

# A Peer-to-Peer Approach to Implementation of a Chronic Disease Management Program

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## Abstract

**Background:** Peer-to-peer (P2P) learning occurs when individuals from similar social groups or professions help each other to learn new knowledge skills or problem solving. Peer-to-peer learning is used across many disciplines but has not been widely studied in primary care or chronic disease management. This study explored the use of an interprofessional P2P approach to support the implementation of a chronic disease management program in primary care for patients with chronic obstructive pulmonary disease (COPD), known as Best Care COPD (BCC).

**Methods and findings:** A single descriptive case study design was used to explore P2P learning implementation approach. Focus groups and key informant interviews were held with providers involved in implementation ( $n=26$ ). Three key components of the P2P approach were identified: 1) an interprofessional team, 2) iterative peer-led training, and 3) continuous peer connection. Three recommendations are provided to support future P2P efforts: 1) enlist a champion in each profession, 2) build a P2P community, and 3) implement succession planning.

**Conclusion:** This article provides an empirical example of the use of a P2P approach in primary care program implementation. The results will inform the future implementation of programs for chronic disease management as well as the continued sustainability of the BCC program.

**Keywords:** implementation, peer-assisted learning, chronic disease management, COPD, primary care, registered respiratory therapists

## Introduction

Implementation science encourages clinicians and researchers to use a systematic and evidence-based approach to narrowing the knowledge-to-practice care gap [1]. The approach includes understanding the behaviours and determinants contributing to the gaps and identifying evidence-based strategies to address the behaviours and determinants [1]. Understanding and supporting behaviour change is critical to implementation science and program implementation success [2]. Fundamental principles of peer-to-peer (P2P) education and training are shared with behaviour

change strategies and may be very useful to consider for program implementation. These shared principles include modelling, training, persuasion, and education [2]. Successful behaviour change has been studied through peer-mentorship and education. For example, a peer-assisted adolescent group was able to promote positive behaviour change and socially appropriate classroom behaviour [3].

Informal P2P learning occurs every day in multiple settings and contexts; this informal P2P learning has been the basis for many learning theories. Peer learning as a form of social engagement is a foundation of constructivist learning theory to enhance knowledge exchange [4]. Piaget's theory of cognitive development puts great emphasis on the role of peers in learning in the construction of internal schemas [4]. Collaborative peer learning support is the adaptation of new cognitive structures and the development of skills including communication, problem solving capabilities, leadership, and self-management [5].

The use of more formalized P2P to facilitate learning is common across several disciplines including education, computer science, and public health [6-8]. The degree of formality around, and specific approaches to, P2P vary across disciplines. Broadly, P2P learning has been described as a group of approaches to support learning or acquisition of knowledge or skills from people of similar social groupings or professions [9]. Communities of practice are one form of peer-learning in groups; peers with a common (often professional) interest work together to learn from one another and often with a goal to increase knowledge [10]. Peer-to-peer learning is thought to be successful due to familiar environments and comfortable learning spaces in which to interact with peers [11]. In P2P learning, individuals often feel less timid and more open with their thoughts, supporting learners to comfortably ask questions and vocalize gaps in learning without fear of negative consequences (embarrassment, repercussions) [14].

More recently, P2P approaches have been used to support workplace learning and program implementation [15,16]. Train-the-trainer is an example of a formal P2P approach to support program implementation. In a train-the-trainer approach, individuals working within the implementation context receive content-specific training (e.g., delivery of a program or service), as well as training on how to teach their peers [15]. Train-the-trainer as a P2P approach can often reach a larger audience and enable flexibility and adaptability [16].

Despite its use across multiple disciplines, there is no one clear definition or term consistently used in literature for P2P learning. In healthcare, evidence has shown the effectiveness and potential of P2P learning in supporting achievement of a higher level of clinical learning [12,13]. Peer-led education in healthcare has also been shown to increase and spread knowledge to support and improve patient outcomes [11].

In healthcare, the literature is generally focused on two similar and related categories: 1) peer-assisted learning (PAL) and 2) peer-led interventions (PLI). Peer-assisted learning has been defined as the "teaching or sharing of ... information, values, and behaviors by members of similar age or status group" [17]. Medical and nursing school teaching provides a good example of PAL where upper-year students educate first-year students and their classmates via small groups [18]. Peer-led inter-

ventions, on the other hand, is an umbrella term that describes interventions or programs that, for example, could be led by trained or certified peer health workers to improve health outcomes [19]. Both PAL and PLI can facilitate enhanced collaboration and networking and can bolster local capacity and sustainability of a program [20]. While there is literature on the use of P2P based approaches in health-related fields (e.g., clinical interventions, public health preparedness, and occupational safety [21]), there is little, if any, research detailing its use in primary care, for the implementation of a chronic disease management program [22].

