlled motivation. Their finding that internal motivation for learning was associated with deeper approaches to

learning suggests motivation may have the same effect in CPD as it appears to have in other educational settings. Similarly, Chambers et al.'s (2000) finding that physicians who participated in CPD for reasons of enjoyment and keeping up to date with practice (i.e. autonomous motivation) placed more importance on small group learning than those who participated due to employer requirements (i.e. controlled motivation) also lends to support to the applicability of the role of autonomous motivation in CPD.

At this point it is important to note that the studies cited thus far, as with most SDT research, rely almost entirely on survey-based self-report measures to assess quality of motivation and related constructs. This type of data collection enables the comparison of variables believed to be related to motivation; however, participant-derived concepts to not contribute to the data. My study built on the findings of previous research by utilizing in-depth, semi structured interviews in addition to self-report surveys, providing the opportunity for participants to describe their motivation for CPD in their own words, rather than solely through researcher-derived concepts.

Role of Autonomy, Competence, and Relatedness

According to SDT, contexts that provide opportunities for individuals to satisfy needs for autonomy, competence, and relatedness will promote internalization, leading to more autonomous motivation. Empirical research provides support for this premise. In particular, the concept of autonomy support has been found to have an important role in satisfying needs for autonomy, competence, and relatedness in addition to fostering autonomous motivation (Ryan & Deci, 2000, 2017). Autonomy support describes an interpersonal interaction in which someone in a position of responsibility, such as a teacher, takes the perspective of the person with whom they are interacting, such as a student, into consideration, providing opportunities for choice and encouraging the individual to accept personal responsibility (Williams et al., 2003; Williams and Deci, 1996).

In the context of general education, Grolnick and Ryan (1987) and Grolnick, Ryan, and Deci (1991) found that parents' provision of autonomy support was associated with children's autonomous motivation for academic endeavours, and that children with a higher degree of autonomous motivation demonstrated enhanced academic performance and well-being than those with controlled motivation. Vallerand, Fortier, and Guay (1997) conducted a follow up to Vallerand and Bissonette's (1992) study to explore the antecedents and consequences of autonomous motivation for study among college students. They found autonomy support from both teachers and parents led to students perceiving their needs for autonomy, competence, and relatedness were satisfied, which enhanced autonomous motivation for study, which in turn led to decreased drop out. Hardre and Reeve (2003) found the same relationship between high school students' perception of autonomy support from teachers, autonomous motivation, and drop out intentions, even when controlling for the effect of academic achievement.

In the context of professional practice, Klassen, Perry, and Frenzel (2012) investigated the role of autonomy support and satisfaction of needs for autonomy, competence, and relatedness in teachers' engagement and emotions. As predicted, teachers' experiences of autonomy support from school principals were related to satisfaction of their basic psychological needs for autonomy, competence, and relatedness, which led to higher levels of engagement and positive emotion. This study found that, for teachers, relatedness with students played a more significant role than relatedness with colleagues. Perry, Brenner, Collie, and Hofer (2015) conducted one of the few qualitative studies in SDT research. They used a semi-structured interview protocol to understand one teacher's motivation surrounding his practice in an alternative education setting with troubled youth. Their approach to data collection and analysis made use of SDT concepts while also privileging the voice of the participant, building understanding from participant-derived concepts as well as researcher-derived theory. They found that many of the teachers' experiences were

explained by SDT concepts. In particular, autonomy, competence, and relatedness were related to the participant's sense of well-being and overall intrinsic motivation for teaching.

Williams and Deci (1996) investigated the role of autonomy support within a specific course, which was part of a medical school program. They found that when medical students participating in an interviewing course experienced autonomy support from their instructors they developed more autonomous motivation for interviewing. This increase in autonomous motivation was associated with internalization of the course material and increased competence in interviewing, which was still observed two years later.

In the context of a CPD course, Williams et al. (2003) conducted a survey-based study, investigating the effect of perceived autonomy support on specialist physicians' perceptions of competence and autonomy regarding smoking cessation counseling. Perceived autonomy support from instructors enhanced physicians' perception of autonomy and competence regarding smoking cessation counseling, leading to more autonomous motivation for counseling and subsequently increased time spent counseling. The authors did not explain why they did not include a measure for perceptions of relatedness in the study. Again, within the context of a specific CPD program, Kosmala-Anderson et al. (2010) also used self-report surveys to investigate the factors that enhanced health professionals' support of patient self-management. Using SDT as a framework, researchers found that participating in the CPD program was associated with an increase in clinicians' sense of competence and autonomy for self-management support, which in turn was associated with higher autonomous motivation for self-management support. Sense of competence, sense of autonomy, and autonomous motivation were all associated with increased time spent providing self-management support to patients.

There is also evidence that the degree of physicians' autonomous motivation for their practice may be important in their role in supporting patients. In terms of patients' health related behaviours, a series of studies have demonstrated that patients who experience more autonomy

support from their health care providers are more likely to experience autonomous motivation and subsequently improve their health related behaviour in terms of diet and exercise (Williams, et al., 1996), medication adherence (Williams, Freedman, & Deci, 1998), and glucose control (Williams, Freedman, & Deci, 1998). Williams, Saizow, and Ryan (1999) hypothesized that health care providers with a high level of autonomous motivation for their practice would be more autonomy-supportive in their interactions with patients, a hypothesis that parallels Taylor and Ntoumanis'(2007) finding in a physical education (PE) context. PE teachers reporting high levels of autonomous motivation for teaching provided higher levels of autonomy support to their students. Their students subsequently reported higher levels of autonomous motivation for PE.

These studies in general education, medical education, and CPD contexts indicate that perceived autonomy support and satisfaction of needs for autonomy, competence, and relatedness are associated with both overall autonomous motivation for learning and autonomous motivation for specific learning topics. In addition, autonomy, competence, and relatedness have been associated with higher levels of engagement and overall well-being. My study built on this research by investigating family physicians' satisfaction of autonomy, competence, and relatedness through CPD, and examining the ways in which satisfaction of these needs was associated with overall motivation for and participation in CPD.

Effects of Gender on Autonomous Motivation

There is some evidence that gender plays a role in autonomous motivation in the context of medical education, with females experiencing higher overall levels of motivation (Kusurkar et al. 2010) and specifically higher autonomous motivation and lower controlled motivation than males (Buddeberg-Fischer et al., 2003; Kusurkar, Croiset & Ten Cate, 2013; Sobral, 2004; Williams & Deci, 1996). These findings correspond with Vallerand and Bisonnette's (1992) study, which found that female college students had more autonomous motivation for academic activities than males. The authors hypothesized gender differences in motivation may exist throughout the lifespan and

across different contexts, suggesting future research should investigate this hypothesis and examine the antecedents to gender differences in motivation. This study collected data on participants' gender, in addition to their years in practice and type of practice, enabling comparison of these factors to physicians' type of motivation for CPD.

Summary

In summary, research has shown CPD varies in its effectiveness in improving physicians' knowledge, practice, and patient outcomes. Specifically, CPD is believed to be most effective when physicians choose CPD formats that encourage interaction, reflection, and feedback, focus on unfamiliar as well as familiar topics, participate in a higher volume of CPD, and actively plan, participate in, and act on CPD in a way that relates to their practice.

These variations, combined with the self-regulatory nature of CPD for family physicians, means that understanding motivation for CPD is an essential component in enhancing our overall understanding of family physicians' CPD. In spite of the varied findings regarding CPD efficacy, research indicates physicians view CPD as valuable to practice. Evidence suggests physicians' motivation for CPD has a role in their choices of and approaches to CPD.

SDT provides a framework to further understand physicians' motivations for and participation in CPD. Research suggests that autonomous motivation for learning is associated with increased problem solving, persistence, improved coping strategies, and reduced anxiety. Overall, autonomous motivation for learning has been associated with deeper, more active approaches to learning, and, in many instances, higher levels of performance. Research also indicates that satisfaction of needs for autonomy, competence, and relatedness, particularly through the provision of autonomy support, supports autonomous motivation for both overall learning and specific learning topics, as well as overall well-being and growth.

In this study, I examined *what* CPD family physicians do (i.e. their CPD participation), *how* they participate (i.e. their approach to CPD), and *why* they participate (i.e. their motivation). In

addition, I examined family physicians' overall experiences of CPD, including the extent to which CPD satisfied needs for autonomy, competence, and relatedness. This is the first known study to use SDT as a sensitizing lens to investigate family physicians' overall motivations for and participation in CPD. The next chapter provides a detailed description of the research methodology I used to conduct this study.

CHAPTER 3: METHODOLOGY

Overview

The purpose of this study was to investigate family physicians' motivations for, participation in and experiences of organized CPD, with the goal of enhancing understanding of the role of CPD in family practice. I employed a mixed-methods approach, including a self-report questionnaire and semi-structured interviews, to address the following research questions:

1. How do family physicians describe their participation in organized CPD activities? Specifically, how do family physicians describe:
    a. The organized CPD in which they participate (including quantity, type and learning focus)?
    b. Their approach to organized CPD (including planning of CPD activities, relating CPD to existing knowledge and practice, and changing practice based on CPD)?
2. How do family physicians describe their reasons for participating in organized CPD? I.e. what motivates their participation in organized CPD?
3. How does family physicians' motivation for organized CPD relate to their participation in organized CPD?
4. What factors are associated with family physicians' motivation for and participation in organized CPD?
    a. To what extent is satisfaction of autonomy, competence, and relatedness associated with motivation for and participation in organized CPD?
    b. To what extent is perceived value of organized CPD and perceived value of informal learning associated with motivation for and participation in organized CPD?
    c. To what extent are years in practice, gender, and type of practice associated with motivation for and participation in organized CPD?

Research Design

I utilized a sequential, nested mixed-methods design (Onwuegbuzie & Collins, 2007) to investigate family physicians' motivations for, participation in, and experiences of CPD. Specifically, the study included a self-report questionnaire followed by more in-depth semi-structured interviews with a subset of questionnaire participants.

I used the questionnaire to collect initial data on participants' reported CPD experiences. I also collected demographic data through the questionnaire. In addition to providing an initial snapshot of family physicians' CPD experiences, the questionnaire served as a recruitment tool for the interview component of the study, providing opportunity for an intentional sampling approach.

The interviews, which were the main focus of the study, allowed me to expand the depth and scope of the initial questionnaire data. I used interviews to gather more in-depth data to examine the way family physicians described their CPD experiences. The interviews brought participants' voices into the data, providing an opportunity to expand on findings from the questionnaire and enabling construction of a more nuanced understanding of family physicians' perspectives on and experiences of CPD. I used a semi-structured interview approach as it allowed me to explore the subjective experiences of participants through a combination of open ended and theory-informed questions (Flick, 2009).

Researcher Epistemology and Position in the Research Context

I approached this study from a social constructivist epistemology, based on the belief that individuals subjectively make meaning of their experience through interaction with others and the broader social context (Flick, 2009).

In keeping with this approach, it is important to acknowledge my position as the researcher for the study within the research context. My interest in this area of study developed through my role as an educator involved in designing, developing, and evaluating CPD activities for family physicians. As such, I am interested in 'what works' in CPD. Recent discussions in scholarly writings

about this issue have generally focused on identifying which CPD formats have the strongest association with practice change or improvement, usually by measuring a specific component of practice before and after an educational intervention using either a self-report measure or practice-based data. I was interested in taking a different perspective by delving into the nuances of the role of organized CPD in family practice by investigating the physicians' perspectives on CPD. Previous research investigating physicians' perspectives on and motivations for CPD is limited. Studies have largely focused on a specific CPD activity (e.g. Harrison & Hogg, 2003) or used self-report questionnaires as the only data source (e.g. Chambers et al., 2000). Thus, this study, which used both self-report surveys and in-depth interviews to investigate family physicians' motivations for, participation in, and experiences of their overall CPD, offers a unique approach to understanding, and ultimately enhancing, the role of organized CPD in family practice.

In considering my position within the research context, I could be considered what Mathison (2001) described as a "genuine stakeholder" in that my stake in this research extended beyond the study itself. That is, I was both a researcher and an educator within the research context. Thus, although I was not directly involved in any of the CPD activities used to recruit participants for the study, it was important to acknowledge my dual role and consider how this influenced my perspective. Throughout the research process I kept reflective notes, considering the ways in which my existing knowledge and ways of understanding interacted with the study. It also seems important to acknowledge my personal motivation for investigating the role of CPD in family practice, which was ultimately to guide improvement in CPD, both through my own practice and in the wider context of CPD for family physicians.

Ethical Approval

Before the study began I obtained approval from the University of British Columbia's Behavioural Research Ethics Board (BREB). BREB's approval is a requirement for all graduate theses research involving human subjects. The BREB review confirmed the study's measures and

procedures met ethical guidelines for research with human participants.

Part 1: Questionnaire

Data Collection Procedures

Recruitment. Practicing family physicians throughout British Columbia were invited to participate in the study. I informed all potential participants about the study through a Letter of Initial Contact (Appendix D). The letter described the questionnaire and the interview components of the study and emphasized the voluntary and confidential nature of participating in the study. I employed two strategies for recruiting participants for the questionnaire portion of the study:

Recruitment method 1. I invited family physicians participating in various CPD activities organized by University of British Columbia Division of Continuing Professional Development (UBC CPD) to participate in the study. The activities included conferences, small group workshops, webinars and hands-on, skills-based courses (see Appendix C for details).

Recruitment method 2. In an attempt to recruit participants who may not have been actively participating in CPD activities, I also used a second recruitment method. UBC CPD has a database of health care providers who have indicated an interest in being informed about education and research opportunities. I identified family physicians that had not participated in any UBC CPD activities in the last three years and sent an invitation to those individuals.

Administration. I created both paper and electronic versions of the questionnaire. Family physicians were given the opportunity to complete the questionnaire at the time of the initial invitation or they could choose to complete the questionnaire up to two weeks afterwards. The questionnaire indicated that, by completing the questionnaire, participants were providing consent for their responses to be collected as data in the study. The questionnaire also clearly stated that participation was voluntary and participants could withdraw at any time without consequence. This process for consent is described by the Tri-Council Policy Statement (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and

Humanities Research Council of Canada, 2005) as appropriate for questionnaire-based research and is consistent with other questionnaire-based research with this population.

Participants. I invited a total of 632 family physicians to participate and received 91 completed questionnaires, resulting in a response rate of 14%. This response rate is similar to other questionnaire-based research with this population (e.g. Bluman et al., 2010).

Questionnaire Protocol

Questionnaire development. I developed the questionnaire based on the research questions and overarching goal of the study. I used published scales and relevant literature, combined with input from family physicians, CPD educators, and my research committee, to develop the protocol. The questionnaire was a combination of rating scale, ranking, and short answer items.

I piloted the first version of the questionnaire with several family physicians. After completing the questionnaire, using a variation of Karabenick et al.'s (2007) Cognitive Pretest Interview, I asked participants to verbally describe their interpretation of each question and explain why they chose their particular answer. The purpose of this process was to examine whether the target population's interpretations of the self-report questions coincided with my intended meaning. The questionnaire took approximately five minutes to complete. In general, participants' interpretation of the questions matched my own and there was consensus among participants. There were some slight discrepancies and suggestions for clarification, which led to minor revisions to several items. Three CPD educators also reviewed the questionnaire; their described interpretation of the questions matched my intentions and the interpretations of the physicians participating in the pilot.

The research committee for the study also provided feedback, which led to additional changes. I redesigned several questions to ensure they would be straightforward for participants to

answer and provide opportunity for participants to express alternative views regarding CPD in a positive and non-threatening way.

Questionnaire outline. The following section describes each component of the questionnaire protocol. The complete questionnaire is presented in Appendix A.

Definition of CPD. As previously described, CPD has been defined in numerous ways. I therefore included an operational definition of CPD at the beginning of the questionnaire in an attempt to create a shared understanding of this construct among participants and researchers. This was particularly important, as one limitation of self-report questionnaires is participants' varied interpretation of questions, which cannot be explored by the researcher due to the unidirectional nature of data collection (Karabenick et al., 2007). I included a definition of organized CPD at the beginning of the protocol and the term "organized CPD" was used consistently throughout the questionnaire.

Demographic questions. Four questions asked participants to report their date of graduation from medical school, their gender, and to specify whether their practice was rural or urban and group or solo. These questions were included based on the finding that males and females may have different types of motivation in the context of medical education (Kusurkar, Croiset and Ten Cate, 2013) as well as the variations in numerous dimensions of practice that have been associated with years in practice and practice type or location (e.g. Goulet el al., 2013, Bradford, 1995; Fryer, Stine, Vojir & Miller, 1997). I used data generated from this section to address research question four (part c).

Participants' CPD participation. Two questions asked participants to report their participation in CPD. Based on literature indicating that both the quantity and type of CPD in which a physician participates can determine the extent to which CPD leads to changes in practice (e.g. Forestlund et al., 2009; Goulet et al., 2013; Marinopoulos et al., 2007), the first question asked participants to estimate the number of hours spent on specific CPD activities. The list of activities

was generated from the examples provided on the College of Family Physicians of Canada website and those referred to in published literature. Activities were grouped according to two overarching categories (presentation-based and interactive CPD). In addition, participants were asked why they participated in a given activity.

The next question was developed based on literature that indicates physicians focus their CPD on topics with which they are familiar rather than addressing deficiencies in knowledge on topics with which they are less familiar (e.g. Miller, 2005). The question asked participants what percentage of their CPD focused on refining and enhancing existing knowledge versus improving competence in areas in which they were inexperienced. Participants were also asked to provide a reason for their response. I used data from this section to address research question one (part a) in addition to research questions three and four.

Reasons for CPD participation. Within this section, questions one and two were designed to measure participants' type of motivation for CPD, based on the SDT categories of autonomous and controlled motivation. These questions were adapted from the *Self-Regulation for Learning Questionnaire*, which was developed for use in SDT research (Kasser, Davey & Ryan, 1992; Williams & Deci, 1996). The original scale, which has been used in a medical education context (Williams & Deci, 1996; Black & Deci, 2000), was designed to examine the reasons that people learn in particular settings and was intended for older students and adults. In the original scale, participants were asked to rate items that described potential reasons for learning; ratings were used to calculate a score for autonomous and controlled motivation.

I adapted the scale for CPD activities, using the original scale as the basis for developing a list of four potential reasons for participating in CPD and a list of four potential reasons for following recommendations in CPD. Statements were categorized as either autonomous (e.g. *I participate in CPD because it's a good way to improve my knowledge and skills*) or controlled (e.g. *I participate in organized CPD because it is required for my license*). I changed response format by

asking participants to rank each statement. This was intended to allow respondents to respond to all statements while requiring them to prioritize. Rankings were used to calculate scores for autonomous and controlled motivation in the same way as the original scale. Participants were also asked to explain their rankings and were provided with the opportunity to indicate if the main question was not applicable. I used data from this section to address research question two, in addition to research questions three and four.

Questions three and four were designed to provide an opportunity for participants to express their preference for organized CPD or informal learning, as well as providing items that allowed participants to question the value of organized CPD. Question three asked participants to rate the value of organized CPD and informal learning in enhancing their practice. Question four asked participants to rate the extent to which they agreed with a series of statements that were associated with placing a lower value on organized CPD (e.g. *My skills and knowledge improve through my everyday practice more than they do through participation in organized CPD events*).

CPD experiences. This section asked participants to rate statements regarding their experiences of CPD. Five of the ten statements were adapted from the *Basic Psychological Needs at Work Scale*, which was developed for use in SDT research to examine satisfaction of basic psychological needs (i.e. competence, autonomy, and relatedness) in a work setting (Deci et al., 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). In the original scale, participants rated items that described potential satisfaction of competence, autonomy, and relatedness in a work setting and ratings were used to calculate a score for satisfaction of each basic psychological need. I adapted the scale for CPD activities, developing statements that described potential satisfaction of autonomy, competence, and relatedness through CPD (e.g. *Organized CPD gives me opportunity to connect with colleagues*). Data from this section were used to address research question four (part a).

I developed the remaining five statements to investigate participants' approach to participating in CPD. The statements were based on findings that show planning CPD, reflecting on learning, and making changes to practice following learning are associated with deeper learning and practice improvement (Delva et al., 2002; Maznanian & Davis, 2002; Sandars, 2009). Participants were asked to rate statements regarding the extent to which they plan CPD, make links between CPD and practice, and make improvements to practice based on CPD (e.g. *I make an effort to make links between what I learn in organized CPD and my existing knowledge and practice*). I used data from this section to address research question one (part b) in addition to questions three and four.

Data Analysis

I analyzed quantitative data based on the study's main research questions, using both descriptive and inferential statistics. Details of specific analyses are provided in Chapter 4 with the corresponding results of each analysis. My analyses were exploratory in nature and, due to the number of statistical tests associated with this exploration of the data, I interpreted individual findings with a degree of caution, instead using the analyses to build an overall sense of the data.

I used qualitative data, i.e. participants' responses to optional short-answer questions within the questionnaire, to expand findings from the quantitative data, where applicable. My analysis of qualitative data involved grouping data based on its relationship to specific research questions and reviewing the data systematically to create codes based on repeating patterns and elements that expanded understanding of the quantitative findings. After the initial coding process, I reviewed the data again, considering the extent to which the initial codes provided a coherent account of the data. I made some adjustments and, finally, identified the number of responses for each code. Results are presented alongside quantitative analyses.

Part 2: Interviews

Data Collection Procedures

Recruitment. I asked all questionnaire participants if they would be interested in participating in an interview regarding their CPD experiences. Of the 91 questionnaire participants, 39 (43%) indicated they were interested. Based on the study's goal of investigating family physicians' CPD experiences, I used an intentional sampling approach when selecting interview participants, which was intended to maximize the range of perspectives investigated in the study (Onwuegbuzie & Collins, 2007). Specifically, I selected participants who varied in terms of their years of experience and type of practice (group or solo, rural or urban), their reported CPD participation (including number of hours, format, and focus), their reasons for CPD participation, the extent to which they valued CPD, and their approach to CPD. I aimed to select participants who I believed would provide the most interesting range of perspectives. I contacted potential interview participants by email to invite them to participate in the interview phase of the study. Five participants accepted my initial invitation to participate in an interview; one participant declined and I subsequently approached another participant, who accepted. All interview participants completed an Interview Consent Form (Appendix E) before starting the interview.

Interview procedure. I conducted interviews in person and by teleconference, based on participants' geographical location and preference. All interviews were audio recorded and transcribed.

