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Case Study

A Case Study of a Community of Practice among Pediatricians at BC Children's Hospital, Vancouver, British Columbia

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Abstract

Background: Medical advancement and complex healthcare practices require pediatricians to learn continually. However, they struggle with their Continuing Professional Development (CPD) due to a shortage of pediatricians, which leaves them with heavy workloads and insufficient time for CPD. The problem leads to poorer quality care and higher mortality rates in pediatric departments. Participating in Communities of Practice (CoP) at their workplaces seems to be beneficial for improving their CPD. Despite a body of literature supporting CoPs impact on pediatricians' practice, there is a lack of understanding about their nature, functions, and their role in improving pediatricians' CPD. **Methods:** This qualitative case study was conducted at BC Children's Hospital (BCCH) in Vancouver, Canada, to examine the BCCH CoP and its role in pediatricians' CPD. The study was guided by a community of practice learning framework, and four Research Questions (RQ) were discussed with nine pediatricians with different specialties about CoP participation and their CPD. The data collected from the semi-structured interview was analyzed using ATLAS Ti to determine the main themes. **Findings:** This study demonstrated that participating in the community helped pediatricians keep up with current knowledge in their fields. They shared information and ideas with other members and colleagues. Together, they created tools, guidelines, websites, and educational materials. In conclusion, all participants agreed that joining the BCCH CoP benefited their ongoing professional development (CPD).

Conclusion and Interpretation: Highlights of this research concluded that community membership positively impacts members' professional development. The majority of respondents indicated that the community enabled them to stay up to date on the latest developments in their fields. They also exchanged information and ideas with their colleagues.

Background

A chronic global shortage of pediatricians leads to overcrowded pediatrics departments. According to the Vancouver Sun, Canada had 2.4 doctors per 1,000 residents in 2019, despite being one of the four countries with the highest healthcare spending [1]. Based on the 2018 report of Child Health BC, British Columbia has approximately 175 general pediatricians, which means that 2.2 pediatricians are available for every 10,000 children. A total of 30 out of 175 general pediatricians are affiliated with BCCH [2].

Lack of enough pediatricians forces them to multitask, resulting in unfocused clinical procedures and lack of time for their Continuing Professional Development (CPD). The situation that affects the quality of their work, increases medical errors and mortality/ morbidity rates among children [3,4]. While it is essential for pediatricians to keep up with CPD, the majority of them enter the workplaces after their formal studies with a perception that they have completed their formal education and should now only focus on their practices [5]. Although it is true for the most part that their formal education is over, it does not mean that they can rest back and practice as healthcare providers, doctors, and pediatricians for the next 20 or 30 or even more years without CPD [5]. CPD, on the other hand, is an issue among HCPs. The problem is that upon entering workplaces, they quickly find themselves overwhelmed with heavy workloads, leaving them with little or no time to pursue their CPD [6]. This is the case especially with traditional CPD, which is passive learning requiring attending lectures. Studies demonstrated that traditional CPD is ineffective and even though it may increase physicians' knowledge, it usually falls short in improving professional practice or patients' outcomes [7]. According to Feldacker, et al. an effective CPD should improve HCPs' knowledge and improve their attitude and practice [8].

The need for Continuing Professional Development (CPD)

CPD is essential not only for HCPs but also for improving the quality of health care. In contrast to the formal medical education, CPD is fundamentally different. Formal training is governed by specific rules and regulations, while CPD involves self-directed, practice-based, and informal learning. The purpose of CPD is to maintain and enhance the competencies of HCPs (knowledge, skills, attitude) in order to meet changing patient needs, respond to scientific advances, and incorporate the evolving expectations of licensing bodies and society [9].

CPD in medical profession refers to "a process of documenting and tracking the knowledge, skills, and experience of doctors and HCPs which they attain both formally and informally at their work, beyond initial school training" [10]. CPD helps maintain professional development by including various learning methods, such as interactive workshop sessions, educational events, conferences, best practice techniques, e-learning programs, and idea-sharing [10]. Kennedy has identified and categorized a range of models of CPD that professionals might adopt to overcome their CPD needs. The category includes nine models: training, award-bearing, deficit, cascade, standards-based, coaching/mentoring, community of practice, action research transformative model [11].