Prevalence rates of chronic illnesses such as diabetes, hypertension, and chronic obstructive pulmonary disease (COPD) have steadily increased worldwide over the past few decades [23]. Integrated models of team-based care have been found to successfully improve healthcare outcomes for patients with chronic illnesses [23,24]. Best Care COPD (BCC) is an evidence-based program delivered in a primary care setting for patients diagnosed with COPD. The program is nationally recognized and has substantially improved patient quality of life, patient satisfaction, and patient and provider experiences, as well as reduced emergency department visits and hospitalizations [25]. Best Care COPD standardizes best practices through an interprofessional care model, augmented by an electronic point of care tool and evaluation system. It has been implemented in primary care clinics across Southwestern Ontario, Canada, using a P2P approach that blends elements from PLA, PLI, and train-the-trainer approaches. This study explores the use of the co-designed innovative P2P approach in the implementation of the BCC program in several primary care sites across a geographic region. Our aim was to describe the P2P approach to BCC implementation to learn more about the approach in primary care settings and share lessons for others interested in using a similar approach.

## Methods

### Setting

The Asthma Research Group Inc. (ARGI) is a not-for-profit corporation leading primary care health system innovation in Southwestern Ontario since 2003. The Asthma Research Group and local primary care leaders led the collaborative development of the BCC program and in-so-doing created a community of practice called the Primary Care Innovation Collaborative (PCIC). The implementation planning work for BCC, completed by a community of peers including respiratory therapists (RT), primary care physicians, nursing, and executive directors, set the course for an ongoing peer-to-peer approach [26]. The BCC program is delivered in primary care offices by a healthcare professional (most often an RT, but also nurses, social workers) who have a Certified Respiratory Educator (CRE) designation. The CRE works alongside the patients and the interprofessional team to meet the specific needs of patients. The BCC program has been progressively implemented across Southwestern Ontario using a co-designed innovative P2P implementation approach [26]. In 2019, the BCC program was successfully implemented, into a singular primary care team (PCT) using a P2P implementation approach [27]. The study site was a primary care team operating out of several geographic locations.

This successful progressive implementation of the BCC program allowed the study of the facilitators and barriers that led to implementation success, and for this current study, an exploration of their innovative, co-designed P2P approach to implementation. For this study, we define successful implementation as attaining the primary goal of program delivery in a way that implementers (i.e., the study site) appreciate and are excited to be a part of.

### Description of co-designed P2P approach

The P2P approach began with pre-implementation planning, which included an initial formal presentation by an interprofessional team. The BCC leadership consisted of a Program Lead (an RT with a CRE designation), a Physician Lead (a respirologist), a primary care physician and an executive director. The team was deliberate in its composition since the implementing sites would also include RTs, physicians, and senior leadership (as well as other professionals). Informally, other professionals who were part of sites that had already implemented BCC were available for discussion and consultation. These formal and informal “champions” had both clinical and programmatic expertise valuable to implementation planning and execution. During implementation, providers and administrators at the implementation site had access to peer professionals through this interprofessional team as well as a broader network of professionals. Throughout implementation, formal peer-to-peer strategies were used including peer-to-peer training sessions (RT/CRE and physician [primary care and specialist] focused), a shadowing period for RT/CREs with other RTs, mobile real-time messaging via WhatsApp group, an expert on-call (RT/CRE access to senior RTs, and respirologist), and regular peer check-ins. Internal champions were identified within the study site (i.e., early adopters) to support implementation. In addition, the BCC Program and Physician Lead (the formal champions) were available for support, throughout and beyond the initial BCC program implementation. Post-implementation, professional networks (notably an RT/CRE network) formed during implementation continued to meet to support ongoing quality improvement and education. These RT/CRE networks could communicate with other RT/CRE networks.

### Study design and data collection

A qualitative descriptive case study design was used to explore the use of a P2P approach in the implementation of the BCC program [28]. While implementation took place across multiple clinical sites, it was viewed and evaluated as a single case since the P2P implementation process was the phenomenon of interest and not the clinical sites themselves. Individuals involved in the implementation and delivery of the BCC program were the same across clinical sites (i.e., the RT worked at all clinical sites, and the leaders had the same role across all sites). Data were collected through multiple methods including focus groups, interviews, field notes, and document analysis. These multiple methods enabled a comprehensive representation of participants’ experiences during the P2P implementation [29]. Data collection tools were created using a combination of questions gleaned from the Consolidated Framework for Implementation Research (CFIR), as well as data piloted from previous research [30,31].