Participants. Six family physicians participated in an in-depth, semi-structured interview. All participants were practicing family physicians in British Columbia. Table 1 summarizes key questionnaire data for each participant, including demographic information, type of practice, and reported hours of CPD participation.

Table 1 *Interview Participants' Reported Gender, Years since Graduation, Practice Location, Type of Practice and Total Hours of CPD*

Participant #	Gender	Years Since Graduation	Locale of Practice	Group or Solo Practice	Reported Hours of Organized CPD in Past Year
1	Female	7	Urban	Group	66
2	Female	10	Rural	Group	40
3	Female	12	Rural	Group	14
4	Male	29	Rural	Group	320
5	Female	25	Urban	Solo	27
6	Male	40	Urban	Group	30

The interview phase of this study involved a small number of participants to support an in-depth analysis of family physicians' described experiences of CPD. I remained open to expanding the sample size following my analysis if the initial data set was not deemed to be moving towards theoretical sufficiency.

Interview Protocol

I developed a semi-structured interview protocol with open-ended questions that were designed to investigate family physicians' perspectives on the role of CPD in family practice by exploring each research question for the study, while also allowing for the construction of new ideas (Flick, 2009).

I tested the interview protocol with family physicians, CPD educators, and my research committee before using the protocol with study participants. As with the questionnaire, I used a variation of Karabenick et al.'s (2007) Cognitive Pretest Interview, asking respondents to verbally describe their interpretation of the question and explain why they provided that answer. Based on this process, I revised questions to ensure they were grounded in the phenomenon of interest (organized CPD) rather than existing theory. I adapted the language to encourage participants to respond based on their own perspectives and understanding. This process was intended to ensure participant-derived concepts could be constructed during the interviews.

The protocol used open-ended questions to examine participants' CPD participation (e.g. *Please tell me about the type of organized CPD activities you have participated in over the last year*),

their approach to choosing CPD (e.g. *When choosing CPD how do you choose the content? What other factors are involved when you choose CPD?*), their reasons for participating in CPD (e.g. *In general, why do you engage in CPD?*), and their reflections on a recent CPD experience (e.g. *Please tell me about a recent CPD activity in which you participated. What was it? What was your role? Reflecting back, what did you get out of the experience?*). Potential probing questions were included after each of the main questions. At the end of the interview, participants were asked if they wanted to share anything else regarding their CPD experiences.

I utilized an iterative approach to protocol development, continuing to review and revise the interview protocol while conducting interviews. After conducting each interview I recorded reflective notes on the interview process. I also conducted preliminary analyses to get an initial sense of the data and identify concepts of interest to focus subsequent interviews. Based on my reflections and preliminary analyses, I made various revisions to the protocol.

Following the first two interviews I added an initial question asking about participants' scope of practice (*Please briefly tell me about your practice*) as I found that I needed to ask this in interviews one and two to contextualize participants' answers. In addition, I added a question regarding participants' involvement during a CPD activity (*When you are participating in [preferred CPD format] what are you doing?*) as, based on the data from the first two interviews, I realized I needed to gain further understanding of participants' approaches to participating in CPD. I also added more probing questions regarding the relationship between organized CPD and practice, as this was mentioned in the first two interviews and I felt it was important for the subsequent interviews (*What do you do with the information you learn through a CPD activity? How do you relate what you learn to what you already know? How do you relate what you learn to your practice?*). Finally, to advance my understanding of participants' reasons for participating in CPD, I added a question to examine the way experience in past CPD activities influenced subsequent CPD choices

(*How has this activity [and other CPD activities you have participated in] influenced your subsequent decisions about CPD?*).

I made further refinements to the protocol following the fourth interview. I added the question "What role does CPD have in your practice?" as a follow-up to the question "What do you do with the information you learn through a CPD activity" as a way to broaden participants' responses regarding the relationship between CPD and practice. In addition, I added a probe to the question asking participants' to reflect on a recent CPD activity to gain further understanding of their perspective on different CPD formats, "Would you be more likely to choose a similar type of CPD activity again (in terms of format rather than content)?" The complete protocol, including revisions made during data collection, is presented in Appendix B.

Data Analysis

I analyzed interview data in two stages. The first stage was a thematic analysis (Braun & Clarke, 2006), in which I treated all interviews as a single data set and used an inductive approach to identifying themes that could be constructed from the data themselves. The goal of this stage of the analysis was to develop conceptual themes that were an interpretation of the underlying ideas, assumptions, and conceptualizations within the data.

The second stage of the analysis was the development of detailed profiles of each interview participant. For this stage, I treated each interview transcript as an individual data set and used the research questions to develop each profile. The goal of this stage of the analysis was to examine how each participant's described CPD experiences addressed each of the study's research questions.

The advantage of analyzing the data in two stages was that it allowed me to gain a detailed understanding of the data from two different lenses. These two approaches revealed different elements within the data and provided insight into both the nuances within this dataset and the varied interpretations and conclusions that can be reached when taking different approaches to

analysis.

It was important to complete the thematic analysis first, so that this part of the analysis was not unduly influenced by the in-depth analysis of each participant, which were more intentionally focused on the study's research questions and conceptual categories that informed those questions. In the thematic analysis I attempted to bracket the theories and assumptions that I had used to develop the study, focusing on the conceptual themes that could be constructed from analyzing the underlying ideas, assumptions, and conceptualizations that shaped the data. In contrast, for the development of participant profiles I intentionally used my research questions to develop each in-depth account. I incorporated a researcher interpretation at the end of each profile, which drew on SDT as a way of enhancing understanding of the data. The following sections explain how I conducted each stage of analysis.

Thematic analysis. Thematic analysis is a flexible method for identifying, analyzing, and reporting patterns of meaning across a data set (Braun & Clarke, 2006). Braun and Clarke (2006) identified a number of considerations that should be explicitly considered as part of a thematic analysis, including the focus of the analysis, the approach to identifying themes, and the epistemological perspective.

In line with the overarching goal of the study, the focus of this analysis was to generate a rich thematic description of the data that would contribute to enhancing our understanding of the role of CPD in family practice. In defining what would constitute a theme, I used Braun and Clarke's (2006) definition of a theme as a broad concept that captures something important about the data that represents a level of patterned response or meaning within the data set. My approach to identifying themes was inductive or 'bottom up'. That is, initial codes and subsequent themes were generated from the data themselves. Braun and Clarke (2006) noted that data analysis does not take place in a vacuum, cautioning researchers to consider the influence of their own theoretical and epistemological commitments. Although I attempted to 'bracket' the theories and assumptions I

had used in developing the research questions for the study, I also continued to take reflective notes throughout the analysis in an attempt to make my influence on the analysis explicit.

In terms of the 'level' of themes in the analysis, Braun and Clarke (2006) described the difference between a semantic level analysis, in which themes are generated based on what is explicitly said or written, and a latent level analysis, in which themes are based on an interpretation of the underlying ideas, assumptions, and conceptualizations that shape the content of the data. My analysis was primarily focused at the latent, or conceptual, level. Finally, as previously noted, I conducted the study from a social constructivist perspective.

Braun and Clarke (2006) described six phases to thematic analysis, which guided my approach. I used these phases as a guiding framework rather than an exact linear process.

Phase 1. The analysis began with data familiarization. After I conducted the interviews they were transcribed verbatim, with the inclusion of non-verbal utterances (such as 'um', coughs etc.). I subsequently listened to the recordings and made some edits to the transcripts for accuracy. Next, I read and re-read the transcripts, making notes on interesting elements of the data, potential patterns, and questions.

Phase 2. Once I was familiar with the depth and breadth of the content and had made notes regarding interesting elements of the data, I began the initial coding process. I imported the data into the qualitative data analysis software 'NVivo'. I used the program to work systematically through the entire data set, creating codes for each element of the data. I identified both repeating patterns and inconsistencies within the data set. This process involved several iterations. Following initial coding I organized codes by grouping similar codes, which led to some reorganization and recoding of the data.

Phase 3. After coding all the data, I began the process of identifying themes. I used an inductive approach, using the data-derived codes to create mind maps and make connections to identify initial themes. Once I had an initial thematic outline, I used a thematic coding table to

summarize initial themes and sub-themes and link them to corresponding codes. I included extracts from the data to exemplify the themes. In searching for latent themes within the data, I attempted to go beyond the actual content of the codes and initial themes, which closely resembled the data, and consider the underlying ideas, assumptions, and conceptualizations that were necessary to generate the data. At this point I reviewed my reflective notes from the data collection stage of the study and phase one of the analysis, with consideration of how my earlier ideas could inform the analysis.

Phase 4: When I had a set of candidate themes I reviewed and revised my themes on two levels. First, I considered the data extracts within each theme, examining the extent to which the data cohered together meaningfully. If data did not cohere meaningfully within any of the candidate themes I reworked the theme or moved data out of the theme. Next, I conducted an in-depth review candidate themes, further developing my thematic structure and descriptions based on each part of the analysis. Finally, I re-read the entire data set and considered whether the candidate themes reflected the meanings in the data set as a whole.

Phase 5: Once I had a satisfactory thematic map of the data I defined and further refined each theme and sub-theme. I captured the 'essence' of each theme by identifying what was interesting or unique about that theme. I wrote a detailed analysis and devised an appropriate name for each theme and sub-theme. I also defined the relationships between themes and sub-themes.

Phase 6: Finally, I produced an account that provided a coherent and internally consistent account that told the 'story' of data, within and across themes.

Participant Profiles. I developed each participant profile using the transcript from my interview with each participant and considering how participants' descriptions of their CPD experiences linked to the study's research questions. The interview protocol was designed to address each research question; however, it did not do so sequentially. Furthermore, the semi-

structured nature of the interviews, combined with the minor revisions made to the protocol during the data collection process, meant participants' responses relating to each research question were manifested in various ways throughout each interview transcript. Thus, my approach to identifying participants' responses to each research question involved thorough and multiple readings of each transcript.

As the goal of this section was to provide a snapshot of the way each participant described their CPD experiences in relation to the research questions, I maintained a low inference approach (Flick, 2009) to describing the data, staying close to participants' own words when developing each profile. At the end of each profile, I provided a researcher interpretation, locating links to SDT in participants' comments as a way of enriching understanding of what motivated their CPD. I changed participant names and other identifying details to maintain confidentiality.

Trustworthiness

I used multiple approaches to enhance the trustworthiness of data in this study. In the context of qualitative research, triangulation is used as a strategy to improve the validity of findings (Roulston, 2010). Denzin (1978) described different approaches to triangulation. *Data triangulation* refers to the use of several data sources by incorporating data from multiple people, settings, or times. In this study, I used data from multiple family physicians who I recruited through a wide variety of CPD activities as well a group who did not appear to be participating in CPD. *Methodological triangulation* refers to the use of multiple forms of data. I used self-report interviews and interviews in this study to investigate the same overarching research questions, allowing for triangulation between the results of these two methods. *Investigator triangulation* refers to the involvement of multiple investigators in the research process. In this study, I achieved investigator triangulation through regular meetings and discussions with my research committee. The involvement of multiple investigators in the process of critiquing, reflecting on, and checking data throughout the analysis enabled co-construction of meaning. Another way in which I enabled

triangulation in this study was by taking two approaches to analyzing the interview data (i.e. the development of detailed participant profiles and the thematic analysis).

Mathison (1988) argued against the notion that the goal of triangulation should be convergence of data, instead proposing that, by also paying attention to inconsistencies or contradictions in the data, researchers can use triangulation to construct a more 'plausible explanation' of the data. In my study, by considering the ways in which the multiple elements of the data and analyses intersected with and departed from one other, I was able to build an in-depth, coherent, and plausible account of the data.

CHAPTER 4: RESULTS

This chapter presents the results of the study. The results are organized into two parts. Part 1 presents the results from the questionnaire component of the study. Part 2 presents the results of the interviews.

Part 1: Questionnaire Data

A brief overview of questionnaire participants is provided. Following this, results from the questionnaire are organized by research question.

Questionnaire Participants. Of the 91 questionnaire participants, 36 (40%) identified as male and 55 (60%) identified as female. Results from the National Physician Survey (2014), an annual survey sent to all physicians in Canada, provide a useful comparison. This survey reported a split of 57.9% male and 41.2% female for family physicians in British Columbia (BC). Questionnaire participants' responses regarding their years in practice ranged from 1 to 57 years (M = 20.82, SD = 13.15). Comparable data are not available from the National Physician Survey. Thirty-two participants (35%) reported practicing in a rural environment; 59 participants (65%) reported practicing in an urban environment. The National Physician Survey (2014) reported that 33.3% of BC family physicians practice in a rural or remote setting and 63.5% in an urban or suburban setting. Seventy-five participants (82%) stated they practiced in a group setting; 12 participants (13%) stated they practiced in a solo setting. The National Physician Survey (2014) reported 83.4% of BC family physicians practicing in some form of group setting and 15.5% in a solo setting.

In summary, the demographics reported by questionnaire participants are highly comparable to those reported by respondents of the National Physician Survey (2014), with the exception of the proportion of males and females.

Research Question 1: How Did Family Physicians Describe Their Participation in Organized CPD Activities?

The purpose of this question was to examine family physicians' CPD participation, identifying participants' reported CPD activities and their reports of the ways in which they approached those activities.

(a) How did family physicians describe the organized CPD in which they participate? I used data from the *CPD Participation* section of the questionnaire to calculate descriptive statistics on how much and what types of CPD participants reported participating in each year. I also used these data to examine what proportion of CPD participants reported as focused on reinforcing knowledge or improving in new areas. Descriptive statistics are presented in Tables 2 and 3. I present the median rather than the mean, as these provide a clearer depiction of CPD participation due to wide variation and number of outliers in the data. In table 2, the maximum number of hours CPD refers to the maximum hours reported by a single participant. For example, one participant reported participating in a total of 320 hours of CPD (130 hours conferences, 50 hours webinars 100 hours rounds, 20 hours workshops, 20 hours skills-based courses).

Table 2 *Descriptive Statistics for Hours of Participation in CPD Activities*

Variable	% Participating	Mdn	Min	Max
Conferences	96%	30	0	80
Rounds	46%	0	0	200
Webinars	61%	2	0	100
Other	21%	0	0	60
Total Presentation-Based	*99%*	*40*	*0*	*280*
Workshops	41%	0	0	35
Skills-based	44%	0	0	40
Other	14%	0	0	120
Total Interactive	*66%*	*8*	*0*	*120*
Total CPD Participation	*100%*	*49*	*3*	*320*

N = 91

Table 3 *Descriptive Statistics for Percentage of CPD Refining Existing Knowledge vs. Improving in Inexperienced Areas*

Variable	Mdn	Min	Max
Refine Existing Knowledge	60	20	100
Improve in Inexperienced Areas	40	0	80

N = 87

In terms of hours of CPD participation, all participants reported participating in some type of organized CPD. At 49 hours, the median CPD hours per year reported by participants is comparable with the College of Family Physicians of Canada's requirement of 50 hours of CPD per year, although it is important to note that participants' reported total hours of CPD ranged considerably (3 – 320 hours). On closer examination, most respondents fell into one of three groups: (i) those who reported substantially more CPD than required (35% reported 70 or more hours per year); (ii) those who reported close to the required hours (23% reported between 40 and 60 hours per year); and (iii) those who reported less CPD than required (37% reported less than 40 hours per year).

In terms of participation in specific activities, 96% of participants reported participating in conferences. Reported participation in other specified activities (rounds, webinars, workshops, skills-based courses) ranged from 42-61%. Twenty-one percent of participants reported participating in 'Other' presentation-based CPD. Participants specified these as 'lunch and learn' sessions, university courses, podcasts, and pharmaceutical company funded evening sessions. Fourteen percent of participants reported participating in 'Other' interactive CPD. Participants specified these as problem-based learning groups, journal clubs, and small group learning modules.

In considering participation in different types of CPD, 99% of participants reported participating in some form of presentation-based CPD; 60% of participants reported participating in some form of interactive CPD. Results of a Wilcoxon signed-rank indicated participants reported spending significantly more time participating in presentation-based CPD compared to interactive CPD, $Z = 7.71$, $p < .001$, $r = .57$ (large effect size, based on Cohen's 1988 convention).

Participants' responses to the short-answer questions regarding their reasons for participating in presentation based and/or interactive CPD provides an opportunity to elaborate on these findings. Forty-three participants provided a response to the open-ended question regarding their reasons for participating in presentation-based CPD, 12 participants responded regarding their reasons for participating in interactive CPD, and 14 explained why they did not participate in interactive CPD. Availability appeared to be an important factor: 12 participants noted that they participated in presentation-based CPD due to its ready availability. Similarly, 13 participants explained that they did not participate in interactive CPD due to a lack of availability. The format of presentation-based CPD was also a factor for some participants; three noted a preference for this format, with one participant elaborating that this was the way they had always learned. Another three participants explained presentation-based CPD was an efficient use of their time. Two participants noted they did not favour interactive formats; one explained that this learning approach was outside their comfort zone and the other explained they did not like practicing in front of other physicians.

Although the results indicate presentation-based CPD was more frequented than interactive CPD, most participants reported participating in both formats to varying degrees. Responses to short-answer questions also provide an indication of the ways in which participants viewed the strengths of each format. Twenty-five participants explained that presentation-based CPD enabled them to keep their knowledge up to date and nine noted these activities provided an opportunity to network with colleagues. In regard to interactive CPD, three participants highlighted the opportunity for team building and another three participants expressed the opinion that their learning was enhanced through this type of CPD, although they did not elaborate on why this was the case. Four participants emphasized the opportunity to practice skills through interactive CPD.

In terms of participants' reports regarding the focus of their CPD, the median percentage of time spent refining existing knowledge was 60%; the median percentage of time spent improving

competence in less experienced areas was 40%. A Wilcoxon signed-rank test indicated this difference was statistically significant $Z = 5.18$, $p < .001$, $r = -.39$ (moderate effect size, based on Cohen's 1988 convention).

Of those who reported a higher percentage of CPD focused on refining existing knowledge, 37 answered the short answer question regarding the reason for this focus. Reasons they provided included interest (15 participants), availability (11 participants), and increased relevance to practice (13 participants). One participant wrote, "There is sooo [sic] much to know I would rather know a few things really well than loads of stuff hardly at all. So I'll focus on the big/common items." Three participants explained that their many years in practice meant they had some knowledge of most areas. Conversely, one reported that being a new graduate meant they were focusing on reinforcing what they had learned before moving on to new areas. Of those who reported a higher percentage of CPD focused on improving in inexperienced areas, five responded to the question regarding the reason for this focus. Reasons included interest (three participants) and offering new options to patients (two participants). One participant reported that, as a new graduate, their existing knowledge was current so they were focusing their learning in new areas.

(b) How did family physicians describe their approach to organized CPD?

Table 4: *Descriptive Statistics for Participants' Approach to CPD Variables*

Variable	Response Points	N	% Responded 5, 6, or 7	Mdn	Lower Quartile	Upper Quartile	Min	Max
Plan based on needs	1-7	90	91%	6	6	7	1	7
Choose opportunistically	1-7	90	70%	5	4	6	1	7
Link to current knowledge & practice	1-7	90	96%	6	5	7	1	7
Plan changes to practice	1-7	90	87%	6	5	7	2	7
Make practice changes	1-7	90	92%	6	5	7	1	7

I addressed this question by examining participants' responses to a subset of items in the *CPD Experiences* section of the questionnaire, which asked participants to rate the extent to which

they agreed or disagreed with five statements regarding their approach to CPD. Table 4 presents descriptive statistics for responses to these items.

Across four items (planning CPD based on learning needs, linking CPD to existing knowledge and practice, planning changes to practice based on CPD, and making changes to practice based on CPD), the median score was 6 on a 7-point scale, where 7 indicated participants 'strongly agreed' with the statement. For one item (choosing CPD opportunistically) the median score was 5. Thus, overall, most participants reported taking an active approach to CPD by planning CPD based on their learning needs (as well as opportunistically), making links between CPD and practice, and planning changes and making improvements to their practice.

Research Question 2: How did family physicians describe their reasons, or motivation, for participating in organized CPD?

Table 5 *Descriptive Statistics for Type of Motivation for Participating in CPD and Following Recommendations in CPD*

Variable	# of Items	Response Points	N	% Rank 3 or 4	Mdn	Min	Max
Autonomous Motivation for Participating in CPD	2	1-4	87	85%	3.5	1	4
Controlled Motivation for Participating in CPD	2	1-4	88	15%	2	1	4
Autonomous Motivation for Following CPD Recommendations	2	1-4	86	86%	4	2	4
Controlled Motivation Following CPD Recommendations	2	1-4	84	10%	2	1	4

Original scores were rank scores, i.e. 1 = highest ranking, 4 = lowest ranking. Scores were reverse coded so that data for all items has the same directional significance.

This question was designed to go beyond participants' reports of *what* CPD they participated in and examine the reasons they gave for their CPD choices, i.e., this question examined the *why* of CPD participation. I used data from the *Reasons for CPD Participation* section of the questionnaire to address this question and calculated descriptive statistics for autonomous and controlled reasons for participating in CPD and autonomous and controlled reasons for following recommendations in CPD. Descriptive statistics are presented in Table 5. In addition, I calculated

Wilcoxon signed-rank tests and effect sizes to compare the differences between autonomous and controlled motivation subscales. Finally, I provide a summary of responses to the short answer question that asked participants to explain the reason for their rankings.

By far, the majority of FPs reported reasons for participating in CPD that reflect autonomous motivation categories from SDT. Eighty-five percent of participants ranked autonomous reasons for participating in CPD higher than controlled reasons. Similarly, 86% of participants ranked autonomous reasons for following recommendations in CPD higher than controlled reasons. These differences are statistically significant. Wilcoxon signed-rank tests and effect sizes demonstrated participants' rankings of autonomous reasons for CPD participation were reliably higher than their rankings of controlled reasons ($Z = 7.48$, $p < 0.01$, $r = .57$) and they endorse autonomous reasons for following recommendations in CPD at reliably higher rates than controlled reasons ($Z = -7.60$, $p < 0.01$, $r = .58$). The effect sizes for both calculations are large, based on Cohen's (1988) convention.