Communities of Practice (CoP)

One of the CPD models is the Community of Practice (CoP), which has been asserted to be a powerful site of transformation and Knowledge Management (KM) where the unique knowledge and experience of individuals is significantly enhanced through collective initiative [11]. CoPs are defined as "groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" [12].

Knowledge creation and management are fundamental components of any CoP. It combines personal and professional development with organizational development to foster a collaborative culture and encourage reflection on problems and challenges encountered (13). Due to the advancement of technologies and social networking that make it possible to connect people over distance and time, several organizations have adopted Community of Practice (CoP) methods to improve their KM [14].

Although communities of practice can take many forms, they all have three fundamental components: a domain of knowledge, a community that has been developed around this domain, and shared practices that the community is developing to be effective [12].

Purpose of the Study

This study was a case study of a selected community of practice in a single children's hospital in Vancouver, British Columbia (BC Children's Hospital (BCCH)). The purpose of the study was to learn more about the selected community in terms of its dynamics and features, such as: its topics of interest, its members and their engagement in productive and sustained interactions among themselves via the community, as well as its functionality, productivity and the way knowledge, experiences, and stories about work experiences are shared across the community.

Research Questions

Four-research question led this study:

- What is the domain of interest to the community?

- What are the members' experiences of engaging in productive and sustained communication among themselves?

- What are the members' experiences with creating and sharing knowledge, experiences, and stories about their work across the community?

- In what ways do members perceive community participation to be beneficial to their professional development?

Methodology

This study used a qualitative case study methodology to answer the research questions. Qualitative research has gained prominence in academia over the years. Qualitative studies are conducted across a wide variety of disciplines and professions as a helpful method of conducting research. The goals of a qualitative researcher are to study how people live their lives in the real world. Participation in qualitative research usually involves people performing their daily duties or expressing themselves without consideration for research questions. In qualitative studies, artificial research procedures have minimal impact, and people are free to express themselves rather than being restricted to answering pre-established questionnaires. People are not inhibited by the confines of a laboratory or a lab-like environment [15].

Case studies as well, make up a large portion of the research done in many fields, including social science, anthropology, psychology, history, education, medicine, and many more [16]. According to Stake, "Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances." He then continues, "The cases of interest in education and social services are people and programs. Each one is similar to other persons or programs in many ways and uniqueness in many ways". And "we seek to understand them" [17].

Utilizing a qualitative case study methodology, data was collected by conducting interviews. Interviewing participants is an important method of collecting data through direct communication between a researcher and the participant—the method that is commonly used in surveys and exploratory or descriptive studies. An interview can be completely unstructured, where participants can talk about whatever they want, or highly structured, where they are asked direct questions. Interviews are a good way for collecting in-depth information about people's opinions, perceptions, attitudes, experiences, and feelings. Interviews are useful when the topics of inquiry are complex or related to issues that need more in-depth information since interviewees are encouraged to speak more in detail freely and openly [18,19].

The data analyzed through coding, which involves transforming raw data into meaningful concepts called codes. Coding is more than putting together a list of codes or paraphrasing concepts. Instead, it is interacting with data, making comparisons between data, and so on, and in doing so, deriving concepts to stand for those data, then developing those concepts in terms of their properties and dimensions. For a researcher, coding can be as mining data and uncovering hidden treasures beneath the surface [20]. Following the recording and transcription of the interviews, the data was coded using ATLAS TI, a qualitative data management and analysis software [21], and then used Corbin's method for thematic analysis [15].

The data analysis started with open coding. In so doing, the categories of information were formed about the participants' experience of BCCH CoP. The data analysis then moved on to axial coding. The data were reassembled in various ways to find a central category and looked for relationships between various categories and subcategories. Next, a selective coding was utilized to write the storyline that connected the categories. The data analysis and coding results were the results the study was looking for in relation to the BCCH CoP, its function, and its effects on pediatricians' CPD [15,22].