Focus groups were used to gather insights from the participants' collective experience; all healthcare providers working at the study site were invited to participate as well as individuals supporting the implementation of the program (e.g., administrative support). In addition, key informant interviews (KIIs) were conducted with individuals who possessed specific knowledge and insight around the implementation process (due to their direct work with ARG1 and PCIC during implementation). Focus groups and interviews were audio recorded and transcribed verbatim with written consent from the participants. Field notes (taken by the researchers during the focus groups, KIIs and site visits) were used as a supplementary form of data to provide context and support analysis. Documents were continually gathered throughout data collection and included memorandums of understanding, progress reports, team meeting minutes, and data sharing agreements. The purpose of the documents was to support the researchers' understanding of the context as well as understand planned versus unplanned elements P2P process.

Data categorization methods were performed as per Stake's (1995) recommendations: direct interpretation and categorical aggregation were used [28]. Data analysis occurred in several steps. First, data was deductively coded by three members of the research team using CFIR constructs [30]. The data was double-coded, and discrepancies were discussed amongst the research team. For this current study, data were then selectively coded by examining the data for instances of mentions surrounding the P2P approach. Member checking (a method of triangulation in which the research participants can review aggregated results to check for accuracy or errors) was used to explore the validity of our findings and support the rigour and trustworthiness of the data [32]. It was important to make sure the initial findings were representative of the thoughts of the providers. As such, during the member check, a key informant interview and a second provider focus group took place where the priority was to facilitate discussion surrounding the preliminary findings.

The results are presented in aggregate across all data sources, with results and discussion presented within the CFIR context. The CFIR categories determined to affect implementation most were used to glean the main themes surrounding implementation. The following describes the facilitators to the successful P2P approach according to participants and the barriers to P2P approach along with participants' recommendations for future implementation and planning.

## Results

Overall, 26 people participated in the study across a variety of professions including administrative support personnel (Table 1). Three focus groups and three key informant interviews were conducted. Healthcare providers on the primary care team felt supported and motivated by the P2P implementation process. When asked for general feedback about the P2P approach, one identified that "[A] peer-led program is not a program you can say no to ... there isn't really a single negative because ... they support you every step of the way, and they've got everything covered" (FG1, Provider 1).

**Table 1: Participant characteristics**

Professional designation	Sample
Executive Director/Administration	3
RT/CRE	4
Family Physician	1
Nurse Practitioner/CRE	3
Administrative support	3
Registered Practical Nurse/CRE	1
Registered Nurse/CRE	4
Allied Health (social worker, counsellor, dietician)	6
Kinesiologist	1
<b>Total sample</b>	<b>26</b>

### Facilitators to the successful P2P approach

The researchers identified three key components that were central to the co-designed P2P approach to implementation: an interprofessional team, iterative peer-led training, and continuous peer connection.

#### *Interprofessional team*

The P2P approach to implementation was deliberately designed by the PCIC as a tailored approach to support implementation:

The peer-to-peer (P2P) approach just came naturally for (the team). You could say it is intuitive that to build relationships and buy in there is a natural authority gradient ... it was the way Program Lead 1 and I think and it felt like this was the approach needed especially for [primary care] physicians. ... (We) knew they needed to be part of the growing process and our goal was that they felt this was their program. I think we have succeeded. (KII#3)

The first step in the BCC implementation process was to obtain buy-in from stakeholders, where an interprofessional team representing the BCC program and PCIC members went to each implementation site for an information visit and presentation. The professionals took on the role of external champions within the process; they were acknowledged by all participants as an important part of the initial decision to implement. First, the BCC Program Lead (ARGI Director, author MF), an RT with a Certified Respiratory Educator (CRE) designation, led the implementation and trained other RTs within the study site. Second, a respirologist (BCC Physician Lead, author CL) and two primary care physicians were involved in the initial site visits and early phases of implementation. Lastly, members of the PCIC with executive leadership roles engaged with the implementation through a coaching and support role. Participants valued the opportunity to engage and seek support from someone in a similar position to them:

“Peer-led” is (when) a doctor who needs kind of support from a doctor can talk to [the lead specialist physician of the program]. A nurse practitioner will have a nurse practitioner that they can talk to. There were executive directors from other sites who you can contact so you can get your role kind of established properly. (FG1, Provider 1)

The initial site meeting presentation served the purpose of getting the study site team (executive director and providers) on board with the goals of the program and the proposed implementation process as well as building up change champions (i.e., individuals who were excited to be a part of the program and who would support the change internally) within the site. Participants explained that prior to BCC, they didn’t “really have the experience ... to confidently approach all those physician groups about COPD programming” (FG1, Provider 3). However, the P2P approach empowered providers to understand “what the expectations were, they knew what the outcomes would look like ... they had that experience” (FG1, Provider 3). Participants from the study site valued the honest dialogue from their peers who were actively engaged in caring for chronic, complex conditions in primary care patients with COPD, and not just program planners.