Fifty-three participants responded to the short-answer question regarding the reason for their rankings, although most simply reiterated their choices. In terms of elaborating on their rationale for ranking autonomous reasons for participating in CPD higher than controlled reasons, three participants explained that improving their knowledge and skills (an autonomous reason) was what kept them interested and engaged in the profession. Ten participants noted that, although CPD credits (a controlled reason) did play a role in their CPD participation, the opportunity to improve knowledge and skills was more salient. Three participants stated that the requirement for credits played no role in their CPD participation as gaining sufficient credits had never been an issue. Finally, five participants emphasized that their colleagues' perceptions of them (a controlled reason) were not based on their participation in CPD.

In terms of elaborating on ranking autonomous reasons for following recommendations in CPD higher than controlled reasons, nine participants explained that practicing based on the latest

recommendations (an autonomous reason) was important as they equated with this improved patient care. Conversely, five participants pointed out that the latest recommendations were not always what was best for their practice. Four participants noted that, although regulatory consequences (a controlled reason) were something they considered, this did not play an important role in determining whether to follow recommendations from CPD activities.

Research Question 3: How did family physicians' motivation for organized CPD relate to their organized CPD participation?

This question compared participants' rankings of reasons for participating in CPD and following recommendations in CPD with their reported CPD participation. I calculated exploratory Spearman's Rho correlation coefficients to examine relationships between participants' reasons for participating in CPD and their reported CPD participation. Spearman's Rho correlation coefficients are appropriate for data that is not normally distributed. These correlations are shown in Table 6.

Table 6 *CPD Motivation Correlated with CPD Participation*

Variable	1. Autonomous motivation for CPD	2. Controlled motivation for CPD	3. Autonomous motivation for CPD Recommendations	4. Controlled motivation for CPD Recommendations
1. Presentation-Based CPD	-0.13	-0.11	0.04	0.06
2. Interactive CPD	-0.07	-0.05	-0.14	0.10
3. Total CPD Participation	-0.13	-0.16	-0.06	0.03
4. Improving in Inexperienced Areas	-0.01	-0.08	-0.07	-0.07
5. Refining Existing Knowledge	0.01	0.12	0.09	-0.02
6. Approach to CPD*	0.15	-0.30**	0.06	-0.20

** 'Approach to CPD' is an aggregate of participants' ratings re: the extent to which they planned CPD based on learning needs, made links to existing knowledge and practice, and planned and made changes to practice based on CPD*
*** p < 0.01 (2-tailed)*

No significant correlations were observed between autonomous or controlled motivation scores and hours of CPD participation, indicating that participants' type of motivation for CPD, as measured by the scale in this survey, was not related to the amount of CPD in which they participated. Similarly, no significant correlations were observed between autonomous or

controlled motivation scores and the proportion of CPD focused on new knowledge or refining existing knowledge, indicating participants' type of motivation for CPD was not related to their decisions regarding the focus of their learning in CPD. A significant negative correlation was detected between controlled motivation for CPD participation and approach to CPD ($p < 0.01$). However, this finding must be interpreted with caution. The exploratory nature of these analyses, the small magnitude of the correlation, and the absence of significant correlations with related motivation variables indicates this may be a spurious finding. In summary, type of motivation for CPD was not found to be associated with CPD participation, although the negative correlation between controlled motivation for CPD and approach to CPD may warrant further investigation.

Research Question 4: What factors are associated with family physicians' motivation for and participation in CPD?

This question examined factors that could be associated with family physicians' type of motivation for and participation in CPD. Several potential factors were considered, including satisfaction of basic psychological needs (i.e., autonomy, competence, and relatedness) through CPD, value of organized CPD and value of informal learning, years in practice, gender, and type of practice. Details are outlined in the sub-questions below. I calculated a series of exploratory Spearman's Rho correlation coefficients to examine relationships between these factors and participants' motivation for and participation in CPD.

(a) To what extent is satisfaction of needs for autonomy, competence, and relatedness associated with motivation for and participation in CPD? Descriptive statistics for autonomy, competence, and relatedness variables are presented in Table 7. Most participants either agreed or strongly agreed with statements linking their participation in CPD to feelings of autonomy, competence and relatedness. The mean rating for items associated with satisfaction of autonomy was 5.50 on a 7-point scale; similarly, mean ratings for competence and relatedness were 5.52 and 4.68 respectively.

Table 7 *Descriptive Statistics for Satisfaction of Autonomy, Competence, and Relatedness through CPD*

Variable	# of Items	Response Points	N	% Rated 5, 6 or 7	Mean	SD	Min	Max
Autonomy through CPD	2	1-7	91	71%	5.30	1.00	1	7
Competence through CPD	2	1-7	91	79%	5.52	1.07	1	7
Relatedness through CPD	1	1-7	87	67%	4.68	1.94	1	7
Overall BPNS through CPD	5	1-7	91	75%	5.17	0.97	1	7

I calculated Spearman's Rho correlation coefficient to examine relationships between participants' satisfaction of autonomy, competence, and relatedness and their motivation for and participation in CPD. Results are shown in Table 8.

Table 8 *Satisfaction of Autonomy, Competence, and Relatedness Correlated with CPD Motivation and CPD Participation*

Variable	1. Autonomy through CPD	2. Competence through CPD	3. Relatedness through CPD	4. BPNS through CPD
1. Autonomous motivation for CPD	-0.19	-0.06	-0.02	-0.07
2. Controlled motivation for CPD	0.04	-0.21*	-0.08	-0.08
3. Autonomous motivation following recommendations	-0.10	-0.09	0.02	-0.01
4. Controlled motivation following recommendations	-0.10	-0.18	-0.09	-0.19
5. Presentation-Based CPD	0.05	0.16	0.01	0.04
6. Interactive CPD	-0.02	0.07	0.15	0.08
7. Total CPD Participation	0.03	0.19	0.08	0.08
8. Improving in Inexperienced Areas	-0.20	-0.17	0.02	-0.15
9. Refining Existing Knowledge	0.16	0.18	-0.04	0.12
10. Approach to CPD	0.39**	0.67**	0.27**	0.52**

** p < 0.05 ** p < 0.01 (2-tailed)*

Autonomy, competence, and relatedness were not related to motivation variables. Although a significant negative relationship between participants' sense of competence and their controlled motivation for CPD ($p < 0.05$) was detected, this correlation was small, and, as no other significant correlations between autonomy, competence, and relatedness and motivation variables were observed, this finding did not appear to be practically significant.

Autonomy, competence, and relatedness were all positively correlated with taking a more active approach to CPD ($p < 0.01$). Again, these findings should be interpreted with caution due to the exploratory nature of this analysis, particularly in regard to the small magnitude of the

correlations for both relatedness and autonomy with approach to CPD. Competence and approach to CPD have the strongest association. No significant correlations were detected between autonomy, competence, and relatedness and other CPD participation variables.

(b) To what extent is perceived value of CPD and informal learning associated with motivation for and participation in CPD? Descriptive statistics for value of organized CPD, value of informal learning, and overall value of CPD are presented in Table 9. The value of organized CPD and value of informal learning variables were single items for which participants rated the value of each type of learning to their practice. 'Overall value of CPD' was a collection of five items that were designed to give participants an opportunity to explain why they may not value organized CPD (i.e., due to a preference for looking up information within practice, a belief that skills and knowledge improve through practice to a greater extent than through CPD, the belief that CPD has not improved practice, the belief that established tools are better than new ones, or the belief that CPD content is biased).

Table 9 *Descriptive Statistics for Value of Organized CPD and Value of Informal Learning through CPD*

Variable	# of Items	Response Points	N	% Rated 3 or 4	Mean	SD	Min	Max
Value of Organized CPD	1	1-4	86	88%	3.52	0.68	1	4
Value of Informal Learning through Practice	1	1-4	86	80%	3.33	0.77	1	4
	# of Items	Response Points	N	% Rated 3 or 4	Mean	SD	Min	Max
Overall Value of Organized CPD*	5	1-4	89	75%	2.98	0.45	1	4

** Original scores were reversed, i.e., 1 indicated highest value of organized CPD, 4 indicated lowest value of organized CPD. Scores were reverse coded so that data for all items has the same directional significance.*

Participants' ratings indicated they valued both organized and informal CPD formats. Eighty-eight percent of participants rated the value of organized CPD as either three or four on a four-point scale; 80% rated the value of informal learning through practice as three or four. A comparison of ratings of these two types of learning indicates participants valued organized CPD significantly more than informal learning through practice, $t(85) = 2.08$, $p < 0.04$ d = 0.21. This

suggests participants may perceive organized CPD as playing a more important role in enhancing their practice than informal learning through practice, although the effect size is considered small based on Cohen's (1988) standard convention. Furthermore, the 'overall value of CPD' items, which consisted of items designed to indirectly gauge participants' perspectives about the value of CPD, had a mean score of 2.98 on a 4-point scale, with 75% of responses rated as 3 or 4 on a 4-point scale. This is lower than the item asking directly about the value of CPD (mean score of 3.52; 88% rated 3 or 4), suggesting participants may not be as convinced by the value of CPD as indicated when asked directly.

Table 10 shows Spearman's Rho correlations between participants' reported value of organized CPD and informal learning with their motivation for CPD and their participation in CPD.

Table 10 *Value of CPD/Informal Learning Correlated with CPD Motivation and CPD Participation*

Variable	1. Value of Organized CPD	2. Value of Informal Learning	3. Overall value of CPD
1. Autonomous motivation for CPD	0.10	-0.00	-0.16
2. Controlled motivation for CPD	-0.04	-0.17	-0.03
3. Autonomous motivation following recommendations	0.13	0.05	-0.04
4. Controlled motivation following recommendations	-0.04	-0.07	0.09
5. Presentation-Based CPD	-0.08	-0.04	0.12
6. Interactive CPD	-0.06	-0.02	0.03
7. Total CPD Participation	-0.03	0.01	0.11
8. Improving in Inexperienced Areas	0.02	-0.05	-0.06
9. Refining Existing Knowledge	-0.01	-0.02	-0.08
10. Approach to CPD	0.33*	0.17	-0.40**

** p < 0.05 ** p < 0.01 (2-tailed)*

In terms of the relationship between value of organized CPD and motivation variables, no significant relationships were observed. In terms of the relationship between value of organized CPD and participation in organized CPD, participants' value of organized CPD was positively related to their approach to CPD ($p < 0.01$). Overall value of CPD also had a significant positive relationship with approach to CPD ($p < 0.01$). In spite of the statistical significance of the correlations, the small

magnitude of the relationship underscores the need to interpret these findings with caution. There were no other significant correlations between value of CPD and participation in CPD variables.

(c) To what extent are years in practice, gender, and type of practice associated with motivation for and participation in CPD? Descriptive statistics for years in practice, gender, and type of practice are presented in Table 11.

Table 11 *Descriptive Statistics for Participants' Gender, Practice Location, Practice Type, & Years in Practice*

Variable	N	Response	n	%
Gender	91	Male	36	40%
		Female	55	60%
Practice Locale	91	Rural	32	35%
		Urban	59	65%
Practice Type	88	Group	75	82%
		Solo	12	13%
Variable		Range	Mean	SD
Years in Practice	86	1 - 57	20.82	13.15

Table 12 *Years in Practice, Gender, Practice Locale, and Practice Type Correlated with CPD Motivation and CPD Participation*

	Years in Practice	Gender	Practice Locale	Practice Type
Autonomous	-0.09	0.03	0.15	-0.20
Controlled	-0.16	0.09	-0.12	-0.11
Autonomous	-0.08	0.00	0.06	-0.11
Controlled	-0.05	0.14	0.12	-0.04
Total Presentation Based CPD	-0.03	-0.28**	-0.20	-0.10
Total Interactive CPD	-0.24*	-0.05	-0.24*	-0.11
Total CPD	-0.10	-0.20	-0.23*	-0.07
Improving in Inexperienced Areas	0.05	-0.04	-0.14	-0.12
Refining Existing Knowledge	-0.17	0.07	0.03	-0.08
Approach to CPD	0.03	0.10	0.16	-0.02

** $p < 0.05$ ** $p < 0.01$*

Spearman's Rho correlations compared participants' years in practice, gender, and type of practice with their motivation for CPD and their participation in CPD. Correlations are presented in Table 12. There were no significant relationships between these variables and type of motivation for CPD. In terms of relationships between these variables and participation in CPD, significant correlations were detected for increased years in practice and decreased interactive CPD, male physicians and increased presentation-based CPD, and rural physicians and increased interactive CPD and total CPD. However, as these correlations have a small magnitude they must be interpreted with caution. No other significant correlations were observed.

Summary of Questionnaire Results

All 91 questionnaire participants reported attending some form of CPD; typical level of participation was close to the annual requirement of 50 hours, although there was also wide variation, with approximately one third participating in more than 70 hours and one third participating in less than 40 hours. Conferences were the most frequented form of CPD, and participants reported spending more CPD time reinforcing existing knowledge than enhancing knowledge in inexperienced areas. Data from short-answer questions provided additional insights into participants' CPD choices. Participants reported taking an active approach to their CPD by planning CPD based on learning needs, linking CPD to existing knowledge, and planning and making changes to practice based on CPD.

Participants' reported predominantly autonomous motivation for CPD. A relationship between motivation for CPD and participation in CPD was not detected. Satisfaction of autonomy, competence, and relatedness through CPD and valuing organized CPD were all positively correlated with taking a more active approach to CPD, although these findings, along with other statistically significant findings in the data, must be interpreted with caution due to the exploratory nature of the analyses and generally small magnitude of the correlations.

In sum, the results of the questionnaire provide an overview of participants' CPD, including details of the CPD in which they participate, their approach to participating in CPD, and a very general sense of their motivations for and perspectives on CPD. The next section describes interview data, which delve further into family physicians' motivations for and experiences of CPD.

Part 2: Interview Data

Part 2 results are organized into two main sections. First, I outline the findings from my thematic analysis. Following this, I provide detailed profiles for each participant, based on the study's research questions. Table 13 presents basic information about each participant, based on their responses to the questionnaire. Throughout my analysis of interview data, I refer to participants by a pseudonym. I also omitted or changed other identifying information to protect participant confidentiality.

Table 13 *Interview Participants' Gender, Practice Information & Hours of CPD, Based on Questionnaire Data*

Participant	Gender	Years Since Graduation	Locale of Practice	Group or Solo Practice	Hours of Organized CPD in Past Year
1. Sam	Female	7	Urban	Group	66
2. Charlotte	Female	10	Rural	Group	40
3. Delphine	Female	12	Rural	Group	14
4. Stan	Male	29	Rural	Group	320
5. Frances	Female	25	Urban	Solo	27
6. Edward	Male	40	Urban	Group	30

Thematic Analysis

In this section I describe the six themes and associated sub-themes that I constructed through my analysis of the data. These themes, which represent an interpretation of interview participants' salient perspectives and experiences of CPD, were constructed through an inductive, or 'bottom-up' analysis of the data set. The six interview participants had a diverse range of experiences in terms of both clinical practice and their CPD experiences. However, in spite of these variations, there were also commonalities, and I was able to build a number of overarching themes from across the data set. Table 14 identifies each theme and sub-theme and specifies the participants to whom they apply. In the sections that follow, I define each theme and sub-theme and provide exemplars from the data. Themes are not ordered in terms of importance.

Table 14 *Overarching Themes*

Theme (bold) & Sub-theme	Definition	Example	Participant					
			1	2	3	4	5	6
1. Sense of Maintaining Competence	Organized CPD contributes to sense of competence in practice		✓		✓	✓	✓	✓
a. Addressing challenges of staying up-to-date	Organized CPD provides sense of 'keeping up'	"Trying to get … up-to-date information in a balanced way remains a challenge [organized CPD provides] multiple ways in which to get that information"	✓		✓	✓		
b. Affirming existing practice	Current practice validated and reinforced through CPD	"It's reassuring to know that I'm on track"	✓		✓	✓	✓	✓
2. Connecting with Colleagues	Organized CPD provides an opportunity to interact with colleagues, which is rarely gained through practice		✓		✓	✓	✓	✓
a. Learning with colleagues	Connection with others supports learning	"[The benefit of organized CPD] is the networking with colleagues and the ability to share experiences, to dialogue around cases"	✓		✓	✓	✓	✓
b. Socializing with colleagues	Connection with others fulfills need to socialize	"[CPD is] our social life … our social interactions are perpetualized in learning how to be better clinicians"	✓		✓	✓		✓
3. Me as a learner	Sense of 'being a learner'		✓	✓	✓	✓	✓	✓
a. Fulfilling responsibility as physician-learner	CPD supports sense of responsibility to be a continuous learner	"It's almost an obligation as a physician to continue to education yourself" "It's part of professionalism, I think, to stay up to date in your field."	✓	✓	✓	✓	✓	✓
b. Learning preferences guide choices	Apply beliefs about how learn best to CPD choices	"I think I've nailed what I do for CPD … I learn through processing so if, there's discussion … I find that I learn it better"	✓	✓		✓	✓	✓

c.	Enjoying learning	Enjoyment of learning for its own sake	"I love … learning and perfecting my skills"	✓	✓		✓		
4.	**Opinions on 'the CPD system'**	Perspectives on external forces in CPD including credit requirements and purported value of different activities		✓	✓	✓	✓	✓	✓
a.	CPD is needed	CPD is essential for family physicians and some form of CPD requirement is justified	"I think that CME's essential. I don't see being able to practice without it."	✓	✓	✓	✓	✓	✓
b.	Frustration with credit requirements	Requirements for CPD can lead to frustration	"I've always learned, I've always read things but there's this constant paper trail that irritates people"	✓	✓			✓	
c.	System needs to change	CPD system needs to improve	"We can't rely on physicians to decide what their CPD should be … we are not good at analyzing our own faults … we need some external source to say what our CPD should be"				✓		✓
d.	Not all CPD created equally	Personal experiences of CPD depart from prevailing perspective on value of that type of activity	"Even though the evidence would show … practice reflections are perhaps more powerful … I do very well in a lecture environment."	✓		✓		✓	
5.	**Practicalities of participation**	Participation in a specific CPD activity is often based on pragmatic factors		✓	✓	✓		✓	✓
a.	Accessibility	Location determines what CPD can access.	"[My CPD is based on] what's available when I'm in town"	✓	✓	✓			

b.	Timing	Other life commitments mean timing of CPD is important	"I was doing more webinars last year but the only reason that I'm not doing more webinars is the timing because it's the baby's bedtime"		✓			✓	✓
6.	**Links to practice & informal learning**	Perspectives on the ways organized CPD informs and is informed by practice, and the connection to informal learning		✓	✓	✓	✓	✓	✓
a.	Addressing specific needs through informal learning	Specific learning needs are usually addressed through informal learning in practice	"[Addressing a specific learning need] would be things like Up-to-Date"	✓	✓	✓		✓	✓
b.	Choosing organized CPD	Choose from what 'comes across desk' based on what is relevant and convenient	"These things kind of float through my inbox and … if I'm able to access them then I do"	✓	✓	✓		✓	✓
c.	Organized CPD and informal learning as complementary	Organized CPD and informal learning both have unique contributions, both are necessary and they can build on each other	"Both have their own advantages … [organized CPD is] more targeted with … evidence-based trials … proven therapies … [informal learning through practice is a] kind of feedback learning"			✓	✓	✓	✓
d.	Navigating Complexities of practice change	Opportunities and impetus to change practice based on organized CPD are highly varied	"I don't feel it's always relevant to my practice. I won't always bring it into my practice." " … personally it takes me a while to make a change" "There are some things that just changed my practice outright"	✓	✓	✓	✓	✓	✓

Theme 1: Sense of Maintaining Competence

Participants emphasized the importance of maintaining competence as a family physician. For example Frances explained, "… in the field of medicine you have to … stay current … to be able to practice competently". Organized CPD was seen as "… extremely invaluable" in this regard. As Stan noted, participation in CPD allowed him to "… feel more proficient and … try to keep up with medicine." As Edward explained, organized CPD was an opportunity to find out "…what the official word is on things" and to "…hear what people are thinking." The two sub-themes I identified within this theme were *addressing challenges of staying up to date* and *affirming current practice*.

Addressing challenges of staying up-to-date. Four participants highlighted the challenges of keeping up to date and three participants cited organized CPD as a means to overcome these challenges. For example, Charlotte reflected, "I sometimes find it hard to keep as up to date as I would like with … advancing medicine. You know [there] was something about if you read every journal in a week … to read them all it'd take you like more than a year." Delphine explained the role of organized CPD in this regard, noting, "Things are changing quickly … trying to get … up-to-date information in a balanced way remains a challenge … [organized CPD provides] multiple ways in which to get that information". This sub-theme highlights participants' emphasis on the difficulties of staying current in the ever-changing context of family practice. Organized CPD provided participants with the sense that they were, at least to a certain extent, meeting the challenge of keeping up with important developments in the field.

Affirming current practice. This sub-theme, identified by five participants, focuses on the reassurance and validation they experienced when participating in CPD that reinforced current practice and indicated they were 'doing it right'. As Stan reflected, "It's been validating for me as a physician … I'm doing the same as my colleagues are and I offer wonderful resources and things for my patients." Similarly, Delphine talked about the reassurance she experienced when she heard an expert recommend something that was part of her current practice, "I'm like … okay that's what I'm

doing, it's good, I'm glad to know that, it's reassuring to know that I'm on track." Frances explained how, even when CPD ran counter to current practice, it could still affirm her approach. She reflected, "… there was actually one talk where I actually quite disagreed with it so it actually made me feel more… certain about what I was actually already doing." This sub-theme emphasizes the value participants placed on the opportunity afforded by organized CPD to affirm their existing practice.

Theme 2: Connecting with Colleagues

Participants explained that organized CPD provided an opportunity to interact with colleagues and experts. This opportunity appears to be particularly salient for family physicians because, as Sam noted, "… being in practice can be quite an isolated thing." Organized CPD was viewed as a chance to interact, learn, and socialize with peers, as well as those considered experts in their field. The two sub-themes I identified within this theme were *learning from colleagues* and *opportunity to socialize*.

Learning with colleagues. Five participants talked about organized CPD providing an opportunity to learn from and with their colleagues. For example, Stan described his perspective on the way that interaction with colleagues through CPD led to enhanced learning, explaining, "… the stuff that's hard to learn [is] brought out in a conversation that you have from your peers." Delphine explained that the benefit of in-person CPD was "… the networking with colleagues and the ability to share experiences, to dialogue around cases." She described how an interaction with a colleague at a conference sparked an exploration into her practice around new anti-coagulants, recounting, "We started chatting and … we were just kind of really intrigued, [it was] a pretty big change in the standard of care and a recent one." Delphine explained that she subsequently investigated the topic by consulting a trusted expert source. At a later date, "… myself and this particular colleague were able to dialogue again about this … it changed our practices mutually." By providing a forum to

connect with colleagues, participants viewed organized CPD as supporting their learning through opportunity for collaborative problem solving and idea generation.