Findings

In total 225 codes were created analysing the data, and six main themes emerged as follows: Continuing Professional Development (CPD), Communities of Practice (CoPs) among (HCPs), OPENPediatrics (OP) an online community of practice, Learning in communities of practice, Legitimate Peripheral Participation (LPP), barriers to CoPs productivity and factors encouraging productivity in CoPs (Figure 1).
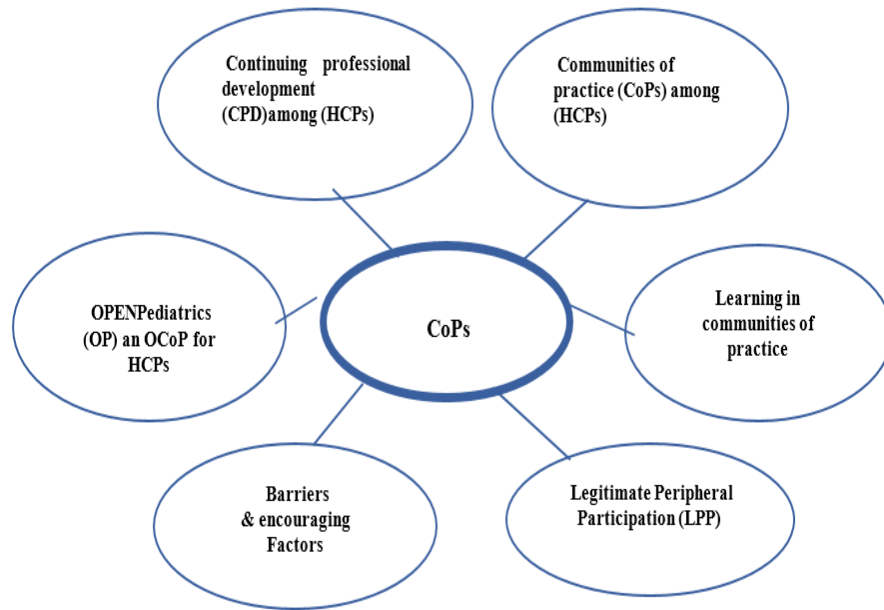
Figure 1: Main themes emerged from literature review.

Continuing Professional Development (CPD) among Health Care Professionals (HCPs)

The term "Continuing Professional Development" (CPD) refers to the period after postgraduate training has been completed. The medical profession is a lifelong learning process that begins when a student is accepted into medical school and continues throughout their entire career [9]. The process of professional development includes a variety of educational experiences relevant to people's careers. While professional development is essential for all professions; lawyers, teachers, accountants, engineers, and people in many other professions and business sectors to improve their performance, it is a necessary component of the healthcare profession. CPD is to keep doctors' knowledge, skills, and attitudes up-to-date and to help them adapt to the changing needs of their patients' care [9,23].

Communities of Practice (CoPs) among Health Care Professionals (HCPs)

"Communities of practice are built through the natural interactions that take place in medical practice. For example, medical professionals interact with each other and exchange information, offer advice, and discuss problems they collaborate on developing tools and standards and produce manuals and other documents. They acquire set of practices concepts and approaches unique to their field Together these steps they develop a common identity and create a community of practice." [12,24]. According

to the available literature theses CoPs can be places for improving HCPs CPD. CoPs provide HCPs with opportunities to enhance their effectiveness and efficiency and to create social, human, organizational, and professional capital to increase the quality of care [24].

OPENPediatrics (OP): An OCoP for Improving CPD among Health Care Professionals (HCPs)

Healthcare and medical training are not immune to the universal and rapid changes in technology that have been taking place recently. With the advancement of technology in medical education, pedagogical strategies such as simulations, virtual patients, and e-learning have evolved to facilitate a more interactive and learner-centered approach to teaching and learning [25]. OPENPediatrics (OP) is an Online Community of Practice developed by Boston Children's Hospital in 2012 in response to this education paradigm shift and to help pediatricians with their professional development needs. OP is based on Lave and Wenger's theory of learning in Online Communities of Practice (OCoPs) [12,26,27]. It is an open access, online platform that allows pediatricians worldwide to connect and interact with each other, advance their knowledge, and improve their CPD [28].