### *Iterative peer-led training*

Second, iterative peer-led training and observation of RTs to RTs, both during and beyond the implementation launch, was a key component of the P2P approach. The BCC Program Lead facilitated RT hiring, training, and peer assessments; this process was detailed and aimed at hiring individuals who were excited to be part of a new program and could support the implementation. Participants acknowledged the Program Lead as being knowledgeable and approachable: “[The Program Lead is] always available if we run into any sort of problems or have questions. She’s always made herself available to help us do that” (FG2, Provider 4). An essential part of the initial implementation was formal training for all providers who would be providing the BCC program to patients. Within the study site, all BCC providers were RTs. Training for the RTs began with a three-day didactic training session lead by the BCC Program Lead and supported by the BCC Physician Lead. Part of the training included information on how to support program implementation within the site; RTs were trained to be internal champions for change within the study site. The RTs also completed an additional CRE course through the Canadian Network of Respiratory Care [33]. Participants felt that training formally alongside their peers fostered trust in each other and the program while supporting their learning. Participants said that the education program was “intense and necessary” (FG1, Provider 3). Training was described as a “big piece” in program implementation to “ensure that there’s a consistency in [program delivery]” (FG1, Provider 2).

The BCC Program Lead remained closely involved in the initial phases of implementation by working alongside the RTs at the study site to recruit and enroll patients and to support other clinical processes at the study site. Site leadership and primary care physicians also participated in P2P training through regular meetings with BCC leadership and PCIC. Meetings were more frequent at the onset of imple-

mentation with the main goal of supporting leaders and primary care physicians with adaptation and program delivery. The BCC Physician Lead was available for consultation and to support clinical decision making if needed. Virtual P2P support was also available. A provider noted the benefit of the program's flexibility, which made it less disruptive to daily work schedules.

It seems really simple, but that's what it was ... It didn't really disrupt ... your everyday to an extent where you had to stop things or set things aside for weeks at a time or anything like that. (FG1, Provider 1)

The BCC Program Lead remained available to support program delivery after initial implementation. Program delivery responsibility was transitioned to a lead RT within the study site who took on the role of internal champions. Participants believed this dedicated RT within the clinic acted like a champion of change and was the link that brought everyone together and improved quality of care for patients. One provider said the RT is "what's kept things going" (FG1, Provider 3).

### *Continuous peer connection*

The third component of the P2P approach was continuous peer connection through regular communication amongst the RT team and with the Program and Physician Lead. A formalized network of BCC RTs was created to enable the RT to meet regularly to share evolving ideas about the program, discuss patient concerns, and participate in continuing education.

[The]network of the other RTs and talking to BCC Program Lead is helpful from my end, [just] having that relationship [is helpful], 'cause it is being out here all by yourself, essentially. But you know that there's that network because they take care of you behind the scenes. (FG1, Provider 1)

Quarterly team meetings brought the RTs together with the Program Lead to "say what's working, what's not working, what they are finding out there in the field," (FG2, Provider 4). The RT network was also integral in supporting team morale. The P2P approach was iterative and continued with new RTs joining the BCC team shadowing current RTs to onboard.

P2P learning was embedded in BCC program delivered post-implementation through regular self-assessments: 1) Educator Practice Self-Assessment (COPD) and 2) Educator Practice Self-Assessment (Education). BCC providers completed formal self-reported assessments, which were then discussed amongst peers at team meetings. The measures consisted of a quick checklist to explore competences met or needing improvement (e.g., ability to teach a certain area/subject). P2P discussion at team meetings supported skill development and overall quality improvement.

Continuous peer connection also happened ad hoc through WhatsApp™, a mobile messaging application used to help RTs in real-time. This provided a mechanism for providers from the study site to connect with colleagues to discuss challenging cases.

[We] have a [WhatsApp] group. So, there's many RTs available in your workday if you run into problems with the software or if you have a tricky patient or something, there's people immediately available that you can just bounce things off of. (FG 2, Provider 4)

Rapid responses from RT peers enabled P2P support, peer learning, and connection beyond program implementation. Respiratory therapists also had access to specialty physicians (i.e., the respirologist) if they had complex issues that needed extra support or problem solving.