Socializing with colleagues. In addition to the opportunity to enhance learning, four participants explained that CPD provided an opportunity to socialize. For example, Stan described the way in which his social life was integrated into his participation in CPD, "I would say my wife and I live to do CPD, that's our social life." Stan described his perspective on the connection between socialization and learning, explaining "… our social interactions are perpetualized [sic] in learning how to be better clinicians." In reflecting on her preference for in-person CPD, Sam explained, "I like that feeling of being around each other and sort of sharing if that makes sense." Edward also emphasized his appreciation of the social aspect of CPD, reflecting, "… it's really fun to run into former students … colleagues, people that have done locums for me … fun to share coffee with them and discuss what the speakers have been saying." Participants appeared to view the opportunity to socialize as a distinct benefit of participation in organized CPD.

Theme 3: Me as a learner

When describing their CPD experiences, all participants talked about their preferences for learning and held conscious beliefs about their own learning. For example, Stan identified himself as "… the question guy," Delphine noted, "I'm the kind of person who's very visual," and Charlotte explained, "I'm old fashioned and I still like a sheet in paper in front of me." Participants' awareness of their learning preferences and their sense of 'being a learner' appeared to have developed through their many years of medical school, and was maintained by a perspective that ongoing learning was part of being a physician. As Frances reflected, "I went to school for so long, I guess it's in me to continue to learn."

I identified three sub-themes within this theme, *fulfilling responsibility as physician-learner, learning beliefs guide choices,* and *enjoying learning*.

Fulfilling responsibility as physician-learner. All participants talked about their keen sense of responsibility to stay up to date. As Edward noted, "[It's] part of professionalism, I think, to stay up to date in your field." Frances also noted the professional importance of staying up to date and explained, "I … feel I really need to have … more formal ongoing education … while I read I think that that's not enough." For most participants, this sense of responsibility appeared to be viewed as challenging but important; it formed part of their role as a physician.

Learning beliefs guide choices. Participants' beliefs about and preferences for how they learned appeared to guide their CPD. For example, Frances, who "… learned through processing," looked for CPD that provided opportunity for discussion. Conversely, Charlotte described a preference for online question and answer CPD, explaining, "… my brain works really well with … questions and answers [be]cause it's such … short snaps of information." The way in which participants described their beliefs about the way they learned demonstrated their consciously held views of themselves as learners.

Enjoying learning. Three participants talked about their enjoyment of learning. . Charlotte noted that, on occasion, she participated in CPD "… that is just generally interesting … [even] if I [don't] necessarily [have] any patients … with those conditions." She elaborated, "I enjoy learning … I find learning to … develop you as a person and even if I'm not doing medical learning I'm doing some other learning." Similarly, Stan recounted, "I love, I love to learn". He explained, "Once every two or three years [I've] taken on a steep learning curve … something that I was not good at to become proficient." Sam explained, "I'm sure a lot of people say this to you but we're kind of geeky, we like to learn ... I love … learning and perfecting my skills." Here, Sam did was not just referring to her own perspective, she grouped herself with family physicians in general, indicating that being a family physician was synonymous with participating in, and enjoying, ongoing learning.

Theme 4: Opinions on 'the CPD system'

All participants described their perspectives on external forces in the CPD landscape, which included CPD requirements for family physicians and prevailing views regarding the value of specific CPD activities. Within this theme, I constructed the following sub-themes: *CPD is needed*, *frustration with credit requirements*, *system needs to change*, and *not all CPD created equally*.

CPD is needed. Participants agreed that CPD was needed. For example, Delphine reflected, "I just, I think that CME's essential. I don't really see being able to practice without it." Participants also felt there should be some sort of requirement for family physicians to participate in CPD. As Frances noted, "I feel that it's not unreasonable that all physicians should be obliged to … make an effort to stay current, be educated." Similarly, Charlotte maintained, "I think [CPD] should be mandatory … everyone should be up to date with what they're doing."

Frustration with credit requirements. In spite of consensus regarding the need for CPD and its value to practice, three participants described frustration or irritation with current CPD credit requirements, recounting their own or colleagues' sense of being "… dragged through the CME process." Delphine noted, "… some physicians may find [the requirements] quite bothersome, especially if they go on mat leave or whatnot." Similarly, although Frances had not personally experienced any difficulty meeting CPD credit requirements, she explained, "I know some of my colleagues have struggled … when some years it's more difficult to attain it than others." Charlotte, who explained that the requirement for CPD credits had a substantial impact on the amount of CPD in which she participated, noted, "[If] I'm short on points I will just do whatever."

System needs to change. In addition to frustrations with CPD credits requirements, two participants cited issues with the current CPD system. Edward expressed concern that physicians actually had too much choice regarding their CPD, noting "… we can't rely on physicians to decide what their CPD should be … we are not good at analyzing our own faults … so we need some external source to say what our CPD should be." Stan cited dissatisfaction with the way physicians'

competence was determined; he stated that external organizations should not play the role of "… big brother" and argued there was a role for CPD to "… make sure that we're all maintaining competency in a network in a way that we actually can talk and communicate and find out how everybody's doing."

Not all CPD is created equally. Interview participants, who described participating in various types of organized CPD activities, appeared to be aware of the purported 'value' of different activities. However, they varied in the extent to which they agreed with this perspective. Stan and Edward aligned themselves with the prevailing perspective, tending to describe CPD in terms of what they knew about the research on CPD effectiveness. For example, Stan described the benefits of a system that allowed him to access practice data so that "… we actually can do reflective practice." In contrast, Sam and Delphine referred to the value ascribed to various CPD activities, yet described personal experiences that did not reflect the prevailing view. For example, Sam referred to research that indicated conferences were less effective, but argued, "I do very well in a lecture environment." Delphine described her experience of self-reflective CPD as "… not the most useful form of CME that I do." Examining the ways in which physicians' perspectives on the value of CPD activities align or depart from that of the prevailing perspective in the field could be an interesting area for future study.

Theme 5: Practicalities of Participation

Regardless of participants' beliefs about the value of organized CPD and their overall motivation to participate, for some participants, the actual CPD activities in which they participated were, to a large extent, determined by the practicalities of being able to participate in a given CPD activity.

Accessibility. Three participants highlighted accessibility of CPD activities as a determining factor in their participation. For Delphine and Sam, who spent substantial periods of time out of the country, this was particularly important. Although both professed a preference for in-person CPD,

they made use of online CPD to a large extent due to its ease of accessibility. Sam explained, "… we were 12 or 13 hours ahead so [the webinars] were always flipped, it was the right time of day." Delphine noted her participation in in-person CPD activities was based on "… what's available when I happen to be in town." Charlotte, who lived in a rural area, also emphasized the challenge of accessing in-person CPD, noting that a lot of CPD involved "… an inconvenient $300.00 dollar plane round trip." Although Edward did not refer to the importance of accessibility, he acknowledged the significance in location when choosing CPD, explaining, "I've attended a few meetings that were not terribly relevant to my practice because they were at some place that I thought well that would be an interesting place to go."

Timing. The timing of CPD activities was also important for some participants. Charlotte, Frances, and Edward all explained that they were not able to participate in certain activities because the timing of the activity made it "… difficult to attend" due to other priorities, such as family commitments. For example, Charlotte explained, "… the only reason that I'm not doing more webinars is the timing because it's the baby's bedtime." Similarly, Frances explained that she had stopped participating in a CPD activity she enjoyed, "… because it's done in the evenings … it was just becoming really difficult to attend."

These sub-themes demonstrate the importance of pragmatic factors in regard to participants' CPD participation, as, regardless of a their overarching beliefs or intentions regarding CPD, participation in a specific CPD activity was often contingent on location and timing.

Theme 6: Links to Practice and Informal Learning

Participants described the role of organized CPD in relation to their practice and other informal learning activities. The sub-themes I identified were *addressing specific learning needs through informal learning*, *choosing organized CPD*, *organized CPD and informal learning as complementary*, and *navigating complexities of practice change*.

Addressing specific needs through informal learning. In spite of consensus regarding the need for CPD, participants did not see organized CPD as a way to meet specific learning needs arising from practice. Five participants explained that they were rarely able to start with a learning need then find an organized CPD activity to address that need. As noted above, practicalities such as timing and accessibility made this challenging, even though participants acknowledged there were often a plethora of options available. As Charlotte explained, "I have not [thought] I need to learn something and then found … a conference [on that topic] … I find that impossible to do." Rather, participants described engaging in 'just in time', informal learning activities such as "… using things like Up-to-Date [an evidence-based online information source]" to look up information as and when it was needed.

Choosing organized CPD. Instead of seeking organized CPD based on a specific learning need, five participants explained they heard about a CPD activity first then made a decision about whether or not to attend. For example, Delphine talked about CPD activities that "… float through my inbox"; similarly, Frances explained, "… a lot [of CPD] comes across my desk." Participants described making a decision about whether to participate in a given activity based on, "What is relevant to my practice" and "… what interests me," in addition to practical factors, such as "… cost, accessibility."

Organized CPD and informal learning as complementary. As noted, most participants talked about using informal approaches to learning to address immediate learning needs in their practice, such as "…reading or looking up information" from an external source. Participants also talked about the ongoing, informal learning they experienced directly through their practice, patients, and colleagues. For example, Delphine explained, "I noticed … in my First Nations patients, a lot of my patients who were on diuretics were developing hyponatremia," noting that this observation allowed her to make improvements for those patients.

Four participants described these two types of informal learning as a complement, rather than an alternative, to organized CPD. As Frances explained:

> Up-to-date, which I use regularly, is ongoing learning in my practice, which is very directly related to what I'm seeing … the more conventional CPD … is … a global part of my practice that allows me to continue to be current … I've made a conscious effort … so … cognitively I'm more prepared.

Charlotte also emphasized the value of protected time created by organized CPD, noting, "Once I've signed up I actually know that I'm doing it and I've got dedicated time set apart for that."

Delphine reflected on the ways in which organized CPD and informal learning complemented each other:

> "… they can certainly build on each other … you hear something in a conference … then you go to your patient and they're like … this is what works for me and so it's fine tuning a little bit and realizing that everything needs to be tailored for individual patient context … it's important to have both."

Thus, although participants emphasized that organized CPD was not well suited to addressing a specific learning need arising through practice, nonetheless, they viewed organized CPD as having an important role in their ongoing learning. Organized CPD had a role that was both distinct from, and complementary to, informal learning activities that were more directly situated in practice.

Navigating complexities of practice change. Participants highlighted various complexities involved in changing practice following participation in organized CPD. First, CPD participation did not necessarily lead to a suggested change in practice. Three participants noted that information from organized CPD was not always applicable to their practice. As Charlotte explained, "Some of the information, I don't feel it's always relevant to my practice." In addition, as previously highlighted, CPD often affirmed participants' current practice, resulting in "… feel[ing]

more … certain about what I was actually already doing" as opposed to identifying a need to make a change to practice.

When participation in organized CPD did lead to a suggested change in practice, three participants explained they would, in some situations, "… change their practice outright." However, five participants also talked about taking a cautious, critical approach to changing their practice based on what they learned through a CPD event. As Frances explained, "… personally it takes me a while to make a change … I need to be convinced … something new is definitely better … I would need to hear something … more than once from good sources before I would make the change." Charlotte noted:

> It's important to take the latest information with a pinch of salt because a lot of it is rubbish anyway just handled by drug companies … you have to be very cautious of the amount you're prepared to put [changes] into your practice because before you know someone's [going to] turn around and say that that's not safe enough for best practice.

When participants did decide to make changes to their practice, they described the sense of satisfaction and achievement they experienced. For example, Sam recalled accessing a resource she'd learned about at a recent CPD event, noting "there's just this pride of being able to get the right information really quickly." However, participants also emphasized that CPD was beneficial even when they made no change to their practice. Other desirable outcomes of CPD identified by participants included an overall sense of being "… up to date", gaining reassurance "… that I'm on track," a chance to "… network with colleagues", and an opportunity to be "… intellectually critical" and, "… dialogue about [new] information." Thus, although making improvements to practice was viewed as a valuable outcome, it was by no means the only reason that participants engaged in CPD.

Summary

In summary, in the interviews participants described a rich and varied range of CPD experiences. My analysis of the data set led to the construction of a number of overarching themes

and sub-themes, which, together, build a coherent account of participants' perspectives on and experiences of CPD. In the next section, I present individual participant profiles, which were developed by considering how participants' descriptions of their CPD experiences linked to the study's research questions. At the end of each participant profile I provide a brief researcher interpretation and locate links to SDT in participants' comments as a way of enriching understanding of what motivated their CPD.

Participant Profiles

This section provides detailed profiles of the six interview participants. The purpose of these profiles is to provide an in-depth account of the way each participant described their motivations for, participation in, and experiences of CPD in relation to the study's research questions. Each profile includes a description of the participant's scope of practice as a family physician and, based on the study's four research questions, outlines the participant's descriptions of (i) their CPD participation; (ii) their reasons, or motivations for, participating in CPD; (iii) the relationship between their motivation for CPD and their participation in CPD; and (iv) factors that appeared to be associated with their motivation for and participation in CPD. At the end of each profile, I provide an interpretation of the data, making links to SDT to enhance understanding of participants' motivation for and experiences of CPD.

Interview 1: Samantha (Sam)

Sam graduated seven years ago; however, following graduation she moved abroad to run a health service delivery program in another country. Her role was administrative in nature and did not include clinical practice. Sam recently returned to Canada and, at the time of the interview, was a locum in an urban family practice. Sam described herself as "… technically new in practice," explaining, "I was away for five years and I've just come back … I'm still quite new I guess." She noted, "I haven't actually practiced in a community of my peers until now."

In reflecting on the change in her work focus, Sam explained:

> I think I'm quite confused because … for five years I've worked … on a large scale, on more policies … now I find myself down on the service delivery side, so … carrying out what in my [previous] role I would have created the protocols for. I'm not quite sure where I'm going to even out, whether I'm going to be interested in strict clinical practice and working down on the ground level or whether I'm [going to] want to come back up into … the policy side of things.

How did Sam describe her participation in organized CPD activities?

CPD Participation. Based on her questionnaire response, Sam participated in 66 hours of CPD in the past year, which is higher than both the median response value and the CFPC's requirements. In line with her questionnaire responses, Sam described participating in various organized CPD activities. While abroad, Sam participated in online CPD activities, which constituted "primarily webinars" and "This Changed My Practice," a series of short online articles that enable participant commentary. When Sam moved back to Canada, she explained that she had continued the webinar series. Sam also described participating in three conferences and a course organized by a pharmaceutical company since her return to Canada.

Approach to CPD. In terms of her approach to CPD, Sam described using some CPD activities as a catalyst to find out more about a particular topic. For example, while watching webinars Sam described how she would "… minimize the window and do some additional reading while the webinars are going on." Sam also described volunteering to participate in "… a mock patient interview" during a recent CPD course, which involved "determining whether they were a candidate for Suboxone [a drug used to treat opioid addiction], were there any contraindications." Sam reflected that this was "… in front of all the other peers" and explained how she "… stumbled over the fact that she may be pregnant and or that she may have been on birth [control], some sort of drug that was interacting." Sam reflected how this experience augmented her learning, noting:

> I won't forget that and I think that, um, as I'm starting Suboxone, if I choose to incorporate that into my practice I'm going to have that woman's face in my mind and just remind myself, especially in women of reproductive age, just ask these questions as you're going forward.

Sam explained she used a lot of what she learned through CPD into her practice, noting, "I feel that as I'm learning I'm putting this into practice." Sam provided a recent example in which she "…. attended a webinar … last week, which basically walked you through the Dropbox [an online cloud-based resource being used to store clinical practice guidelines]." Sam then explained:

> … just on Saturday in a locum, I was able to open the Dropbox for the first time with a patient [be]cause I was like … I have no idea how to approach colon cancer screening [in] somebody who's just had a colonoscopy, what are the time frames, and there's just this pride of being able to get the right information really quickly.

How did Sam describe her reasons, or motivation, for participating in organized CPD?

In terms of her personal motivation to participate in CPD, Sam explained that CPD provided guidance and reassurance, describing how, "… [with] every patient, I'm worried that I've done something wrong or misunderstood, so I'm always sort of looking at the evidence to inform what I'm doing if that makes sense."

Sam also explained, "I just like that feeling of sort of structured learning and I want, I love learning and I love being in a classroom and so forth, so I'm a real fan of that." Sam explained, "I love like learning and perfecting my skills and just sort of honing it as a, um, you know, as a profession, as a crafted professional … I guess we have a lot of … pride for our skill, pride for our knowledge and pride for our involvement." Sam elaborated on the sense of pride she felt through participating in CPD, describing how participating in CPD whilst abroad was, **"**[An] opportunity to feel … a pride in my knowledge and a pride in my connection, even if I was not touching patients."

Sam was also motivated by CPD credits, which she demonstrated when she noted, "I think it gives you a lot of pride, I'm just reaching the end of my first five year cycle and I'm seeing my zeros in terms of no added credits needed." However, Sam also noted frustration with CPD requirements, explaining, "… a lot of us feel dragged through the CME [continuing medical education; often used synonymously with organized CPD] process."

How did Sam's motivation for CPD relate to her participation in CPD? Sam's motivation to use organized CPD to inform and guide all aspects of her new practice is evident in her described approach to choosing and participating in a broad range of CPD. Sam spoke favourably about CPD that was "packed" with information and delivered in an "expedited fashion." Sam reflected, "I really like the very consolidated three or four day courses … content that spans a large breadth." Sam also explained that her approach of "… doing additional reading" during webinars was something that she did because, "I was out of practice for a while and so I would say 'gosh, I had no idea that this was this' and so I would maybe do a little bit of a looking."

Sam's description of herself as someone who was "… kind of geeky" and who enjoyed "… structured learning … being in a classroom" was also reflected in her described CPD choices. In describing her upcoming plans for CPD, Sam told me, "I think I'm [going to] find myself going to a lot of conferences coming up. I love conferences."

In relation to her preference for conferences, Sam acknowledged disparity between her personal perspective and the prevailing opinion, noting that, "I know that … the practice reflections are a big part of the CPD… I'm less keen about those self-directed, alone activities." She explained, "… even though the evidence would show apparently that the self [-directed activities], the practice reflections are perhaps more powerful as learning opportunities, I do very well in a lecture environment." Sam reflected that this might have been due to her stage of practice, stating, "Maybe as I get on in practice I think that I may take away less from lectures and more from my own, reflecting on [my] own experience."

Sam's motivation to obtain CPD credits was also reflected in her described CPD choices. In talking about her upcoming CPD plans, Sam stated:

> I've just finished my five year cycle and one of the things that I didn't accomplish is enough, um, MainPro C[1] credits and so I would like to, although I'm not sure, I'm not very clear at all on the benefit of doing so but to work to become a fellow of the Canadian College of Family Physicians would be, um, something interesting and for that you require enough MainPro C.

Based on this goal, in spite of being "… less keen" on the format, Sam stated that she planned to participate in self-reflective CPD, which could be used to gain Mainpro C credits, noting, "I challenge myself to do one practice reflection by the end of next year, even in my locum work if I can."

What factors were associated with Sam's motivation for and participation in CPD? In terms of her CPD participation, Sam described how, when abroad, accessibility of CPD activities was the primary factor in determining which CPD she could attend. The role of CPD credits was also apparent in Sam's description of her CPD decisions. Sam noted, "When I was outside of the country, my credit numbers were hugely important. So if I were back in Canada for a time I would consider going to a conference where I could, it would be very intense and I could get a lot of credits at one time."

Since returning to Canada, Sam viewed herself as "… technically new in practice." This influenced Sam's motivation to participate in CPD to "… inform what I'm doing," which subsequently influenced her focus on CPD activities that provided a large volume and breadth of information. The sense of being new to practice also influenced the way Sam used CPD to inform

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[1] Mainpro C credits were a higher level of CPD credits offered to family physicians for participation in certain activities. They have a higher 'per hour' value and are required to gain a fellowship with the CFPC.

her practice. As Sam reflected, "I was away for five years and I've just come back … I feel that as I'm learning I'm putting this into practice because I'm still quite new I guess."

Overall, Sam emphasized the value she placed on CPD. She explained, "I really enjoy the fact that we have a CPD program and it is in stark contrast to countries that don't have them." She noted, "… you can claim a whole number of things … it really does recognize a wide breadth of activities."

In reflecting on her overall experiences of organized CPD, Sam described how CPD gave her confidence she was practicing to a high standard, noting that organized CPD provided, "… this ability to tap into knowledge and just make it so that, you know, I served that patient well and I've served him according to the evidence." Sam also highlighted her appreciation of the opportunity to connect with colleagues through CPD, explaining, "I like that feeling of being around each other and sort of sharing if that makes sense." She reflected, "… being in practice can be quite an isolated thing."

Researcher Interpretation. Sam's unique circumstance meant that she was essentially new to practice yet did not have the advantage of having recently completed her medical training. As a result, CPD played a crucial role in informing Sam's practice and her unique situation influenced both her choices and overall perspectives on CPD.

In considering Sam's motivation for CPD, Sam described the way CPD appeased her anxieties about practice and led to a sense of pride, perhaps meeting her need for competence, and reflecting what SDT describes as introjected motivation. Sam's purported enjoyment of CPD and learning reflect autonomous or even intrinsic motivation for learning through CPD, although Sam's description of the way CPD credits also figured in her CPD decisions suggests that, in some circumstances, her motivation was externally regulated.

Consistent with the view that needs for autonomy, competence and relatedness are fundamental to people's sense of self-determination, Sam described the sense of connection she

experienced through the"… feeling of being around each other …" in CPD activities. She also referenced the ways CPD helped her to "… tap into knowledge …" suggesting that CPD met her need for competence. Finally, Sam's reflection that CPD requirements "… recognize a wide breadth of activities" indicates she perceived a good deal of autonomy in her CPD experiences, although her comment about being "… dragged through" the CPD process suggests this sense of autonomy was balanced by CPD requirements.