Learning in Communities of practice

Alfred North Whitehead (1931) asserted that people cannot retain or rely on what they learn at an early age. Learning, therefore, occurs throughout life and in a variety of settings

and communities of pratice, and not just in childhood or in the classroom. It is not restricted to schools; it never ends, and even the most educated people should continue to learn. Lifelong Learning Model encompasses the process of learning throughout one's life without being restricted to a specific period of time, organization, or institution [29].

Legitimate Peripheral Participation

Legitimate Peripheral Participation (LPP) is a term that explains how a newcomer enters into a CoP and grows and advances to the center of the community. LPP is considered a centripetal movement that participants begin in the periphery and gravitate towards the center of the community as they gain knowledge and confidence [12,26,30]. In the peripheral position, the level of engagement is low, and participants are merely observers or the tasks they are involved are easy to complete and manage. At this stage, participants have minimum meaningful contribution in the outcome of the CoP. Over time, by observing the more experienced members, they absorb knowledge, learn tasks, language, norms, rules, and culture of the community, and gradually increase participation in complex tasks. The process of transition from periphery to the center of community is transformational in that the newcomers go through an identity change. They start with a novice identity at the periphery level and transform into experts through interactions in the community that helps them observe and absorb how experts are interacting and doing tasks [31].

Barriers to CoPs productivity

CoPs may encounter various barriers, which will impact their effectiveness at both the individual and organization levels. Wenger and colleagues, in their 2002 book, noted that despite all the successes associated with the CoPs, they have the potential to go wrong and even hinder CPD if basic principles are not fulfilled. The domain may lack passion, or the owners' pride may lead to excessive zeal, making it dysfunctional. Sometimes barriers occurred due to members' unfamiliarity with the topic shared in the community simply because some topics are outside of their expertise or far from their daily practice [32].

Factors Encouraging Productivity in CoPs

In order for CoPs to exist and remain as vibrant as before they must grow and improve through time. To keep the CoPs active and helpful, CoPs leaders should facilitate members' continual interaction and communications. A few ways include posting work-related questions to the community website, sharing new information, creating, or gaining new knowledge, and solving problems together. A CoP can't effectively serve many newcomers without a robust plan for creating new knowledge, without managing knowledge sharing, or without considering important aspects of a CoP, such as communication or support for novices

and knowledge providers [12,24]. Participant recognition and support by members and organizations in the domain of interest are crucial for these communities to share and build operational knowledge. According to Meessen et al., organizations, such as health ministries, academic institutions, healthcare agencies, and NGOs, should consider permitting and encouraging their personnel to contribute as 'experts' to these CoPs [33].

To that end, this study answered four following research questions:

RQ1. What is the domain of interest to the community?

According to the participants in this study, topics related to their specialty, findings of the new studies, and any new developments or innovation in the field are discussed within the community. Additionally, they discuss any mortality or morbidity that occurs on the hospital. They discuss what is new in pediatrics in the hospital or in the world. Members also select those topics that are relevant to their patients' cases. The ultimate goal is to cover all the topics they need to know about their specialty area and patients.

RQ2. What are the members' experiences of engaging in productive and sustained communication among themselves?

Majority of the study's participants expressed a sense of belonging to their community. A naturally created community where they spend time together, share information and ideas, give/receive advice, and discuss problems in a collaborative manner. LeMay and Winger explain, as healthcare professionals share information, provide and receive advice, and discuss workplace issues, they form CoPs. As a result, they establish a sense of belonging, develop a common identity, and build a sense of community [12,24]. According to the interviewees, the interactions in the community are collegial, informal, non-hierarchical, and voluntary. This is consistent with the literature reviewed here. According to Wenger, informal learning is a major component of CoPs through socialization, and Hanisch, et al. confirmed that CoPs serve as powerful informal learning environments in which participants can share knowledge and experiences in order to enhance their performance [12,34].