### Barriers to the successful P2P approach

As the BCC program spreads to additional sites, participants identified insufficient resources as one potential challenge to the success of the P2P approach. Participants felt there was the potential for resources (most notably people and time) to be stretched thin over time and impede successful P2P implementation without thoughtful consideration for succession planning and turnover. Some participants expressed concern around a lack of continued presence of a lead RT (internal champion): "All of those pieces, if it gets too spread out, one provider over too many teams, I would worry it will take longer to develop those relationships with, you know, the [primary care] physicians and allied health with the patients" (FG1, Provider 3). Participants realized how challenging and time-consuming implementation can be—a challenge participants feared would occur without growing the leadership team or succession planning.

Similarly, participants acknowledged the importance of administrative support to ensure the success of a P2P approach. Lack of administrative support was noted as a potential significant barrier to program implementation and delivery. Participants believed ensuring adequate administration to assist with coordination of patient care would support their ability to participate in P2P learning and teaching. Participants believed that a lack of dedicated administrative staff in the long term could potentially lead to inadequate patient care: "If you are able to allocate resources to it, do that, so that your [RT] can be doing their actual function that they're paid to do" (KII, Provider 2). In this way, participants cautioned that without consideration for administrative support (both at the outset and post-implementation) sustainability would be challenging. Participants felt that succession planning for administrative support was essential both for the start of implementation as well as continued sustained support.

Another potential obstacle to the P2P approach was linked to the regular peer check-ins. With busy schedules, many providers juggle multiple locations and roles, which could mean missed meetings and a decrease in availability for peer engagement. One participant emphasized the importance of committing and "making sure you're ... booking that time off and making [BCC] your priority" (FG2, Provider 5) to ensure program sustainability and continued effectiveness of the P2P approach.

### Discussion

Literature describes peer-led education, learning on the job, as a fundamental part of

professional education [11,34]. The BCC program leveraged peer-led learning and education in their collaborative, interprofessional P2P approach. Previous research with the BCC program demonstrated the success of interprofessional teams was based on four key characteristics: 1) growth mindset and quality improvement focus, 2) clear strengths-based team roles, 3) shared leadership and shared successes, and 4) transparent communication [26]. These characteristics are also reflected in the P2P approach and could be considered essential in supporting the development, maintenance, and continued growth of the BCC program. The P2P approach was done in a deliberate and iterative way by engaging multiple disciplines throughout and across the implementation process.

The P2P approach used in the BCC implementation was designed to support knowledge exchange to all professionals involved in the program, not just those delivering the program. Respiratory therapists and administrators were engaged early in the co-design of the P2P approach. On site, RTs, administrators, and physicians had access to peers early in program implementation to provide advice, support, and guidance. Profession-specific P2P training and learning (such as the CRE designation) were augmented through interdisciplinary and shared learning during implementation and through training and meetings. The early and continuous P2P approach facilitated a culture of P2P learning and connection. Training across professions throughout and beyond program implementation supported buy-in and program success. Additionally, the mobile messaging app facilitated ongoing P2P support in real-time.

Successful implementation requires careful and systematic consideration of requisite education, training, and behaviour change. Peer engagement during implementation provides a support mechanism for new cognitive structures and acquisition of knowledge and skills from people in similar professions in a familiar environment and learning space. Peer-based training is a trusted learning method that is foundational in medicine; it can reach a large audience via a flexible and adaptable approach [19]. The BCC implementation strategy demonstrates the potential of using peer-based approaches to support program implementation.

From our analysis we have compiled three key recommendations to support a P2P approach to the implementation of a chronic disease management program in primary care: 1) enlist champions in each discipline with clear roles, 2) build a P2P community with committed and shared leadership and successes, and 3) plan for sustained engagement throughout implementation through a quality improvement focus.

### Enlist champions in each discipline

Champions are defined by implementation science experts as those who support, drive, and market implementation and help overcome barriers throughout the intervention [36]. Champions can play many key roles in program implementation, including bridging the gap between early adopters and those who are more hesitant to adopt. There are many benefits to enlisting a champion, including actively raising awareness or promoting an initiative, mobilizing resources, and helping make connections between people within an organization [37]. This is particularly true in pri-

primary care (where this study was situated), where care is interprofessional thus engaging multiple professionals is necessary for success [38]. By engaging profession-specific individuals as champions (in our study, an RT, a primary care doctor, a specialist, and an executive director) technical, profession-specific knowledge and expertise was able to be translated and transferred efficiently both through same-profession dialogue and interprofessional dialogue [39,40]. This interprofessional engagement allowed the provision of discipline specific feedback as well as sharing new knowledge to support and tailor (or adapt) program implementation [41].