Interview 2: Charlotte

Charlotte is an international medical graduate. She graduated as a family doctor ten years ago. Charlotte explained that, since relocating to Canada, she had lived in a small, rural community and practiced "… in a group practice … part-time … and I don't have hospital privileges." In her practice, Charlotte explained she had "… mainly a young population [with] many young parents."

How did Charlotte describe her participation in organized CPD activities?

CPD Participation. In her questionnaire, Charlotte reported participating in 40 hours of CPD in the past year, which is lower than both the median response value and the CFPC's requirements. Charlotte described participating in a number of "… organized events within the [local area]," which included lectures and in-person workshops that provided online tools. Charlotte also noted she travelled to Vancouver to attend CPD conferences on occasion. Finally, Charlotte described participating in online CPD, including webinars and accessing "Up-to-Date," an evidence-based, online information resource designed for use at the point of care.

Approach to CPD. In describing her approach to CPD, Charlotte noted, "I think definitely I learn more in-person." Charlotte described the benefits of a recent group CPD event, noting, "I was able to ask questions … I got an answer within the actual session." Charlotte also explained, "I'm old fashioned and I still like a sheet of paper in front of me to read through and also as an aid afterwards … [be]cause I find it useful to kind of check back a little while later to see, um, to see

what was said and to remind me of what we went through." When I asked Charlotte what she did with her notes from CPD events, she responded:

> I leave them and they pile up on a work surface and then I re-discover them in six months where my husband says, 'Are you going to throw these away or do you need them?' and I say I need them. I glance at them, they last another three months on the work surface and then he throws them away without me knowing. That's the honest answer. But I do glance back over them when I see them.

Charlotte elaborated on her learning preferences, noting:

> I also enjoy doing kind of online question and answer sort of CPD because that's one of the ways that I learn." She explained "… my brain works really well with … questions and answers cause it's such short, um, short snaps of information you know [be]cause … many doctors are a little bit … ADHD and can't focus on more than 30 seconds I find.

In terms of the influence of CPD on her practice, Charlotte explained, "Some of the information, I don't feel it's always relevant to my practice. I won't always bring it into my practice." Charlotte explained that, when she felt something was relevant to her practice, she would "… make immediate changes." She elaborated, "I very rarely … investigate more sessions before making changes to my practice. But sometimes I will and I will … just maybe try to the new thing with one or two patients before making a regular change."

How did Charlotte describe her reasons, or motivation, for participating in organized CPD? Charlotte said that she participated in CPD "… [be]cause I have to." She elaborated on this, explaining, "I'd still do it if we weren't made to but … being made to get a certain number of credits is a big factor." However, Charlotte also explained that she would participate in CPD "… out of interest," even if it weren't required. She noted, "I enjoy learning … I find learning to … develop you as a person and even if I'm not doing medical learning I'm doing some other learning." Charlotte

also noted that she aimed to participate in CPD that would "… have a positive impact on the care that I provide to people."

How did Charlotte's motivation for CPD relate to her participation in CPD? Charlotte acknowledged that part of her motivation for participating in CPD was to satisfy CPD credit requirements. This is evident in her described approach to choosing CPD, in which Charlotte explained, "If I've not gotten enough CPD courses I just take anything … if it's a good time and I know I'm short on my points I will just do whatever."

Charlotte's motivation to participate in CPD "… out of interest" is reflected in the way she described her preferred CPD as "… a mix really I think of lecturing, small group interaction," noting that she looked for CPD that was "… just generally interesting." Charlotte explained that she did not choose CPD based on something specific that she needed to learn, saying, "I have not, [thought] 'I need to learn something' and then found like a conference … I find that impossible to do."

What factors were associated with Charlotte's motivation for and participation in CPD? Overall, Charlotte was supportive of the need for CPD, explaining, "I think it should be mandatory … everyone should be up to date with what they're doing." On a personal level, Charlotte explained, "It forces me to be there. Once I've signed up I actually know that I'm doing it and I've got dedicated time set apart for that, rather than picking an hour … then becoming interrupted and having to give up." However, Charlotte also expressed frustration with CPD requirements, explaining, "We're not all documenting it and I think that's what maybe frustrates people … I've always learned, I've always read things but there's this constant paper trail that irritates people."

In spite of describing participation in various CPD activities, Charlotte highlighted the challenges she experienced in keeping up with the field:

> The majority of the time [I] feel not even a little bit up to date and it frustrates me and I sometimes find it hard to keep as up to date as I would like with … advancing medicine. You

know [there] was something about if you read every journal in a week it'd take, to read them all it'd take you … more than a year.

One factor that influenced Charlotte's participation in CPD was her other life commitments. Charlotte reflected, "I was doing more webinars last year but the only reason that I'm not doing more webinars is the timing because it's the baby's bedtime so I will do them again when he is more independent." Charlotte explained, "… a lot of my CPD now I factor around my work day .... So if it's a big conference then yeah I can find the time to go to that but a lot of … online learning I'll … squeeze it into my lunch break or something." Charlotte also noted, "I like [CPD] in-person and I like it to be close, local." She explained that, although she would travel to Vancouver on occasion, "It's an inconvenient $300.00 dollar plane round trip"

Researcher Interpretation. Charlotte appeared to be interested in learning; however, she was less than enthusiastic about some elements of CPD, including the requirement for credits and the inconvenience of attending CPD events. Charlotte was a new mother at the time of the interview, which, as she noted, led to a shift in her priorities.

Charlotte explained that she participated in CPD "… because she had to," noting that if she was "… short on points …" she would "… just do whatever." This indicates that, at least some of the time, external factors played a dominant role in Charlotte's motivation for CPD, reflecting what SDT describes as external, or controlled, motivation. However, Charlotte's statement that "… [CPD] should be mandatory" and her emphasis that she would "… still do [CPD] if we weren't made to" indicate she valued CPD, painting a more nuanced picture of her motivation. Charlotte noted that she "… enjoy[ed] learning" and believed it "… develop[s] you as a person …" explaining that, sometimes, she participated in CPD purely "… out of interest." This suggests that Charlotte had more autonomous motivation for some learning and CPD.

Although Charlotte emphasized that she valued CPD and believed it was important for practice, she highlighted the role of external factors to a greater extent than other participants,

indicating her motivation for CPD was not fully self-determined. In keeping with the perspective that needs for autonomy, competence and relatedness play an important role in an individual's self-determination, Charlotte's sense that she participated in CPD because she "had to" indicates her need for autonomy was not fully satisfied. Further, Charlotte's frustration that "… the majority of the time …" she "… [felt] not even a little bit up to date …" suggests her need for competence was not being fully met.

Interview 3: Delphine

Delphine graduated in rural family medicine twelve years ago and, since graduating, had practiced in various rural communities, where her scope of practice included "… a little bit of emergency medicine, a little bit of obstetrics, a lot of family medicine … minor procedures and little bits and pieces of hospital and other things that come up." Delphine also spent "…three years working overseas for [an aid organization]"and at the time of the interview was about to depart on another assignment with the organization. In addition, Delphine explained, "I do some locum work for some of my colleagues and friends who need locums."

How did Delphine describe her participation in organized CPD activities?

CPD Participation. Based on her questionnaire response, Delphine participated in 14 hours of CPD in the past year, which is substantially lower than both the median response value and the CFPC's requirements. Delphine recounted participating in various online CPD activities while travelling overseas, including webinars, asynchronous online courses, and online articles. In addition, Delphine explained, "… when I'm able to I attend various conferences" and "… when I'm in [Canada] I try to attend local CPD as well." Local CPD that Delphine attended included one-day conferences and informal small group sessions organized by colleagues. When practicing in rural communities, Delphine described participating in practical, skills-based courses with the teams in which she worked. Delphine also talked about participating in faculty development courses and teaching, which she described as an "exciting way to keep up to date as well." Finally, Delphine

described participating in "Linking Learning to Practice," a self-reflective activity that involved "… go[ing] back through…notes…tak[ing] a look...see[ing] how my practice has been impacted by that particular session."

Approach to CPD. In terms of her approach to CPD, Delphine explained:

> I'm the kind of person who's very visual and so I do take a lot of notes … I find I just scribble down things here and there … I just file them when I get home and, you know, I may or may not refer to them later but I do find my learning is enhanced if I can write those down as I go along.

In regard to the link between CPD and her practice, Delphine described various occasions in which organized CPD influenced her practice, noting, "There are some things that just changed my practice outright." For example, Delphine explained making changes to the way she treated blood pressure and diabetes based on what she learned at a conference, which led to an improvement for her patients. "I had been using a combination of blood pressure medication that I had learned in medical school … after this conference that I attended where we reviewed some of the evidence more recently … I switched over [the medication]." Delphine described how this impacted her patients, explaining, "I found that they didn't experience [the] side effect [anymore]."

Delphine also described ways in which what she learned through CPD sparked further exploration and dialogue regarding a topic. For example, Delphine described attending a presentation on recommendations for new anti-coagulants. She discussed this with a colleague at the conference then went on to obtain information on current evidence from a trusted source. Delphine reflected on what she learned through this process, explaining, "… even though the guidelines … suggest offering these novel anti-coagulants, the evidence does not actually support that." Delphine reflected that this process "… helped re-balance my perspective" as she believed there had been "… a real push from both pharmaceutical industry and expert opinion." Delphine explained that she adjusted her approach in practice to one that was "… less biased and more

balanced" and that she was "… a little bit less inclined to jump right into the newer agents" as a result of her exploration into the issue. In this example, organized CPD acted as a catalyst for changing Delphine's practice, yet, after critically examining the topic, the changes she decided to make actually contradicted the information provided at the CPD event she attended.

How did Delphine describe her reasons, or motivation, for participating in organized CPD? Delphine described organized CPD as "… extremely invaluable …" explaining that CPD allowed her to "… stay current with things [as] they're evolving." Delphine explained, "… things are changing quickly … trying to get the most up-to-date information in a balanced way remains a challenge." Delphine noted that CPD provided "… multiple ways in which to get that information and share that information and dialogue about that information," reflecting, "I think [that] makes it more balanced." Delphine also noted that she participated in CPD to "… affirm some of my own practice strategies." Delphine did not directly cite obtaining CPD credits as a reason for participating in CPD. However, Delphine explained that, when choosing CPD, she would look at "… if it's accredited."

How did Delphine's motivation for CPD relate to her participation in CPD? Delphine's motivation to "… stay current" "… in a balanced way" was demonstrated in the wide variety of CPD activities in which she chose to participate. Delphine reflected:

> When I was in medical school in residency … if [there was] a drug company sponsored event … we would kind of boycott it … then as I … continued on in my practice I realized that it also wasn't benefiting me to bury my head in the sand so to speak … I think it is important to inform myself … of what agents are being … pushed or made available and … how to critically appraise evidence that's presented around that. So … nowadays … I try to make sure I have at least access to … CME that's guaranteed to be non-industry sponsored and there are conferences that specifically advertise that.

Delphine's motivation to get a balanced, unbiased understanding of the latest issues is consistent with her approach to exploring topics with colleagues or trusted experts. Delphine explained:

> I'm closely in touch with one of the pharmacists in the [Physician Academic Detailing] program … so when I let him know that I've been interested in this or that … he has a wealth of information … we kind of review different trials together.

Delphine's motivation to be able to share and dialogue what she learned through CPD, as a way to get a balanced perspective, is reflected in her preference for in-person CPD. When asked about her preferred CPD formats, Delphine responded, "Oh 100% the live interaction." Delphine explained that could be "… at a conference where you can network with colleagues" or "… in a small group." Delphine elaborated, "I find those events to be the most fruitful because it's direct one-on-one contact and updates and a sense of, you know, you can foster that collegiality and whatnot."

Delphine's motivation to "affirm" aspects of practice is reflected in the way she described seeking reassurance when listening to an expert on a particular topic:

> I hear from an expert … in terms of depression management this is what we're doing and I'm like oh yeah, okay that's what I'm doing, it's good, I'm glad to know that, it's reassuring to know that I'm on track and … I'm able to offer my patients … what is up to date and what is standard of care and what's beneficial for them.

Finally, Delphine's motivation to participate in CPD to obtain CPD credits is evident in her participation in an accredited self-reflective activity. Delphine reflected that she found the exercise only "… partially useful" because it felt like a "… retrospective activity in some ways." However, Delphine reflected, it was "… something that I get credits for."

What factors were associated with Delphine's motivation for and participation in CPD?

Delphine indicated that she valued organized CPD, explaining it was "… extremely invaluable" to her practice, explaining, "I think that CME's essential. I don't really see being able to practice without it."

In terms of her experiences of organized CPD, Delphine explained that she preferred in-person CPD due to the opportunity for "networking with colleagues and the ability to share experiences to dialogue around cases." However, Delphine's practice, which involved a lot of travel, had an influence on the CPD in which she was actually able to participate. Delphine explained, "Given the nature of my work and frequent travel, a lot of my CME is online." Delphine's participation in in-person CPD was restricted to "… what's available when I happen to be in town."

Researcher Interpretation. Delphine's practice situation limited her access to CPD, particularly when she was located abroad. In spite of this, Delphine described being actively involved in CPD; she was aware of current trends in CPD, described participating in a wide range of activities over the past few years, and emphasized the importance of getting a balanced perspective through multiple sources, as well as taking a critical approach to making changes to her practice.

Delphine's enthusiasm for organized CPD and her perception that CPD was "… extremely invaluable …" to practice indicate her motivation for CPD reflected what SDT describes as identified, or autonomous, motivation. Although Delphine's reference to the importance of CPD credits indicated that externally regulated factors also had a role in her CPD participation, these requirements did not appear to thwart her sense of autonomy. Rather, consistent with a self-determined orientation, Delphine's descriptions of her CPD experiences suggest that her needs for autonomy, competence, and relatedness were all supported through her participation in CPD. Delphine's descriptions of the varied ways she applied what she learned to the specific context of her practice indicate she perceived a high level of autonomy in her CPD. Delphine's description of the way in which CPD provided her with reassurance she was "… on track" suggests CPD supported

her sense of competence. Finally, Delphine's appreciation of the opportunity to "… network with colleagues" indicates that, at least for in-person activities, her need for relatedness was supported through CPD.

Interview 4: Stan

Stan graduated 29 years ago and, at the time of the interview, had been a family physician for 20 years. Stan had a rural practice and was also a rural preceptor in the family practice residency program, which "… basically [involves] teaching docs how to go work rural." In describing his scope of practice, Stan recounted: "I still do emerg [sic], which I did this morning till 3:00am … I do obstetrics. I'm a hospitalist. I do geriatric consults … I basically wear essentially every hat there is to wear."

How did Stan describe his participation in organized CPD activities?

CPD Participation. Based on his questionnaire response, Stan participated in 320 hours of CPD in the past year, which is substantially higher than both the median response value and the CFPC's requirements. It was also the highest reported CPD hours among all questionnaire participants. Stan explained that, in terms of participating in CPD, he had "… the tendency to do the whole gamut." He described participating in conferences, lectures, webinars, webcasts, and reading online articles. Stan stated his preferred type of CPD was "… small group module[s]." He explained the reason for this was that "… you learn the stuff that's hard to learn" by discussing pragmatic considerations such as "… how would you manage this in this community … what resources do we have?" Stan noted that this type of CPD allowed physicians to "… bring the whole practice full circle" by applying what they learned to practice and "… reflect[ing] on what we're doing." Stan went on to explain how this was enacted in his own practice setting:

> We … are pushing it a little bit … we … connect with the data from our information system …[to] do reflective practice … so you do a [small group] module and we go and look into our

> data and figure out … how we score … how teams are doing … what we're really doing rather than what we believe we're doing.

In addition to participating in CPD, Stan explained, "I've been involved in organizing CPD for a good 20 years." Stan talked about organizing conferences, lectures, and small group sessions. Whatever the format, Stan stated, "I really try to make CME case based, interactive."

Approach to CPD. In terms of his approach to CPD, Stan described himself as "… the question guy," explaining:

> I'm facilitating, trying to drag out people and I'm asking questions, I'm trying to make connections, I'm trying to push the things that I know and generally ask the person for the resources or the management questions that … I think are little bit atypical. So … I'll bring some cases of the stuff that I'm not quite sure what to do with and where's the right line and how far should we go and all of those particular questions. And then generally the things that there is no lazy answer to.

Stan also described himself as a "… corridor consult guy," explaining:

> That's the way I learn the best...I learn best from conversations. I learn best from wrestling with problems in an interactive way. And then making it … fit my paradigm by asking question, question, question…so that's … my style.

Stan described keeping track of what he learned from CPD, "I put notes on my cell phone about things that I want to remember. I keep a list of links of the websites and stuff and so that's my file management system." Stan reflected:

> I'm an auditory learner. I'm a visual auditory learner … that's how I remember most things and so I just need to open the drawer and then I'll get the other pieces of information. So that's how I tend to file stuff … I take lots of notes and then I go back to those.

Stan explained that, when he changed practice based on his CPD, he did so quickly, noting, "It's almost within the next week that I apply what I learned." Stan also recounted using what he learned in CPD to "go and do an audit" on his practice:

> I can in 20 seconds, 30 seconds come up with a list of patients with whatever characteristics I've got in my EMR that I can search and then make a recall list and get those people in or look to see that a drug needs to be stopped … in five seconds and it says call those people and then you change the drugs.

How did Stan describe his reasons, or motivation, for participating in organized CPD? Stan described participating in CPD because he wanted to "… feel more proficient and … try to keep up with medicine." Stan also explained that he enjoyed participating in CPD, reflecting, "I love, I love to learn." In addition, Stan noted that he enjoyed the social aspect of CPD, explaining, "I would say my wife and I … we live to do CPD, that's our social life."

How did Stan's motivation for CPD relate to his participation in CPD? Stan's motivation to stay up to date and become more proficient through CPD is reflected in his approach to choosing CPD, "Based on how recently I've seen that content" as well as "… based on the speaker." Stan explained, " I need somebody who's a good synthesizer," noting that he had a list of speakers "… who are good synthesizers, who take a little piece of information, integrate it into the literature, into how it has changed practice, and give it back to me in a way that … I can easily swallow and make sense of for myself."

Stan's professed love of learning was evident in the way he described choosing CPD topics based on interest and "… whether there's some personal goals to learning for me." Stan elaborated, "I've been, over the years, a member of more granola things … interesting, weird kinds of therapies … stuff that's on the edge of what I would normally do with the hopes that I increase my bag of tricks … [I ask myself] what are the paradigms, what are the kind of patients that might benefit?" Stan explained, "Once every two or three years [I've] taken on a steep learning curve … something

that I was not good at to become proficient and that's things like acupuncture … trauma." Stan appeared to channel his love of learning into engaging in CPD that expanded his knowledge in new areas.

Stan's description of himself as someone who "lived to do CPD" is reflected in his CPD choices, including his "tendency to do the whole gamut" and his involvement in organizing CPD.

What factors were associated with Stan's motivation for and participation in CPD? In explaining his perspective on the value of CPD, Stan explained that the multiple components of his practice meant he was able to observe many areas in which CPD had a positive influence on his practice. He reflected, "… if you have your finger in every pie, you know, if you, [do] obstetrics and emerg [sic] and all of the things I do, the benefit is exploding." Stan explained, "It's been validating for me as a physician … I'm doing the same as my colleagues are and I offer wonderful resources and things for my patients." In addition to the benefits to his practice and the sense of validation Stan gained through CPD, Stan also valued the social aspect. As noted, Stan described CPD as his "social life." He elaborated, "Our social interactions are perpetualized in learning how to be better clinicians." Stan explained that, from his perspective, learning was a social process. He elaborated, "… the stuff that's hard to learn" was "… brought out in a conversation that you have from your peers" and "… having a conversation [with colleagues]" allowed physicians to "… see if we actually walk the walk and talk the talk."

Researcher Interpretation. Stan was involved in a substantial range of CPD activities, both as a participant and organizer. Stan was well versed in current priorities and trends in CPD, some of which he was very enthusiastic about, such as the use of practice data to inform CPD. Stan's broad scope of practice is typical for a rural practitioner. Stan's varied approach to CPD reflected his varied practice, although his involvement in CPD appeared to go above and beyond the requirements for his practice, likely due to his professed enjoyment of CPD and the way involvement in CPD appeared to be integrated with his social life.

In considering Stan's motivation for CPD, Stan appeared to view participation in CPD as part of his sense of self, which accords with what SDT describes as integrated motivation, the most autonomous form of extrinsic motivation. The extent to which Stan appeared to be self-determined in his CPD is also consistent with his described CPD experiences, which indicated satisfaction of needs for autonomy, competence, and relatedness. Stan chose to participate in "… the whole gamut" of CPD, meeting his need for autonomy. Stan's description of the validation he experienced through his CPD indicates his need for competence was also supported through participation in CPD. Finally, Stan's focus on the social opportunities afforded by CPD indicates that Stan intentionally sought out CPD to satisfy his need for relatedness.

Interview 5: Frances

At the time of the interview, Frances had practiced as a physician for 25 years. She described herself as a full service family doctor, working in an urban, solo practice where she saw patients four days a week. In terms of her scope of practice, Fran explained, "My practice is varied. I see newborns up to the very elderly. I do care of women in early pregnancy but I don't do deliveries."

How did Frances describe her participation in organized CPD activities?

CPD Participation. Based on her questionnaire response, Frances participated in 27 hours of organized CPD in the past year, which is lower than the median for all questionnaire responses and the annual CFPC requirement. Frances described participating in a small range of intentionally selected CPD activities. Frances explained that she was currently participating in a monthly half-day lecture series; each session was "a four hour afternoon" in which "… you concentrate on a particular subject." In addition, Frances explained she used to be"… part of the McMaster continuing education meetings" for several years, which are well-known, self-organized small group learning sessions in which "… the module would be read as a case" and "I would participate in answering the questions [and] questioning others." Frances noted, "For me it's easier to do something which is on a regular

basis" as it meant that she did not have to rely on seeking out and participating in one-off CPD events.

Frances also mentioned that she had "… done some committee work over the years that is considered CPD," which she explained involved "… a group of physicians talking with some people who are experts and discussing issues and mainly those committees would be trying to educate physicians." Frances reflected, "I found [the committee work] quite useful myself." In addition to organized CPD events, Frances said that she read articles from selected journals and used "Up-to-Date," an online, evidence-based information source for clinicians, as a resource in her practice.

Approach to CPD. In terms of her approach to participating in organized CPD, Francis explained that she tended to ask questions and be "…intellectually critical." However, Frances noted she preferred not to ask questions in very large groups and, in this type of CPD event, would "… sit there and listen."