RQ3. What are the members' experiences with creating and sharing knowledge, experiences, and stories about their work across the community?

During the study of the BCCH community, it was revealed that community members work together in order to improve their practice. As a team, they develop and share new knowledge, tools, and guidelines. Literature supports this finding by acknowledging the exchange of information, provision of advice, and discussion of problems between HCPs. HCPs collaborate on the development of standards and tools as well as the preparation of manuals and other

documents related to their field of practice and patients [12,24].

RQ4. In what ways do members perceive community participation to be beneficial to their professional development?

Learning and CPD take place within the BCCH community both formally, following the educational curriculum, and informally, by learning together, from one another, sharing knowledge and exchanging experiences. They take any opportunity to discuss issues and learn more about patients. To them, the community is in fact an adult learning environment where everyone should act as an adult learner and continually seek knowledge and information.

Conclusion and Interpretation

According to the results of this study, despite continuous advances in the healthcare field requiring pediatricians to stay up to date with new developments, they find it challenging due to a shortage of pediatricians. Additionally, the study concluded that CoPs may be able to contribute to improving this situation. Although HCPs and pediatricians use CoPs for their continuing professional development, there is insufficient research on the Cops' nature, functions, and role in enhancing HCPs' CPD.

From this study, it was found that membership in CoPs has a positive impact on members' professional development. Most respondents stated that the community enabled them to stay on top of the latest topics and to learn about the latest developments in their fields. Additionally, they shared information and ideas with other members and colleagues in a close and sustainable manner. Working together as a team, they developed tools, guidelines, websites, and educational materials, and initiated joint projects.

Based on the results of this study, a knowledge gap in the field was filled to improve understanding of factors such as the nature of CoPs, their life cycle, their function, and their role in pediatric CPD. By utilizing these findings, HCPs and pediatric CoPs s can improve the CPD of their members and make a positive impact on the healthcare system.

Recommendations for Future Research

As uncovered in this study, little research has focused on how to improve the CPD of pediatricians through professional CoPs. While there is a considerable amount of literature on CoPs, most studies heavily depend on their effectiveness. Therefore, little is known about their features and life cycle and how organizations can manage them effectively at all stages to create value for their organizations [35]. Considering their nature, function, barriers, and supporting factors, future research should focus on investigating these factors more closely.

As part of future research, barriers should also be addressed and eliminated so that the most benefits can be derived from them.

In the future, research should address questions such as:

- How can children's hospital authorities and community leaders support community functions?

- What can they do to encourage those who are less interested in connecting with the community to engage and improve their CPD?

- How can members be assisted in managing their limited time so that they can fully participate in the community?

- How can they facilitate member interactions and ensure the sustainability of the community?

- What can they provide more support in terms of technology, space, time, budget, etc.?

- What can the community do to facilitate the integration of newcomers?

- In what ways can the community ensure that knowledge is created and disseminated in a timely and sustainable manner?

- How can conflict be resolved effectively during interpersonal interactions?

- How can the work of the community be valued?

- How can the accomplishments of the community be publicized?

Recommendations for Future Practice

The evidence from this study provided a foundation for the important role the CoPs play in improving HCPs and Pediatricians professional developments. Here are some recommendations for creating or sustaining CoPs to assist HCPs and pediatricians in continuing their professional development:

a) Organizing workshops or group meetings for the purpose of promoting an existing community or creating a new community.

b) Attracting knowledgeable and experienced members as well as potential members to join the community.

c) Identifying the potential problems, needs, or interests of the workplace to be discussed in the community.

d) Identifying barriers hindering the community's productivity and removing them to help the community to stay active and effective.

e) Evaluating the outcomes of the community's activities in order to improve them.

f) Maintaining members' engagement through the community performance plan, utilizing technology, connecting members,

defining roles and responsibilities, training and supporting community leaders, promoting the community's values, and creating meaningful recognition and rewards.

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