In our study, champions were both internal and external to the study site. Internal to the study site, there were individuals who were champions to support implementation and program delivery. The BCC leadership team were external champion. This external champion role was essential in bringing expertise into the study site. This is similar to educational outreach visits when a skilled individual from a specific and shared discipline visits peer healthcare professionals in their own settings to facilitate learning and improve practice [42]. Most research on educational outreach strategies has shown some improvement in peer relationships and learning. One study in primary care demonstrated favourable outcomes and changes in standardized operational procedure and improved prescribing [43]. The BCC P2P approach uses similar processes to educational outreach visits (although longer in duration) to support implementation and embed continuous education to improve clinical practices amongst peer colleagues. The BCC Program Lead trained and facilitated higher level learning, connecting RTs with peers during and beyond program implementation with a planned intention to sustain that P2P connection.

### Build a P2P community

Participants noted that one of the supportive elements of the P2P implementation was the regularly scheduled continuous learning opportunities. Continuous education has been shown to develop highly skilled staff, increase staff retention, and improve health outcomes [44]. The concept of bringing together individuals with similar interests to share knowledge and ideas has been labelled and studied as a Community of Practice (CoP) [39]. The RT network within the BCC could be considered a CoP—a group of people who share similar interests, knowledge, or other passions who work together as a collective to perform a task better [39]. Studies have shown CoPs to be particularly useful in effectively increasing regular interactions, members' awareness, experience, and overall expertise [45]. In addition, CoPs have been shown to facilitate learning, improve practice, and support the exchange of knowledge and information [46]. Not only did the RT network boost team morale, but the network allowed RTs to keep connected throughout implementation to share evolving ideas and solve problems. Frequent and easily accessible online communication is effective for providing support to new adopters [47]. The mobile messaging application for the RTs allowed for real-time consultation and a heightened sense of peer support. It also provided a platform for RTs to learn from others during complex patient-care scenarios. Additionally, while there is no empirical evidence demonstrating the formation of a similar network for physicians (specialist

and primary care) and administrators/executives engaged in BCC and its implementation, the authors hypothesize a similar outcome and effectiveness. The intention is to explore this in future research as the BBC program grows.

### Succession planning

There are several challenges associated with sustained engagement of healthcare providers in programs, research studies, or clinical trials reported in the literature, such as time constraints, ongoing obligations with professional and personal lives, lack of reward or recognition, and administrative burden [48]. Engaging providers in additional activities on top of regular workload can be perceived as overwhelming and lead to burnout [49]. To ensure BCC program sustainability and support program growth, there needs to be a focus on engagement and succession planning not only in planning, implementing, and delivering the program, but also in its maintenance and sustainability [50]. Transitional issues (turn-over), insufficient infrastructure, program modifications, or lack of compensation systems are all barriers to program sustainability [51]. Maintaining engagement along with recruiting and onboarding new champions is important to program sustainability. One concern observed in our study was the potential challenge to future implementation and program sustainability of having only one Program Lead responsible for developing and maintaining relationships. Succession planning (a business strategy to attract, mentor, and/or retain knowledgeable personnel to meet organizational needs [52]), could be combined with P2P approaches to support implementation. Succession planning could be included by embedding leadership training into P2P implementation. Ultimately, to enhance and support program growth, more Program Leads are needed to ensure the same quality and frequency of P2P engagement activities. For BCC and other similar programs, succession planning can help build buy-in and ownership. Recruiting champions across a broader context to lead P2P implementation will support program growth by enhancing context-specific knowledge, increasing capacity, and supporting buy-in [53].

### Post-study implementation update

Over the past three years, the BCC has grown from 22 sites to 186 sites across southwestern Ontario using the P2P approach. The BCC program continues to include a P2P approach to implementation, spread, and scale after the data acquisition for this descriptive case study. Future research will focus on challenges and facilitators of program implementation on a provincial scale and the effectiveness of the P2P approach more broadly for other professionals. It is hoped that recommendations made in this study will contribute to implementation success.

### Conclusion

This study was conducted to explore a collaborative interprofessional P2P approach to support the implementation of a chronic disease management program within a primary care setting. The aim of this article was to describe the P2P approach and to provide recommendations for how to use this approach in implementation. The P2P approach began with pre-implementation planning and then involved a

number of steps including a presentation by an interprofessional peer team, peer-based training, mobile real-time messaging, an expert on-call, and a shadowing period with RTs. In addition to this, Program and Physician Leads were available for support, throughout and beyond initial implementation.

Three key components were identified as foundational to the P2P approach to successful program implementation: an interprofessional team, iterative peer-led training, and continuous peer connection. For future implementation and spread of the BCC program, providers shared concerns of a need for succession planning, flexibility in informal peer meetings, and additional resource support. This research yielded three recommendations for supporting a P2P approach to implementation: enlisting champions for each profession, building a P2P community, and succession planning.