Frances described a link between organized CPD and her practice, saying, "I find that CPD does influence the way I practice." However, this was not necessarily equated with making direct changes to practice. Rather, it was the sense of identifying "… pearls that come out of each session" and having these her disposal. Frances explained, "I like to have easy access to the information that I've received so that I can go back and reference it because let's say I don't see a patient with that particular problem for two months I will at least, even if I don't remember all the details of the information at least I can easily access it and then it's quite familiar to me."

In talking about making changes to practice, Frances reflected:

> Personally, it takes me a while to make a change. I need to be convinced … that … something new is definitely better … most likely I would need to hear something, if it was quite a bit different than what I've been doing, more than once from good sources before I would make the change.

When deciding whether to change her practice, Frances explained she would consider:

> Who's presenting the information and where [is] the information … coming from? Is it backed up by a recent study? Is it backed up by new guidelines? I would look at whether it seemed reasonable with other information that I've [been] given, like if someone's giving me information that is not consistent with other information I would be more questioning and want to have a little bit more backup on it.

How did Frances describe her reasons, or motivation, for participating in organized CPD? Frances described participation in CPD as part of her role as a physician, saying "I feel it makes me feel like I'm contingent to grow as a physician and that I'm, I'm, I feel it's almost an obligation as a physician to continue to educate yourself." She went on to explain, "I think that I get personal satisfaction out of the fact that I have actually gone and I've done that." In reflecting on the role that organized CPD played in her practice, Frances described organized CPD as "… a global part of my practice that allows me to continue to be current." Frances talked about ongoing learning being part of her as a person when she explained, "… it's in me to learn."

Frances explained that CPD credits and the requirement to participate in CPD for licensure did not motivate her participation in CPD, explaining, "… we used not to need the credits for our license but that hasn't, I haven't changed how much CME I do based on that."

How did Frances' motivation for CPD relate to her participation in CPD? Frances' motivation to use CPD to continue to educate herself and remain current in her field is evident in her preference for CPD that she believed enhanced her learning. Frances said, "I think I've nailed what I do for CPD," explaining, "I learn through processing so if, there's discussion … if there [are] some things that are unknown or people have a different way of doing it or there's a question about what the current protocol is for something, I find that I learn it better if it's discussed rather than if I'm just told." Frances elaborated:

> The bigger conferences, which I used to do years ago … multiple talks … multiple days … I find that I get less out of it in the end. Even though at the time the information seems great and really relevant and up to date … I often find my retention is less.

Frances explained, "I like something that's a little bit more interactive [rather] than sitting and just be[ing] talked at." She reflected:

> I've been a physician for enough years that often times I have my own specific questions so in a smaller group or when it's interactive those can be answered versus being in a much bigger group where some questions are taken but, um, you know, my specific questions may not be dealt with or there may not be enough time for everyone to ask the questions.

Frances' motivation to participate in CPD because it was a global part of practice that allowed her to remain current is also consistent with her approach of choosing CPD based on conditions she had "a large amount of" in her practice, rather than based on specific learning needs. In addition, Frances' perspective on CPD as a global part of her practice is consistent with her approach to integrating CPD into to her practice. Rather than viewing CPD as a way of addressing specific issues in practice and subsequently making changes to address those issues, Frances integrated "pearls" learned through CPD into her practice repertoire, to be made available as and when needed.

What factors were associated with Frances' motivation for and participation in CPD? In describing why she valued CPD, Frances reflected, "I think [be]cause I went to school for so long … it's in me to continue to learn." Frances also highlighted the value of organized CPD specifically, explaining:

> I've made a conscious effort to do CPD versus when I'm doing more informal learning, it's happening during just a day to day process so I think that even just cognitively I'm more prepared … I'm probably better able to process things when it's more formal.

Frances highlighted what she gained through participation in CPD, explaining, "… it makes me feel more comfortable with helping my patients." She noted, "…if … I encounter that particular medical problem in my practice shortly afterwards that I find it's really quite validating." Frances acknowledged that many physicians appreciated the opportunity CPD provided to connect with other physicians; however, she explained that, for her, "[Although] it is nice for me if I can go with another physician that I know … I'm not there … to network and meet other physicians."

Although Frances described an intentional approach to choosing particular types of CPD, when it came to specific activities, other commitments played a role in determining whether she could participate. She explained, "… just from a time point of view [I] can't attend everything I would like." For example, Frances noted that she had recently stopped participating in the McMaster modules, a preferred type of CPD, because "… it's done in the evenings… it was just becoming really difficult to attend."

Researcher Interpretation. Frances was selective in the CPD in which she participated. Over the years, Frances had developed a high level of self-awareness regarding her learning preferences and she used this knowledge to engage in CPD that she believed would yield the maximum impact for her learning. Frances viewed CPD as a way to stay up to date in a global way. In line with her approach to using her CPD time efficiently, Frances looked for broad topics that impacted a substantial proportion of her patients.

In terms of motivation for CPD, Frances emphasized the role CPD played in supporting her desire for continual growth as a physician, which reflects SDT's description of identified, or autonomous motivation. Frances did refer to continued education as an "obligation", which indicated that externally referenced factors had a role in her motivation for CPD. However, Frances noted that she got personal satisfaction through her CPD and suggested that ongoing learning was integrated into her sense of self, noting, "… it's in me to learn."

Overall, Frances appeared to be self-determined in her motivation for CPD. In considering the degree to which autonomy, competence, and relatedness appeared to play a role in Frances' motivation for CPD, Frances described the multitude of CPD activities available to her, indicating she perceived a high level of choice or autonomy. She also emphasized the validation she experienced through CPD, suggesting CPD supported her sense of competence. Unlike other participants, Frances explained that she did not view CPD as an opportunity to connect with colleagues, although she did note it was "nice" to participate in CPD with someone she knew. It may be that, for Frances, the need for relatedness was supported through connection with those she knew well, rather through interaction with a larger group of colleagues.

Interview 6: Edward

Edward graduated 40 years ago. He spent fifteen years practicing in various First Nations communities in Northern Canada then set up an urban family practice, where he also worked in residency training practice. Edward closed his family practice a few years ago and since then had practiced in a residential care setting. Edward recounted, "Up north I did everything. I did the caesareans, the appendectomy, tonsils, whatever … [in my urban practice] I still did emergency, still delivered lots of babies, and since closing my office I've just looked after seniors."

How did Edward describe his participation in organized CPD activities?

Participation in CPD. Based on his questionnaire response, Edward participated in 30 hours of CPD in the past year, which is lower than both the median response value and the CFPC's requirements. Edward described attending a number of conferences throughout the country, including general educational conferences for family physicians and those focused on geriatric care. Edward also mentioned that he had participated in "… small group stuff" and "… practical courses" in the past, but did not currently do so. He attributed this to "… partly time" and "… partly just [not] finding the right group to work with" and also "… because I'm doing less of that kind of practice." Edward described teaching a number of CPD courses and presenting at various conferences; he

viewed these activities as forms of CPD, noting, "… you never know anything as well as when you try to teach it."

Edward also noted that he read a lot, explaining, "I really like literature as a source, I subscribe to InfoPOEMS."[2] Edward explained why reading literature was his preferred type of CPD:

> I can go as slow or as fast as I need to get the information that I want … I can speed read, you know, a journal and pick out what's interesting and if something is very important I'll look at every detail of it … it's very much the pace of the information that I need at the speed I need.

Approach to CPD. When asked about his approach to participating in organized CPD, Edward said "I tend to scratch a few notes every now and again. I've got a stack of notes in a drawer at home." He also noted, "I'm a questioner and so I'm usually, you know, one of those over eager people who sticks their arms up when the professor asks a question."

In describing what he did with information learned from CPD, Edward reflected, "One of the movements in CPD is to get people to do self-reflection exercises after they've … done an educational activity. But I haven't done much of that." Instead, Edward explained, "I'm on a number of boards … So I tend to bring the things I've learned to those meetings in terms of creating policy." Edward also described how he used information learned through CPD to support his approach in practice, both in terms of guiding his decisions and in terms of sharing the information with colleagues and patients:

> One of the big problems in senior is in the hospital people get piled on enormous numbers of medications and so it's become kind of a bit of a buzz now to be concerned about Polypharmacy. So I attend a number of things related to Polypharmacy and a lot of these geriatric conferences now are focusing on that and so I'm using the information to de-

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[2] Brief reviews of articles in the medical literature that are relevant to primary care physicians.

prescribe. I keep a file of geriatric articles about the problems associated with a lot of the prescribing we do so that I can show families and staff that actually people don't need a lot of the stuff that they're getting.

How did Edward describe his reasons, or motivation, for participating in organized CPD? Edward described participating in CPD because he viewed it as "… part of professionalism, I think, to stay up to date in your field." Edward participated in organized CPD to find out "what guidelines have been published … what the official word is on things."

Edward noted he also viewed CPD as an opportunity to "… hear what people are thinking." He reflected, "… not all of what we do depends on what the literature tells us we should do. A lot of what we do is heavily influenced by what others are doing. We tend to be pretty social. And so it's partly to hear what other people are thinking and doing in that kind of way." In addition, Edward indicated he found CPD interesting, noting, "… it's intellectually stimulating."

How did Edward's motivation for CPD relate to his participation in CPD? Edward's motivation to satisfy his role as a professional by staying up to date in his field through finding out "… the official word on things" as well as "… what other people are thinking and doing" is reflected in his approach to choosing CPD. Edward described a preference for reading literature, which provided the "official word" from published work. In choosing specific CPD events, Edward indicated his interest in hearing others' perspectives rather than solely the latest evidence, noting, "I am very interested in certain speakers … I've maybe read some of their work or … I've heard them speak before and I'd like to hear them again."

Edward's motivation to use CPD to fulfill his professional role based on both the latest literature and what others are doing is also evident in the way he described using CPD in his practice. In describing his approach to de-prescribing, he indicated his awareness of others' approach when he noted, "… it's become … a bit of a buzz" and demonstrated his use of published

literature when he described "I keep a file of geriatric articles about the problems associated with a lot of the prescribing we do."

What factors were associated with Edward's motivation for and participation in CPD? In describing his experiences of CPD, Edward emphasized the value of CPD in being able to access "… the collective wisdom of people who've collected a lot of patients with any given condition". He explained that, while much of his learning took place through practice, "[Your] practice can't give you the kind of knowledge you can get when you aggregate the information over a large population." Edward also acknowledged the value of being able to hear from colleagues, both in terms of advancing his learning and for the sense of enjoyment he gained from these interactions:

> It's really fun to run into former students … colleagues, people that have done locums for me … fun to share coffee with them and discuss what the speakers have been saying and what our practices are like, all that kind of thing.

In regard to his participation in specific CPD activities, Edward's scope of practice had narrowed over time, and his current CPD choices reflected this. Edward also noted, "I look for sources that I think have the kind of biases that I like," observing:

> I mean … you value speakers who think like you, right, we think that other people like us are great people and people who are not like us who are … we don't like as much. So if I get information that agrees with what I already think I tend to value that more.

Finally, Edward explained that some of his CPD choices were unrelated to his practice:

> Sometimes a meeting is held in some place that I want to visit … I've attended a few meetings that were not terribly relevant to my practice because they were at some place that I thought well that would be an interesting place to go to.

***Researcher Interpretation*.** Edward was an experienced family physician who was in the latter stages of his practice. Although he appeared to be highly confident in his practice, Edward valued CPD as a means of ensuring he kept up with developments in his field. Edward indicated a

high level of self-awareness, referring to his tendency to seek CPD that supported his own perspectives and biases. Edward was knowledgeable about current discussions in the CPD landscape and described using his involvement with various committees to apply what he learned through CPD at a policy, rather than practice, level.

Edward explained that he valued CPD as it allowed him to stay current in his field. He also described CPD as "intellectually stimulating." Edwards's motivation for CPD appeared to be what SDT describes as identified, or autonomous motivation. His descriptions are consistent with SDT's premise that autonomous or self-determined motivation is supported by satisfaction of the needs for autonomy, competence, and relatedness. Edward described choosing various forms of CPD to address different goals and explained being able to use what he learned in flexible ways, suggesting his need for autonomy was met through CPD. Edward explained that CPD enabled him to keep up with the latest developments in terms of both the "… official word" and "… what people are thinking", indicating CPD supported his sense of competence. Finally, Edward's description of the enjoyment he derived from "… shar[ing] coffee with [colleagues] and discuss[ing] what the speakers have been saying …" suggests his need for relatedness was also supported through CPD.

Summary

Participant profiles provide detailed 'snapshots' of each participant. This aspect of the analysis adds to the thematic analysis, which used an inductive, or 'bottom-up' approach, by explicitly identifying the ways in which each participant's interview addressed each of the study's research questions. The 'researcher interpretation' within each profile enabled me to consider the ways in which concepts from SDT relate to, and expand understanding of, participants' motivation for and experiences of CPD.

Summary of Results

This chapter presented the results from the questionnaire and interview components of my study. I used quantitative and qualitative data from the questionnaire to address each of the study's

research questions. I presented the findings of my thematic analysis of interview data, which can be summarized in six main themes (*sense of maintaining competence, connecting with colleagues, me as a learner, opinions on the CPD system, practicalities of participation,* and *links to practice and informal learning*). I presented detailed profiles of each interview participant based on the study's research questions and provided a researcher interpretation, using self-determination theory as a way to enhance understanding of participants' motivations for and experiences of CPD. The final chapter reviews the purpose of the study, provides an overview of the results of the study, considers how this study contributes to research in the areas of CPD and SDT, and discusses implications for educators, researchers, and policy makers concerned with family physicians' CPD.

CHAPTER 5: DISCUSSION

Summary and Conclusions

The family physician's role is a complex one, characterized by a broad scope of practice that continually evolves. Continuing professional development (CPD) activities are intended to provide family physicians with the skills, knowledge, and confidence to be able to practice effectively in this challenging context. CPD is viewed as an important part of practice; in Canada, family physicians who are members of the College of Family Physicians are required to demonstrate ongoing participation in CPD activities.

There is ample research demonstrating CPD can be an effective mechanism for improving physician performance and ultimately patient outcomes, yet there is also substantial variation in these outcomes (Cervero & Gaines, 2015). There have been recent calls to advance CPD research by identifying how, when and why CPD activities are effective (Olson, 2016). To date, research in this area has focused on the extent to which specific types of CPD are effective in enhancing knowledge, practice change, and ultimately patient outcomes (e.g. Marinopoulos et al., 2007). Research also suggests physicians' choice of CPD topic (e.g. Miller, 2005), their overall volume of participation (e.g. Goulet et al., 2013), and their approach to participating in CPD (e.g. Mazmanian & Davis, 2002) plays a role in determining CPD effectiveness.

In somewhat of a contrast to the research on CPD effectiveness, when family physicians are asked about their perspectives on CPD, they describe the CPD in which they participate as valuable to their practice (e.g. Harrison & Hogg, 2003). However, research on family physicians' perspectives on and motivations for CPD is limited. I believed that examining the ways in which family physicians described and made sense of their CPD experiences could enrich our understanding of, and ultimately enhance, the complex role CPD plays in family practice. Thus, the focus of my study was to advance understanding of the role of CPD for family physicians by investigating family physicians' motivations for participating in CPD, examining their accounts of their CPD

participation, and considering the ways in which they described their overall perspectives on and experiences of CPD.

A few studies have investigated physicians' perspectives on and motivations for CPD, either focusing on a specific CPD activity (e.g. Harrison & Hogg, 2003; Williams et al., 2003), which provides little information about physicians' overall perspectives on CPD, or using self-report questionnaires as the sole method of data collection (e.g. Chambers et al., 2000; McLeod & McLeod, 2004), which generally rely on researcher-derived concepts and do not enable physicians to describe their perspectives on CPD in their own words. Thus, my study offered a unique contribution to advancing our understanding of family physicians' CPD, using a mixed-methods approach, which incorporated a self-report survey and in-depth interviews, to examine participants' overall motivations for, participation in, and experiences of CPD.

In approaching this study, I made use of research pertaining to physicians' continuing professional development and research on self-determination theory (SDT), which provided a sensitizing lens for understanding the ways physicians approached and experienced their CPD activities. Ninety-one family physicians, who were representative of Canadian family physicians in terms of practice setting and locale, participated in the questionnaire component of the study. Six of these physicians, who varied in terms of their practice and their CPD, participated in the interview component. Next, I provide a summary of the themes from my thematic analysis of interview data. Following this, I provide a brief summary of the ways in which the results of this study addressed each of the four main research questions.

Overarching Themes

My inductive thematic analysis of interview data led to identification of six overarching themes, each with a number of associated sub-themes, which, together, provide an integrated summary of interview participants' descriptions of their motivations for, participation in, and

experiences of CPD. Here, I summarize each theme and sub-theme and, where applicable, make explicit links to SDT.

Sense of Maintaining Competence refers to the important role that interview participants described organized CPD playing in regard to overall sense of competence in their practice. Family physicians know that they need to stay up to date with new developments and best practices in the field, yet, as interview participants in this study described, the broad, complex, and ever-changing landscape for family practice makes this a challenging endeavour. Organized CPD provided participants with a sense that they were, at least to a certain extent, keeping up with important developments in the field. In addition to providing new information, CPD also provided participants with reassurance that their practice was consistent with current standards in the field. This theme is consistent with SDT's emphasis on the need for competence, highlighting the way most interview participants supported their need for competence through organized CPD.

Connecting with Colleagues describes the opportunity for interaction afforded by CPD participation. Family physicians interviewed for this study described the ways in which organized CPD enabled them to meet with colleagues, which included both individuals they already knew and new acquaintances. Interaction occurred through both the CPD activities themselves and through more informal networking opportunities associated with CPD activities. Participants explained how this connection allowed for learning with and from one another and provided opportunity for socialization. Whatever the nature of the interaction, connection with others was, in general, viewed as a particularly valuable component of organized CPD; as some participants noted, opportunities for interaction with colleagues are often lacking in everyday practice. This theme reflects SDT's concept of the need for relatedness, demonstrating how most interview participants satisfied this need by connecting with colleagues through various CPD activities.

Me as a Learner captures family physicians' sense of themselves as learners. As interview participants in this study explained, the emphasis on learning throughout medical school and

subsequent practice resulted in the sense that learning was part of who they were as an individual. Interview participants described a sense of responsibility as a physician-learner and held conscious beliefs about the ways in which they learned most effectively, which often guided their CPD choices. In addition, some participants described the interest and curiosity associated with learning as something they enjoyed. The way in which participants described learning as part of their sense of self reflects what SDT describes as integrated motivation, the most autonomous form of extrinsic motivation. Although motivation for learning is not necessarily synonymous with motivation for CPD they are certainly related, as demonstrated by the way participants described using their beliefs about the way they learned to guide their CPD choices.

Opinions on 'The CPD System' describes participants' perspectives on external forces in CPD. Interview participants described a belief that CPD was needed for the profession and did not object to requirements for CPD. However, the reality of meeting the requirements by participating in and documenting the correct amount and type of CPD was frustrating for some, reflecting what SDT may describe as an insufficient sense of autonomy. Most interview participants were aware of the literature on CPD effectiveness; however, for some participants, personal experiences of CPD ran counter to prevailing findings regarding CPD effectiveness.

Practicalities of Participation refers to the importance of timing and location in determining whether participants could access a given organized CPD activity. Given the varied settings and locales in which family physicians live and work this is an important element in understanding the role of CPD in family practice. For some interview participants, the range of activities in which they could participate was substantially limited by practical factors.

Links to Practice and Informal Learning outlines the ways in which organized CPD was related to participants' practice and other, more informal, learning activities in which they engaged. Interview participants did not generally choose organized CPD based on an identified learning need from their practice; rather, they used informal learning approaches to address specific needs that

arose. In choosing organized CPD, participants generally heard about the activity first, then made a decision about whether to attend based on interest, overall relevance to their practice, and practical considerations. Most participants viewed organized CPD and informal learning as serving different functions; both were viewed as important and they could be complementary. In terms of the relationship between organized CPD and practice change, participants explained that they may or may not change practice following CPD participation. When no change was made, participants still viewed the activity as valuable to practice, for example if it provided opportunity to critically examine an issue or reinforce current practice.

Next, I outline the ways in which the results of this study addressed each of the four main research questions and, where applicable, detail the ways in which SDT enhanced understanding of the data.

How did family physicians describe their participation in organized CPD activities?

Overall, family physicians in this study reported attending a wide variety of organized CPD activities, in varying quantities. Questionnaire data indicated that the majority of participants spent more time participating in presentation-based CPD than interactive CPD; overall, conferences were the most frequented type of CPD. Qualitative data from the questionnaire emphasized the influence of availability in regard to the CPD that participants could attend. Interview data built on this through participants' emphasis on the importance of accessibility and timing in determining whether they could take part in specific CPD activities.

In addition to the role of availability in participants' choices regarding CPD format, a small proportion of questionnaire participants and one interview participant suggested they participated in presentation-based CPD due to a preference for that type of CPD, which was centred on their familiarity with the format and the perspective that presentation-based CPD was more efficient. Conversely, a small number of questionnaire participants and two interview participants indicated

that they preferred interactive CPD, due to opportunities for hands-on and discussion-based learning.

Participants reported participating in CPD that both refined their existing knowledge and led to improvement in experienced areas. The majority of questionnaire participants reported spending more of their CPD time refining their existing knowledge. Qualitative data from the questionnaire indicated participants spent more time refining existing knowledge for reasons of interest, availability, and relevance to practice. One questionnaire participant elaborated on this, indicating that knowing a lot about the most common topics was favourable to knowing a little about all aspects of practice.

In terms of their approach to participating in CPD, most questionnaire participants reported taking an active approach to participating in CPD by planning CPD based on learning needs as well as opportunistically, making links to their existing knowledge and practice, and planning and making changes to their practice following participation in CPD.

Interview data enabled the development of a more in-depth understanding of participants' approach to CPD. In terms of their approach within CPD activities, interview participants described taking notes, engaging in discussion, and making specific links to their practice while participating in organized CPD. In terms of their approach to choosing CPD, five of the six who participated in interviews explained that it was challenging, if not impossible, to find organized CPD at the right time and location to address a specific learning need. Rather, these participants described informal learning as much more effective in addressing specific learning needs.

In regards to making changes to practice based on participation in CPD, all interview participants explained that, while organized CPD sometimes resulted in practice change, it often did not. Both interview and questionnaire data highlighted some participants' perspective that changing practice based on the latest recommendations was not necessarily synonymous with better practice. When practice change did not take place, interview participants still described

organized CPD as valuable, due to the opportunity to affirm their current practice, engage in critical thinking about current issues, obtain information and resources for future use, and, in a general, get a sense of being up to date with the field.

How did family physicians describe their motivation for participating in organized CPD?

Questionnaire data indicated that, for most participants, motivation for CPD was experienced as more autonomous than controlled. That is, participants overwhelmingly ranked autonomous reasons for participating in CPD as more influential than controlled reasons.

Interview data mirrored questionnaire findings in that most participants' descriptions reflected an autonomous or self-determined orientation for CPD. However, interview data also built a more nuanced picture of participants' motivation for CPD. Interview participants described multiple and mixed (autonomous and controlled) reasons for participating in CPD, including fulfilling a sense of responsibility, the view that learning was part of their sense of self, keeping up with the field, affirming current practice, connecting with colleagues, obtaining CPD credits, and for interest and enjoyment of learning. In interpreting interview participants' motivation for CPD based on SDT, it was possible to make a judgment regarding the most salient type of motivation for each participant. However, these singular constructs did not capture the complexities and nuances of participants' motivation for CPD. Interview participants' described perspectives on and experiences of CPD suggested that, for most participants, motivation for CPD was based on a combination of internally and externally referenced factors and spanned multiple points on the SDT continuum of motivation.

Another complexity highlighted by interview data was that a singular reason for participating in CPD could be situated at different points on the SDT continuum, depending on the extent to which the individual described a personal belief regarding the importance of that responsibility. For example, the responsibility to stay up to date could be situated on both autonomous and controlled sides of the SDT continuum depending on the degree to which

participants viewed that responsibility as something that was externally imposed or personally important.

How did family physicians' motivation for organized CPD relate to their organized CPD participation?

Based on questionnaire data, type of motivation for CPD was not found, in general, to be related to participation in CPD. In regard to interview data, the development of participant profiles enabled an examination of the relationship between individual participants' specific motivations for and participation in CPD. By moving away from the more restricted categories of the questionnaire, I constructed an understanding of the ways in which participants' motivation for CPD related to their participation in CPD. For example, one participant's motivation to continue to educate herself was associated with choosing types of CPD that she believed would be most beneficial in enhancing her learning. Another participant's motivation to obtain a wide breadth of information to inform and guide all aspects of her new practice was associated with an approach to choosing and participating in a CPD activities that were "packed" with information.

What factors were associated with family physicians' motivation for and participation in CPD?

Questionnaire data indicated organized CPD played a role in satisfying most participants' needs for autonomy, competence and relatedness. My exploratory analyses suggested that satisfaction of these needs may play a role in taking a more active approach to participating in CPD by planning CPD based on learning needs, making links to existing knowledge and practice, and planning and making changes to practice based on CPD.

Interview data expanded findings from the questionnaire by identifying specific aspects of CPD that appeared to support, and in some cases thwart, participants' needs for autonomy, competence, and relatedness. Specifically, the wide variety of available CPD activities and the opportunity to use what was learned through CPD in different ways appeared to support the need

for autonomy, although, for some participants, CPD requirements also appeared to undermine their sense of choice and control over their professional learning. The sense of being up to date, critically examining new developments, and affirming current practice appeared to meet participants' need for competence. The opportunity to connect and socialize with colleagues through CPD appeared to support the need for relatedness. In a general sense, interview participants' descriptions of the ways in which organized CPD met needs for autonomy, competence, and relatedness appeared to be associated with self-determined motivation for CPD.

Comments from some interview participants suggested that CPD provided an opportunity to meet needs that were not fully met through practice. That is, some interview participants indicated that the multiple sources of external regulation, the ever-changing nature of the field, and a lack of opportunity to regularly connect with colleagues meant that needs for autonomy, competence, and relatedness were not always met through practice. Thus, for some participants, CPD appeared to play a particularly important role in supporting needs that were not being satisfied through practice.

Both questionnaire and interview data also indicated that the majority of participants valued organized CPD. Exploratory analyses of questionnaire data indicated that the value participants placed on CPD may be associated with taking a more active approach to CPD by planning CPD based on needs, making links to existing knowledge and practice, and planning and making changes to practice based on CPD.

Finally, interview participants' described ways in which their practice locale and personal commitments had a role in the CPD in which they could participate. Specifically, the location of participants' practice determined the range of CPD activities they were able to access and personal commitments, such as family responsibilities, influenced their availability to participate in CPD at certain times.

The following sections discuss contributions of my study to CPD research, as well as to SDT research. I identify implications for educators, planners, researchers, and evaluators concerned with family physicians' CPD. Next, I identify limitations of the study. Finally, I discuss potential future directions for this area of study.

Contributions to Continuing Professional Development Research

The results of this study, which encompass themes that both relate to and are independent of SDT, contribute to various facets of CPD research.

Advancing understanding of family physicians' motivation for CPD. This study substantiated and built on previous CPD motivation research. In this study, the most frequently cited reasons for participating in organized CPD by study participants (to fulfill a sense of responsibility, stay up to date, gain reassurance, connect with colleagues, obtain CPD credits, and for interest and enjoyment of learning) accord with those described by previous researchers (e.g. Allaire et al., 2012; Chambers et al., 2000; Harrison & Hogg, 2003). The practicalities of being able to participate in CPD, namely the factors of timing and accessibility, have also been documented in the literature (e.g. Chambers et al., 2000). Thus, this study corroborates previous research regarding physicians' motivation for CPD. It also builds on existing research by viewing CPD motivation through the lens of SDT, identifying reasons for participating in organized CPD versus informal learning, and considering how physicians' views of themselves as learners play a role in their overall motivation for CPD.

Examining CPD motivation through self-determination theory. In this study, family physicians described multiple reasons for participating in organized CPD. Conceptual categories from SDT fit well with participants' descriptions and use of SDT enabled a more nuanced understanding of the data with respect to participants' motivation for CPD. Overall, participants' motivation for organized CPD was more autonomous than controlled; the majority of participants described a self-determined orientation for CPD, identifying with the need for organized CPD and

indicating they personally valued their participation in CPD. However, this study also emphasized the complexities regarding motivation for CPD. Family physicians in this study described multiple and varied reasons for participating in CPD, indicating their motivation for CPD spanned multiple points on the SDT continuum of motivation. For example, many participants described CPD as something that was both personally and professionally important, yet some participants also described participating in CPD to gain credits rather than for the value of the activity. These complexities demonstrate the nuanced way that internally and externally referenced factors appear to play a role in family physicians' motivation for CPD.

Satisfaction of needs for autonomy, competence, and relatedness: The findings of this study emphasized the role of autonomy, competence, and relatedness in a CPD context. By providing participants with the sense that they were meeting the challenges of keeping up to date as well as affirming their current practice, organized CPD supported the need for competence. The creation of opportunities for learning from and socializing with colleagues appeared to support participants' need for relatedness. In regard to autonomy, some participants emphasized the opportunity for choice in their regard to their organized CPD, although in some cases, the requirement for CPD reduced participants' sense of autonomy, to a certain degree.

It appeared that, due to the nature of family practice, which is characterized by a complex, ever-changing landscape and usually involves working independently with a large patient base, these needs were not always satisfied through participants' professional practice. Thus, there may be an opportunity for organized CPD to satisfy needs that are lacking in professional practice.

In this study, questionnaire data indicated a sense of autonomy, competence, and relatedness may be associated with taking a more active approach to CPD; interview data suggested that satisfaction of autonomy, competence, and relatedness may be related to a high degree of self-determination for CPD. In addition, research indicates that satisfaction of these needs in a CPD context is likely to be associated with enhanced learning and improvements to practice, as well as

the broader benefits of improved psychological health, well-being, and growth (Ryan & Deci, 2000, 2017; Sheldon, Elliot, Kim, & Kasser, 2001; Williams et al., 2003). The benefits may also extend more broadly to physicians' practice. Williams, Saizow, and Ryan (1999) hypothesized that when health care providers are more self-determined in their practice they will be more autonomy-supportive with their patients. Physicians' autonomy support with patients has been shown to improve patients' health-related behaviour in multiple contexts (Williams, et al., 1996; Williams, Freedman, & Deci, 1998; Williams, Freedman, & Deci, 1998). Although this study did not examine relationships between satisfaction of autonomy, competence, and relatedness through CPD and the degree of self-determination for practice, this could be an important area for future research.

One interesting consideration, which was touched on by one participant in this study and has been discussed in the literature elsewhere (e.g. Eva & Regehr, 2008), is that, due to physicians', and indeed humans' inability to accurately self-assess, the degree of autonomy physicians have regarding their CPD participation may actually be detrimental to their practice. That is, potentially due to the challenges of accurate self-assessment, it is believed that physicians often choose CPD topics in which they are most familiar and avoid topics in which they are not (e.g. Miller, 2005). This study corroborated the finding that physicians focus the majority of their CPD on familiar, as opposed to unfamiliar, topics. The focus on familiar topics, combined with the sense of competence that physicians get through CPD, means that participation in organized CPD may actually lead to an inflated sense of competence, as physicians' 'blind-spots' are not being addressed through their CPD activities. The question of how to ensure CPD continues to satisfy physicians' need for autonomy while helping them to address potential 'blind-spots' could be an interesting area for further research.

Reasons for participating in organized CPD versus informal learning. Another way that this study contributed to research into physicians' motivation for CPD was the elucidation of participants' perspectives on the differences, and connections, between informal learning and

organized CPD. Mcleod and Mcleod (2004) argued that formal CME and informal learning could be complementary. This study provided empirical support for this argument as participants identified both organized CPD and informal learning as valuable to practice, highlighting the different ways in which both informal learning and organized CPD constituted important components of their overall learning. Of particular relevance were interview participants' emphasis on organized CPD's unique strengths in maintaining a sense of overall competence, providing dedicated time for intentional learning, and an opportunity to connect with and learn from colleagues. Participants emphasized their use of informal learning to address specific learning needs and highlighted the lack of suitability of organized CPD in this regard. Instead, participants chose organized CPD based on activities that 'came their way' and piqued their desire to 'check-in' with their field, based on interest or overall relevance to their practice. This approach is very different from the notion of assessing learning needs and seeking CPD based on this, which is the recommended approach for physicians' CPD activities.

Physicians' view of themselves as a learner. This study added a new dimension to understanding of physician motivation for CPD by highlighting the extent to which participants described themselves as 'learners' who held conscious beliefs and preferences about their learning, using these beliefs in an intentional way to guide their CPD choices. A substantial body of research has explored physicians' professional identity formation and authors have proposed ways in which medical education has a role in physicians' ongoing negotiation of their professional identity (e.g. Pratt, Rockman, & Kaufman, 2006). However, there has been little discussion, to my knowledge, regarding physicians' sense of identity as a learner. As Vadeboncoeur, Vellos, Goessling (2011) noted, individuals can possess multiple identities, which may or may not be related to one another. Considering the number of years physicians spend in formal education and the requirement for continued CPD, 'being a learner' may be one of the identities assumed by physicians. Another potential area for future research is to examine physicians' learner identities, to consider how

professional and learner identities may relate to one another and overlap, and to determine ways in which learner identities may play a role in physicians' motivation for and participation in CPD.

Advancing understanding of effective CPD. A lot of CPD research has focused on ascertaining if CPD is effective in improving physician performance and patient outcomes (e.g. Marinopoulos et al., 2007; Cervero and Gaines, 2015). The general consensus is that it can be effective in some circumstances. This study contributed to this literature by adding the physicians' perspective to the discussion on CPD effectiveness.

CPD format. Family physicians in this study described numerous CPD activities as valuable to their practice. These included interactive formats such as small group workshops that, according to the literature, are more effective forms of CPD. Formats considered to be less effective, such as conferences, were also highlighted by participants as valuable to their practice. As paralleled by previous research (e.g. Harrison & Hogg, 2003), participants explained the value of these purportedly less effective activities in terms of a preference for structured learning, the opportunity to learn about important updates in the field, and a chance to interact with and learn from colleagues. In this study, there was also some indication from participants that they found some of the purportedly more effective activities, such as reflective activities, less valuable to their learning and their practice. Interestingly, several interview participants referred to the literature on CPD effectiveness, indicating that this body of research is, at least to a certain extent, known amongst family physicians. In spite of their awareness of the literature it appears some family physicians, based on their personal CPD experiences, do not agree with all aspects of this research. Examining the ways in which physicians' perspectives on the value of CPD activities align or depart from that of the prevailing perspective in the field could be an important avenue for future study, particularly as physicians' uptake of purportedly more valuable CPD, such as reflective activities, is often low.

CPD focus. This study supported previous findings that a large proportion of physicians' CPD is focused on refining familiar areas of practice (e.g. Miller, 2005). It has previously been

suggested that this may be due to physicians' lack of planning of their CPD (e.g. Chambers et al., 2000) avoidance of more challenging learning, or physicians' poor self-assessment of learning needs (e.g. Eva & Regehr, 2008). Adding to these explanations, data from this study suggested some family physicians may intentionally seek more familiar topics as they view this as a more efficient use of their time. That is, the areas of practice in which family physicians are familiar are those that are relevant to the largest proportion of their patients. Another explanation emphasized by participants in this study, which has also been highlighted in previous research (e.g. Harrison & Hogg, 2003), was the perceived value of affirming current practice through participation in CPD that focused on familiar areas of practice.

Approach to CPD. In general, family physicians in this study reported taking an active approach to CPD. The majority of questionnaire participants reported planning CPD based on learning needs, taking an active role during CPD participation, and making changes to practice following CPD. Interview participants added complexity to this finding by highlighting the impracticality of seeking organized CPD to address specific learning needs. Interview participants also emphasized that practice change was not always the actual or desired outcome of organized CPD.

The finding that family physicians do not always change practice following CPD participation is not surprising or new (e.g. Davis et al., 1999; Marinopoulos et al., 2007). However, the ways in which participants described such situations warrants attention. Rather than viewing these CPD activities as less effective than those that did lead to practice change, participants explained why they deemed these activities valuable. The reasons cited, which included getting a sense of being up to date, affirming current practice, connecting with colleagues, and engaging in critical thinking appeared to play an important role in supporting family physicians' in their practice.

Contributions to Self-Determination Theory Research

There are two main ways in which this study contributes to self-determination theory research. First, this study investigated the applicability of SDT in the context of CPD for physicians, which is a little explored area in SDT research. Second, by integrating in-depth interviews into the study design, this study represented an expansion of research methods typically utilized in SDT research, which have traditionally relied solely on self-report questionnaires.

Self-Determination Theory in a CPD Context. This study investigated family physicians' perspectives on and experiences of their continuing professional development, using SDT as a sensitizing lens. Few CPD research studies have made use of the SDT framework and this is the first time, to my knowledge, that a SDT lens has been used in the context of understanding physicians' overall perspectives on and experiences of CPD. Previous research into physicians' motivations for CPD has rarely made use of an explicit theoretical framework. By using SDT as a sensitizing lens, this study foregrounded participants' perspectives while also considering ways in which SDT could enhance understanding of the data.

The use of SDT in this study enabled interpretation of participants' varied motivations for participating in CPD. Results indicated that, although the majority of participants reported primarily autonomous motivation for CPD, motivation for CPD was more nuanced than a single category can suggest. SDT enhanced interpretation of these complexities and enabled a more sophisticated understanding of the ways in which internal and externally referenced factors appeared to play a role in family physicians' motivation for CPD.

Findings from this study also indicated that organized CPD often played a role in supporting participants' needs for autonomy, competence, and relatedness. Consistent with the view that self-determination is profoundly linked to satisfaction of autonomy, competence, and relatedness, results indicated that there may be a relationship between family physicians' satisfaction of

autonomy, competence, and relatedness through CPD and the extent to which they feel self-determined about and take an active approach to their CPD.

Expansion of SDT Data Collection Methods. To date, most SDT research has been based on self-report questionnaires, which rely on researcher-derived concepts as opposed to more open-ended data collection methods, such as interviews, which are based on participant-generated descriptions (Perry et al., 2015). In this study, interviews were an opportunity to understand motivation for CPD based on family physicians' own descriptions. Use of SDT as a sensitizing lens enhanced interpretation of the data, while also allowing for the construction of other important concepts related to family physicians' CPD.

By utilizing both a self-report questionnaire, which incorporated adapted versions of two scales developed for SDT, and in-depth, semi-structured interviews, this study provided a unique opportunity to compare similarities and differences in the data obtained from these two methods in relation to SDT. Both questionnaire and interview data highlighted satisfaction of basic psychological needs through CPD, although the apparent complexities regarding some participants' sense of autonomy through CPD was not identified in the questionnaire data. Similarly, in terms of motivation for CPD, both questionnaire and interview data indicated participants had primarily autonomous motivation for CPD, yet interview data indicated most participants' motivation was more complex, often spanning multiple points on the SDT continuum of motivation.

In sum, the comparison of questionnaire and interview data suggests that, in the context of understanding family physicians' CPD, the main concepts within SDT, i.e., the importance of needs for autonomy, competence, and relatedness and the continuum of motivation, were constructed through participant-generated descriptions in an interview context as well as through researcher-derived questionnaires. However, this study also demonstrated that qualitative in-depth interviews are able to detect nuances and relationships not identified through self-report questionnaires alone. Future SDT research could benefit from making greater use of qualitative data collection techniques

that are grounded in the lived experiences of participants and allow for the construction of more nuanced explanations of SDT motivation concepts.

Practical Implications

The findings of this study suggest some important implications for those involved in CPD, including educators and planners involved in developing and implementing CPD, researchers and evaluators, and policy makers involved in shaping the CPD landscape for family physicians.

Educators and planners: focus on the strengths of organized CPD. This study highlighted the reasons participants engaged in organized CPD and identified how the role of organized CPD was viewed in relation to practice and informal learning. Participants in this study valued organized CPD and viewed it as part of their role as a physician. Educators and policy makers can make use this information to design organized CPD that emphasizes its unique strengths, as identified by family physicians themselves.

Satisfy Needs for Autonomy, Competence, and Relatedness. The findings of this study indicated that CPD often satisfies needs for autonomy, competence, and relatedness, and that this may be associated with feeling more self-determined about and taking a more active approach to CPD. SDT research also suggests these needs are associated with enhanced learning and improvements to practice, as well as improved psychological health, well-being, and growth (Ryan & Deci, 2000, 2017; Sheldon, Elliot, Kim, & Kasser, 2001). Satisfaction of these needs may also be associated with taking a more autonomy supportive approach with patients (Williams, Saizow, and Ryan, 1999), which has been linked to improvements in patients' health-related behaviours (e.g. Williams, et al., 1996). Thus, the case for using organized CPD as an opportunity to support physicians' needs for autonomy, competence, and relatedness is a compelling one.

The findings from this study lead to various suggestions regarding the ways in which CPD can satisfy physicians' needs for autonomy, competence, and relatedness. CPD educators and planners can support needs for competence by ensuring important developments are synthesized

in a balanced way, fostering the desire to 'check-in' with the field by creating CPD that piques interest and curiosity, recognizing opportunities to reinforce current practice, and promoting new developments in the field. The need for relatedness can be supported by incorporating opportunity for interaction and bidirectional learning, supporting the development of collegial relationships, and providing time for informal networking activities. In addition, educators can consider the ways in which CPD activities can support physicians' need for autonomy. Physicians have considerable autonomy regarding their CPD choices, although requirements for CPD may also thwart their sense of autonomy. CPD planners and educators may consider how specific CPD activities can support autonomy through the provision of meaningful choice and encouraging participants to take personal responsibility for their learning.

Recognize the value of providing dedicated time for learning. A simple, yet important way in which CPD planners and educators can capitalize on the strengths of organized CPD identified in this study is to recognize the value of providing dedicated time and space away from the demands of practice to focus on intentional learning. Asynchronous models of organized CPD that do not take place at a scheduled time, such as online education programs, may consider how the notion of protected time for learning could be incorporated into program design.

Consider the complements of informal learning. This study indicated that, due to its accessibility, informal learning, such as looking up information at the point of care, is superior to organized CPD in addressing specific learning needs that arise through practice. CPD educators should not view this as a shortcoming of organized CPD. Rather, there is an opportunity for those involved in organized CPD to acknowledge and, where applicable, integrate the complementary strengths of each approach by encouraging participants to make synergies between organized CPD and informal learning as a way of enhancing their overall learning.

Capitalize on physicians' view of themselves as 'learners'. Finally, there is an opportunity to leverage family physicians' conscious beliefs about the ways they learn to encourage physicians to

be actively involved in their ongoing learning. CPD planners and educators can consider developing and promoting CPD activities in ways that capitalize on physicians' preferences and beliefs about their learning.

Researchers: make further use of SDT in CPD research. This study demonstrated how SDT can advance understanding of family physicians' motivations for CPD and enable useful applications in the context of enhancing family physicians' CPD. Researchers could benefit from making further use of SDT in CPD research. The 'future directions' section of this chapter provides some specific recommendations for further study in this area.

Policy makers and evaluators: reconsider measures of 'effective CPD'. Moore (2003) proposed a framework for outcome evaluation in CPD, which cautioned against relying on 'lower level' outcome measures, such as participant satisfaction or tests of knowledge. As such, the gold standard of CPD effectiveness evaluation is considered to be an assessment of practice performance or patient outcomes based on practice or patient data. Whilst this is clearly the overarching goal of CPD, this focus tends to lead to the assumption that effective CPD should lead to short term, measurable changes in practice. However, this study indicated that family physicians viewed the purpose of CPD as something more complex. Whilst a change to practice was viewed as a favourable outcome following participation in CPD, some participants also emphasized that change was not always needed and new was not always best. For example, it was suggested that the opportunity to affirm current practice or to critically appraise a new development and make an informed choice not to change practice could be equally valuable. Finally, this study indicated how, by meeting needs for competence, relatedness and autonomy, organized CPD could play a role in contributing to family physicians' overall well-being and growth, which are undoubtedly essential for high quality practice.

Thus, the results of this study caution against relying on measurable changes in practice as the sole criterion for evaluating CPD effectiveness. Instead, those involved in evaluating CPD may

benefit from developing measures that consider the multiple roles that CPD has for family physicians and their practice. An increased focus on a wider variety of CPD effectiveness measures can enable a more in-depth understanding of the complex role of CPD in family practice.