This article provides a pragmatic example of the use of a P2P approach to the implementation of a chronic disease management program within a primary care setting. These results will inform individuals and teams planning to implement chronic disease management programs in primary care using an effective peer-based approach. We believe the P2P approach is a successful and effective strategy to support the spread and continued sustainability of the BCC program.

### Author contributions

Shannon L. Sibbald: designed and directed the project, supported data collection at the study site, coding and analysis, drafted and revised the manuscript.

Stefan Paciocco: created data collection tools, data collection and coding, provided guidance on data extraction and analysis, and reviewed the manuscript during writing.

Lucy Huizhu Chen: worked on data extraction and analysis, drafted and revised the manuscript during writing.

Madonna Ferrone: developed the BCC program as a PCIC and ARGI member, supported data collection at the study site.

Atharv Joshi: worked on data analysis, drafted and revised the manuscript during writing.

Christopher Licskai: developed the BCC program as a PCIC member, supported data analysis.

### References

1. Handley, M., Gorukanti, A., & Cattamanchi, A. (2016). Strategies for implementing implementation science: A methodological overview. *Emergency Medicine Journal*, 33, 660–664.
2. Michie, S., Atkins, L., & West, R. (2014) *The behaviour change wheel: A guide to designing interventions*. London, UK: Silverback Publishing. URL: [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com) [November, 2022].
3. Christensen, L., Young, K.R., & Marchant, M. (2004). The effects of a peer-mediated positive behavior support program on socially appropriate classroom behavior. *Education and Treatment of Children* 27(3), 199–234. URL: <http://www.jstor.org/stable/42900544> [November, 2022].
4. Gogus, A. (2012). Peer learning and assessment. *Encyclopedia of the sciences of learning*. Boston, MA: Springer, 2572–2576.
5. Christiansen, A., & Bell, A. (2010). Peer learning partnerships: Exploring the experience of pre-registration nursing students. *Journal of Clinical Nursing*, 195(6), 803–810.
6. Billett, S., Cain, M., & Le, A.H. (2016). Augmenting higher education students' work experiences: Preferred purposes and processes. *Studies in Higher Education*, 43(7), 1279–1294.
7. Granville, L.Z., Da Rosa, D.M., Panisson, A., Melchioris, C., Almeida M.J.B., & Tarouco, L.M.R. (2005). Managing computer networks using peer-to-peer technologies. *IEEE Communications Magazine*, 43(10), 62–68.