Limitations

Sample. The main limitation of the sample in this study was that sampling was biased towards physicians who were actively engaged in organized CPD. The primary way in which I recruited participants for the questionnaire was through CPD activities organized by the University of British Columbia's Division of Continuing Professional Development (UBC CPD). Thus, these were participants who were actively participating in organized CPD. In an attempt to mitigate this bias, I also used the UBC CPD database to identify and invite physicians who had not attended a CPD event in the last three years.

However, the voluntary nature of participation in the study meant that there might have been a self-selection bias, with those who were more involved and interested in CPD being more likely to volunteer to participate. Furthermore, although I attempted to select physicians with a range of perspectives to participate in interviews, the subset of questionnaire participants who volunteered to participate in an interview may have been even more likely to be subject to self-selection bias, potentially representing those with the greatest degree of interest in organized CPD. The offer of a prize draw for questionnaire participants and an honorarium for interview participants was an attempt to mitigate this potential self-selection bias. Another way in which I attempted to recruit participants who were not actively engaged in CPD was by asking the CFPC to invite members who reported a low quantity of CPD to participate in the study. However, the CFPC were unable to grant my request. A possible avenue for future research could be to examine the views and experiences of those who are less interested in or convinced of the value of CPD, as this is an important perspective that I was unable to hear from in this study.

Beyond the potential bias regarding participants' degree of interest and involvement in CPD, a disproportionate number of females participated in the study when compared to the proportion of male and female physicians practicing in BC (National Physician Survey, 2014). Potential reasons for this could be that female physicians are more interested in CPD or that female physicians are more likely to participate in this type of research.

Data Collection Methods. There are a few limitations with the data collection methods used for this study. First, both methods of data collection were subject to social desirability bias. This may have been particularly salient for participants who were aware of my role as someone involved in designing CPD programs.

Next, the operational definition of organized CPD that I used for the study may not have aligned with participants' usual interpretation of CPD. Although I provided an explanation of my operational definition to both questionnaire and interview participants, it is possible that some participants reverted to their own definition of CPD when participating in the study. There is some evidence that this may have been the case. For example, Sam, one of the study's interview participants, only included activities organized by UBC CPD in her descriptions until I clarified that I was interested in any organized CPD in which she had participated. It is not possible to know to what extent this may have applied to questionnaire participants.

In terms of the design of the questionnaire, although I trialed the questionnaire with a number of physicians to ascertain their interpretations of the various components of the questionnaire I was not able, due to the constraints identified in the previous section, to test the questionnaire with physicians who were not engaged in organized CPD. This group would have been particularly valuable in terms of their ability to provide insight into the questions designed to allow participants to express an alternative viewpoint about the value of CPD in a way that would not be subject to social desirability response bias.

In regards to the interviews, I made a number of minor revisions to the protocol during the data collection process. These were intended to ensure subsequent interviews covered important points that had been discussed in initial interviews and to further examine certain areas that appeared particularly important. The interviews were designed to be semi-structured, so some variation in questions was anticipated from the outset. Furthermore, the changes did not influence my ability to examine the study's research questions for each participant. However, to some extent it can be argued that the changes to the protocol limit the ability to directly compare the data from each interview.

Finally, in retrospect, I realized that my role as 'insider' in CPD was, in some respects, a limitation when conducting the interviews. In reviewing the interview transcripts, I recognized that, on a couple of occasions, participants referred to a particular concept or area of CPD and, due to my knowledge of that topic, I did not ask for further elaboration or clarification. This meant that, for some areas, I made an assumption about the meaning of a particular topic rather than taking the opportunity to hear it in participants' own words.

Approach to Analysis. I utilized two approaches to analyzing interview data. One involved generating themes from the entire dataset through a step-by-step process and the other involved using the study's research questions to create profiles for each interview participant. Although not a limitation of this study per se, the limitations of each approach were highlighted, as, although both approaches identified similar concepts overall, each approach led to focusing on different components of the data. This demonstrates the influence and importance of the analytical approach, as findings vary even when the same researcher analyzes the same data.

Finally, as noted, my perspective as a 'CPD insider' had an influence on data collection, it also, to a certain extent, had an influence on the analysis that I conducted. Although I consciously tried to 'bracket' my assumptions, maintaining a reflective journal throughout the analytical

process to support this, it is important to recognize that research never takes place in a vacuum and, in this study, my knowledge and beliefs about CPD had a role in the research process.

Future Directions

The findings of this study lead to various suggestions for further research. One avenue for future research is to further explore the utility of SDT in advancing understanding of physicians' motivations for CPD. This could include further examination of the varied and complex motivations that family physicians have for participating in CPD. An examination of the way internal and external factors interplay with one another when family physicians make a decision about whether to attend a specific CPD activity, or during participation in a CPD activity, could be a valuable approach to building further understanding of the role of motivation in family physicians' CPD. An investigation of the specific elements of CPD that satisfy physicians' needs for autonomy, competence, and relatedness is another important area for future research, as is an exploration of the connections between family physicians' sense of autonomy, competence, and relatedness through CPD and their sense of self-determination within their professional practice.

With respect to physicians' perspectives on specific types of CPD, an examination of the ways in which physicians' perspectives on the value of CPD activities align or depart from that of the prevailing perspective in the field may prove useful.

Another interesting area for further research would be to examine the concept of physicians' sense of themselves as learners, investigating how this relates to and overlaps with professional and personal identities, as well as physicians' experiences of CPD.

Finally, future research could focus on participants involved in this study through the development of more in-depth case studies. For example, the participant with 57 years of experience may provide valuable insights into how CPD has changed during his career and what factors support his ongoing involvement in CPD. A case-study approach could also be used to

examine the views and experiences of those who are less interested in or convinced of the value of CPD, as this is an important perspective that I did not hear from in this study.

Concluding Remarks

This study investigated family physicians' perspectives on and experiences of organized CPD, examining their motivations for, participation in, and experiences of CPD, with the goal of further understanding, and ultimately improving, the role of CPD in family practice. Family physicians in this study described multiple reasons for participating in CPD, suggesting both internally and externally referenced factors play a role in motivation for CPD. Overall, most participants appeared to have an autonomous, or self-determined, orientation for CPD. Participants described themselves as ongoing learners and appeared to believe in the value of organized CPD. They also viewed informal learning as an essential, but different, part of their ongoing learning and development. Participants emphasized the unique contribution of organized CPD in enabling connection with colleagues, maintaining a sense of overall competence, and providing time for intentional learning away from the demands of practice. For family physicians in this study, the effectiveness of CPD was not solely focused on changes in practice. Organized CPD was also deemed valuable when it provided opportunity to dialogue with colleagues, encouraged critical thinking, and affirmed current practice.

Family physicians in this study described the ways in which organized CPD supported needs for autonomy, competence, and relatedness. The ability of organized CPD to meet needs for autonomy, competence, and relatedness is important, especially when these needs may be lacking in the context of professional practice. Research suggests that satisfaction of needs for autonomy, competence, and relatedness, viewed as fundamentally linked to self-determination, is associated with enhanced learning, improved performance, and overall well-being and growth.

By focusing on the inherent strengths of organized CPD identified by family physicians themselves, and considering the ways in which CPD can satisfy needs for autonomy, competence,

and relatedness, CPD planners and educators can play an important role in ensuring organized CPD is of maximum benefit for family physicians, their practice, and ultimately the populations they serve.

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Appendices

Appendix A: Questionnaire

Family Physicians' Continuing Professional Development

You are invited to participate in this questionnaire about your continuing professional development (CPD), which is part of a study investigating family physicians' CPD experiences. We're interested in how you experience CPD, what your motivations are for participating in CPD, and what contributes to these motivations.

Time Requirements
The questionnaire will take approximately 5-10 minutes to complete.

Potential Risks of Participating in the Study:
Risks associated with participating in this study are low. All data collection will take place only after you are made fully aware of the study, and after informed consent is obtained.

Potential Benefits of Participating in the Study:
This study offers you the opportunity to share your experiences of CPD, which will enhance overall understanding of CPD and may be used in the future to improve CPD for family physicians.

Confidentiality
Participation in this study is entirely voluntary. All data collected in the study will be treated with utmost respect and confidentiality. Hard copies of data will be stored in a locked filing cabinet and electronic copies of data will be saved on a password protected computer. In order to maintain confidentiality, the data will only be accessible to me and my research supervisor, and information that could potentially identify you or your working context will not appear in presentations or publications that result from the study.

Respondents will have the opportunity to enter a prize draw for a $100 gift certificate.

Consent
If the questionnaire is completed and submitted, it will be assumed your consent has been given. However, you are free to withdraw from the study at any time without consequence.

Definition of Continuing Professional Development (CPD)

For the purpose of this questionnaire, 'organized continuing professional development' (CPD) is ***any organized educational activity*** that serves to maintain, develop, or enhance:

- knowledge
- skills
- performance
- relationships

in your provision of services to patients, the public, or the profession.

Note on Questions
All questions are important for this research study and you are asked to answer each question carefully, including open ended questions.

Have you previously completed this questionnaire?

- ❑ Yes (*If yes, please do not proceed with the remaining questions.)*
- ❑ No

Demographics

1. What year did you graduate from medical school? _____

2. Are you:

- ❑ Male
- ❑ Female

3. Is your practice primarily:

- ❑ Rural
- ❑ Urban

4. Is your practice primarily:

- ❑ Group
- ❑ Solo

CPD Participation

1. On average, how many hours have you spent in each of the following organized CPD activities in the past year? ***Please provide a rough estimate***

CPD Format	**Hours**
Presentation-based CPD	
a) Conferences	
b) Rounds	
c) Webinars	
d) Other presentation-based CPD Please specify:_____	
Why do (or don't) you participate in these types of CPD activity?	
Interactive CPD	
e) Small group workshops	
f) Skills-based courses	
g) Other interactive CPD Please specify:_____	
Why do (or don't) you participate in these types of CPD activity?	

2. Thinking back over the last year, what percentage of your organized CPD has focused on:

a) Learning new knowledge and skills for the purpose of refining and enhancing my existing knowledge	%
b) Learning new knowledge and skills for the purpose of improving my competence in areas in which I am inexperienced	%
Total	100%

What factors influence this split? (E.g. Interest, perceived utility, availability etc.)

Reasons for CPD Participation

1. To date I have participated in organized CPD because:

Rank each statement from 1 through to 4, with 1 being the statement you agree with the most and 4 being the statement you agree with the least.	
a) It's a good way to improve my knowledge and skills	
b) It contributes to my colleagues' positive perception of me	
c) Continued learning is an important part of being a doctor	
d) It is required for my license	
Briefly explain the reasons for your ranking: Are there any other reasons you participate in organized CPD? If so, please briefly describe:	
e) N/A (I rarely participate in organized CPD)	

2. When I follow recommendations made in organized CPD activities, I do so because:

Rank each statement from 1 through to 4, with 1 being the statement you agree with the most and 4 being the statement you agree with the least.	
a) I believe following the recommendations will lead to more effective practice	
b) Adopting new practices enhances my reputation as a doctor	
c) I am concerned about regulatory consequences if I do not follow recommendations	
d) It is important to me that my practice is based on the latest recommendations	
Briefly explain the reasons for your ranking: Are there any other reasons you follow recommendations made in organized CPD? If so, please briefly describe:	
e) N/A (I do not generally follow recommendations made in organized CPD)	

3. Please rate the value you believe each of the following has in enhancing your practice:

1 = no value; 4 = a lot of value				
	1	2	3	4
Organized CPD				
Informal learning through practice				

4. Please rate the extent to which you agree or disagree with the following statements:

	1 = strongly disagree; 4 = strongly agree			
	1	2	3	4
a) I prefer looking up information when I need it in my practice rather than learning through organized CPD events				
b) My skills and knowledge improve through my everyday practice more than they do through participation in organized CPD events				
c) In my experience, organized CPD has not had a substantial impact on improving my practice				
d) I believe that using long established tools (e.g. procedures, drugs, tests, etc), with which I am experienced, is better than using new tools, with which I am inexperienced				
e) I believe organized CPD content is often biased				

Your Organized CPD Experiences

1. In my experience…

	1 = strongly disagree, 4 = neither agree or disagree, 7 = strongly agree						
	1	2	3	4	5	6	7
a) I tend to plan and choose organized CPD events based on my learning needs/professional goals							
b) I tend to choose CPD events opportunistically (e.g. based on availability)							
c) The variation in organized CPD means I can choose CPD that is relevant to my learning needs/professional goals							
d) Organized CPD gives me opportunity to connect with colleagues							
e) I don't feel very competent when participating in organized CPD							
f) I am able to learn new information and skills through organized CPD							
g) I make an effort to make links between what I learn in organized CPD and my existing knowledge and practice							
h) I plan changes to my practice based on what I learn through organized CPD							
i) When I attend organized CPD I feel pressured to change my practice							
j) I make improvements to my practice based on what I learn through organized CPD							

Interview Participation

Would you be interested in participating in an interview regarding your CPD participation and experiences? (You would receive a $50 honorarium for a 30 minute interview, which will be conducted in-person or by teleconference)

- ❑ Yes
- ❑ No

If yes, please provide your name and contact information:
Name: _____
Email: _____
Phone: _____

Prize Draw & Summary of Findings

Would you like to enter the prize draw to win a $100 gift certificate?

- ❑ Yes
- ❑ No

Would you like to receive a summary of the research findings?

- ❑ Yes
- ❑ No

If you answered yes to either of the above questions, please provide your name and contact information (this will be separated from the above responses):

Name: _____
Email: _____
Phone: _____

Appendix B: Semi-Structured Interview Protocol

Reminders to Interviewer:

- *Introduce yourself and confirm the participants' name.*
- *Thank the participant for their participation in this study.*
- *Briefly explain the project and participants' role in research.*
- *Remind the participant we will be audio (and might be video) recording the interview, of our commitment to confidentiality, and the voluntary nature of the research process.*
- *Inform the participant that the interview should take approximately 30 minutes.*
- *Let the participant know we are interested in hearing their thoughts and experiences, and that there are no right or wrong answers.*
- *Ensure the participant has signed the consent form before beginning the interview.*

The following protocol represents the questions and topic areas to be discussed in the interviews. Because this protocol is for a semi-structured, open-ended process, additional follow-up questions may be added as a result of the direction of a particular interview. This protocol is designed to be responsive to participants' responses.

Introduction

As you know, this study is investigating family physicians' CPD practices. We're interested in how family physicians experience CPD, what their motivations are for participating in CPD and what contributes to these motivations.

For the purpose of this interview when I ask about your continuing professional development or 'CPD'. I'm referring to any learning activity that maintains, develops, or enhances the knowledge, skills, performance, and relationships you use to provide services for patients, the public, or the profession.

Interview Questions

1. ***Please briefly tell me about your practice***

Potential probes: How long have you been in practice? What type of practice is it (i.e. private/salaried, group/solo, full service/walk-in/locum)? What is the focus of your practice (i.e. general practice or a specific focus)?

2. ***Please tell me about the type of organized CPD activities you have participated in over the last year.***

Potential probes: What were the specific activities? How much did you do of each activity? Is this typical? NOTE: May refer to questionnaire responses as prompts.

3.

a) What CPD formats do you prefer?

Potential probes: Is there anything you avoid? Have you considered other types of CPD, such as online CPD, videoconference, small group learning, coaching … Why do you prefer [preferred CPD format] over other formats?

b) When you are participating in [preferred CPD format] what are you doing?

Potential probes: If someone observed you participating in a CPD activity, what would they see? What do you think about?

c) What do you do with the information you learn through a CPD activity? Or What role does CPD have in your practice?

Potential probes: How do you relate what you learn to what you already know? How do you relate what you learn to your practice?

4.

a) When choosing CPD how do you choose the content?

Potential probes: If you are participating in [preferred CPD format], how do you decide specifically what to go to? How do you decide you need to attend formal learning on a given topic?

b) What other factors are involved when you choose CPD?

Potential probes: pragmatic reasons.

c) In general, why do you engage in CPD?

Potential probe: What is the value of CPD? Other than CPD, what do you believe enhances practice? Do these things have more or less of an impact than CPD? [for those who appear to be highly engaged]: What do you think makes you so involved in CPD??

5.

a) Please tell me about a recent CPD activity in which you participated. What was it? What was your role? Reflecting back, what did you get out of the experience?

Potential probes: What was the format? From your perspective, what was good about the learning experience? Why? What was not so good? Why?

a) How has this activity (and other CPD activities you have participated in) influenced your subsequent decisions about CPD? Why? Would you be more likely to choose a similar type of CPD activity again (in terms of format rather than content?) Why/why not?

6. Do you have anything else you would like to share about your CPD experiences?

Wrap up

Thank you for your time and for the valuable feedback you provided to this study. If you have any questions about this interview or the study at a later date you are welcome to get in touch with me.

Appendix C: CPD Activities Used for Questionnaire Recruitment

Activity	Description	Date	# Invited to Participate
CME on the Run	Half-day lecture style session; participants attend in-person and by video conference	Oct 10, 2014	76
Webinar (CME on the Run)	Live, online webcast; presentation with Q&A	Oct 24, 2014	75
SEMP	Hands-on, skills based course	Oct 31, 2014	27
Bringing Best Evidence	One day conference; lecture style	Nov 1, 2014	132
UGEMP	Hands-on, skills based course	Nov 14, 2014	25
Webinar (Online Search Tips)	Live, online webcast; presentation with Q&A	Nov 20, 2014	30
Post Grad Conference	Three day conference; lectures and small group workshops	Feb 28, 2014	217
UBC CPD Database	Not attended CPD event in last 3 years (through UBC CPD)	Nov 14, 2014	50

Appendix D: Letter of Initial Contact –

Letter of Initial Contact: Family Physicians' Perceptions and Experiences of Continuing Professional Development

Dear BC Family Physician,

I am a graduate student at UBC and I am conducting a research study titled '**Family Physicians' Perceptions and Experiences of Continuing Professional Development**,' in partial fulfillment of the requirements for a Master of Arts at UBC's Faculty of Medicine. The goal of the study is to further current understanding of family physicians' perceptions and experiences of continuing professional development (CPD), including their reasons for participating in CPD, and the types of CPD in which they participate

Participation in this study will involve completion of a questionnaire approximately 5-10 minutes in duration, which will enable you to provide information on your CPD practices and experiences. In addition, when completing the questionnaire you will be asked if you would be interested in participating in an interview regarding your CPD practices and experiences. If interested, you will be asked to leave your contact information and you may be subsequently invited to participate in a 30-minute interview.

Your participation in this study (either the questionnaire or the interview) is entirely voluntary and confidential; data will be anonymized in all reporting. **You may refuse to participate or withdraw from the study at any time without any consequence**.

If you have any questions or desire further information about this study, or would like to request a summary of the results, you may contact the principal or co-investigator using the contact information below.

If you have any concerns about your rights as a research participant, you may contact the Research Subject Information Line at the UBC Office of Research Services at 604-822-8598 or via e-mail at RSIL@ors.ubc.ca. **All data collected in the study will be treated with utmost confidentiality to protect each individual's identity. The data will (i) be accessible to members of the research team only and (ii) be included in reports with no individual identifiers**.

Sincerely,

Ms. Jennie Barrows, BSc, Co-Investigator, MA Candidate, UBC Faculty of Education / Project Manager, UBC Division of Continuing Professional Development, Faculty of Medicine
Dr. Nancy Perry, PhD, Principal Investigator, Professor, UBC Faculty of Education

Appendix E: Interview Consent Form

Interview Consent Form
Family Physicians' Continuing Professional Development

Dear BC Family Physician,

I am a graduate student at UBC and I am conducting a research study titled '**Family Physicians' Motivations for and Experiences of Continuing Professional Development**,' in partial fulfillment of the requirements for a Master of Arts at UBC's Faculty of Medicine. The goal of the study is to further current understanding of family physicians' motivations, perceptions and experiences of continuing professional development (CPD), including their reasons for participating in CPD, and the types of CPD in which they participate

Participation in this part of the study will involve a 30-minute interview regarding you CPD practices and experiences. The interview can be held in person or by teleconference/videoconference.

Your participation in this study is entirely voluntary and confidential; data will be anonymized in all reporting. **You may refuse to participate or withdraw from the study at any time without any consequence**.

Study Procedures

You are invited to participate in an interview to explore your perceptions and experiences of continuing professional development (CPD), including their reasons for participating in CPD, and the types of CPD in which you participate. Importantly, there are no right or wrong answers to the interview questions. All data arising from this research activity will be anonymized in all reporting.

Time and Data Requirements

The interview will take approximately 30 minutes to complete. The interview can be conducted in person or by teleconference/videoconference. Interviews will be audio recorded.

If you consent to participate in the interview but do not wish to have the interview audio recorded, we will use our notes of the interview.

Potential Risks of Participating in the Study:

Risks associated with participated in this study are low. All data collection will take place only after you are made fully aware of the study, and after informed consent is obtained.

Potential Benefits of Participating in the Study:

This study offers participants the opportunity to share their experiences of CPD, which will enhance overall understanding of CPD and may be used in the future to improve CPD for family physicians.

Confidentiality

If you consent to participate in this study your identity will be kept confidential. The completed consent form will be kept separate from data collected to protect your identity. All data from the

interview will be kept in a locked filing cabinet. Only members of the study team will have access. **Your name <u>will not</u> appear in any reports on the completed study**.

<u>Contact Information about the Study</u>

If you have any questions or desire further information about this study, or would like to request a summary of the results, you may contact the principal or co-investigators using the contact information below.

<u>Payment</u>

You will be paid $50 for participating in an interview of approximately 30 minutes.

<u>Consent</u>

Your participation in this study is entirely voluntary. **You may refuse to participate or withdraw from the study at any time without any consequence**. No remuneration will be provided for participation in this study.

Your consent to participate is not required immediately. Your signature below indicates you have kept a copy of this consent form for your own records. By signing below you are consenting to participate in this evaluation.

If you choose to participate in this study, we ask that you keep a copy of this consent form for your record and <u>provide a signed copy to the principal or co-investigators of the study.</u>

_____ Participant Name	_____ Participant Signature	_____ Date

Sincerely,

Ms. Jennie Barrows, BSc, Co-Investigator, MA Candidate, UBC Faculty of Education / Project Manager, UBC Division of Continuing Professional Development, Faculty of Medicine

Dr. Nancy Perry, PhD, Principal Investigator, Professor, UBC Faculty of Education