8. Milburn, K. (1995). A critical review of peer education with young people with special reference to sexual health. *Health Education Research*, *10*(4), 407–420.
9. Topping, K.J. (2005) Trends in peer learning. *Educational Psychology*, *25*(6), 631–645.
10. Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.
11. Walpola, R.L., McLachlan, A.J., & Chen, T.F. (2018). A scoping review of peer-led education in patient safety training. *American Journal of Pharmaceutical Education*, *82*(2), 6110–6128.
12. Roberts, D. (2009). Friendship fosters learning: The importance of friendships in clinical practice. *Nurse Education in Practice*, *9*(6), 367–371.
13. Pronovost, P.J., & Hudson, D.W. (2012). Improving healthcare quality through organisational peer-to-peer assessment: Lessons from the nuclear power industry. *BMJ Quality and Safety*, *21*(10), 872–875.
14. Cracolice, M.S., & Deming, J.C. (2001). Peer-led team. *The Science Teacher*, *68*(1), 20–24.
15. Assemi, M., Mutha, S., & Hudmon, K.S. (2007). Evaluation of a train-the-trainer program for cultural competence. *American Journal of Pharmaceutical Education*, *71*(6), 110–118.
16. Levine, S.A., Brett, B., Robinson, B.E., Stratos, G.A., Lascher, S.M., Granville, L., Goodwin, C., Dunn, K., & Barry, P.P. (2007). Practicing physician education in geriatrics: Lessons learned from a train-the-trainer model. *Journal of American Geriatrics Society*, *55*(8), 1281–1286.
17. Kim, C.R., & Free, C. (2008). Recent evaluations of the peer-led approach in adolescent sexual health education: A systematic review. *Perspectives on Sexual and Reproductive Health*, *40*(3) 144–151.
18. Menezes, A., Burgess, A., Clarke, A.J., & Mellis, C. (2016). Peer-assisted learning in medical school: Tutees' perspective. *Advances in Medical Education and Practice* *7*, 31–38.
19. Swarbrick, M., Tunner, T.P., Miller, D.W., Werner, P., & Tiegreen, W.W. (2016). Promoting health and wellness through peer-delivered services: Three innovative state examples. *Psychiatric Rehabilitation Journal*, *39*(3), 204–210.
20. Orfaly, R.A., Frances, J.C., Campbell, P., Whittemore, B., Joly, B., & Koh, H. (2005). Train-the-trainer as an educational model in public health preparedness. *Journal of Public Health Management and Practice*, *11*, 123–127.
21. Yarber, L., Brownson, C.A., Jacob, R.R., Baker, E.A., Jones, E., Baumann, C., Deshpande, A.D., Gillespie, K.N., Scharff, D.P., & Brownson, R.C. (2015). Evaluating a train-the-trainer approach for improving capacity for evidence-based decision making in public health. *BMC Health Services Research*, *15*, 547–557.
22. Kelly, G., & Geffen, L.N. (2020). Understanding and measuring the value of peer-to-peer community support programs for older adults. *JAMA Network Open*, *3*, 12, 1-12.
23. Yeoh, E.K., Wong, M.C.S., Wong, E.L.Y., Yam, C., Poon, C.M., Chung, R.Y., Chong, M., Fang, Y., Wang, H.H.X., Liang, M., Cheung, W.W.L., Chan, C.H., Zee, B., & Coats, A.J.S. (2018). Benefits and limitations of implementing Chronic Care Model (CCM) in primary care programs: A systematic review. *International Journal of Cardiology*, *258*, 279–288.
24. Van Eeghen, C.O., Littenberg, B., & Kessler, R. (2018). Chronic care coordination by integrating care through a team-based, population-driven approach: a case study. *Translational Behavioral Medicine*, *8*(3), 468–480.
25. Ferrone, M., Masciantonio, M.G., Malus, N., Stitt, L., O'Callahan, T., Roberts, Z., Johnson, L., Samson, J., Durocher, L., Ferrari, M., Reilly, M., Griffiths, K., Licskai, C.J., & The Primary Care Innovation Collaborative. (2019). The impact of integrated disease management in high-risk COPD patients in primary care. *NPJ Primary Care Respiratory Medicine*, *9*(1), 8, 1–9.
26. Sibbald, S., Schouten, K., Sedig, K., Maskell, R., & Licskai, C. (2020). Key characteristics and critical junctures for successful interprofessional networks in healthcare — A case study. *BMC Health Services Research*, *20*(1), 700–710.
27. Paciocco, S., Kothari, A., Licskai, C.J., Ferrone, M., & Sibbald, L.S. (2021). Evaluating the implementation of a chronic obstructive pulmonary disease management program using the consolidated framework for implementation Research: A case study. *BMC Health Services Research*, *21*, 717–730.
28. Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA, USA: Sage.
29. Litosseliti, L. (2003). *Using focus groups in research*. London, UK: A&C Black.
30. Damschroder, L.J., Aron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A., & Lowery, J.C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, *4*(1), 50–65.
31. Sibbald, S.L., Ziegler, B.R., Maskell, R., & Schouten, K. (2021). Implementation of interprofessional team-based care: A cross-case analysis. *Journal of Interprofessional Care*, *35*(5), 654–661.

32. Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811.
33. Canadian Network for Respiratory Care. Certification. [CNRC website]. URL: <http://cnrchome.net/certification.html> [October 9, 2021].
34. Aimola, L., Jasim, S., Tripathi, N., Tucker, S., Worrall, A., Quirk, A., & Crawford, M.J. (2016). Impact of peer-led quality improvement networks on quality of inpatient mental health care: Study protocol for a cluster randomized controlled trial. *BMC Psychiatry*, 16(1), 1–9.
35. Sibbald, S.L., Misra, V., DaSilva, M., & Licskai, C. (2022). A framework to support the progressive implementation of integrated team-based care for the management of COPD: A collective case study. *BMC Health Services Research*, 22(1), 1–11.
36. Goedken, C.C., Livorsi, D.J., Sauder, M., Vander Weg, M.W., Chasco, E.E., Chang, N.C., Perencevich, E., & Reisinger, H.S. (2019). “The role as a champion is to not only monitor but to speak out and to educate”: The contradictory roles of hand hygiene champions. *Implementation Science*, 14(1), 110–121.
37. Shaw, E.K., Howard, J., West, D.R., Crabtree, B.F., Nease Jr, D.E., Tutt, B., & Nutting, P.A. (2012). The role of the champion in primary care change efforts: From the state networks of Colorado ambulatory practices and partners (SNOCAP). *Journal of American Board of Family Medicine*, 25(5), 676–685.
38. Wranik, W.D., Hayden, J.A., Price, S., Parker, R.M., Haydt, S.M., Edwards, J.M., Suter, E., Katz, A., Gambold, L.L., & Levy, A.R. (2016). How best to structure interdisciplinary primary care teams: The study protocol for a systematic review with narrative framework synthesis. *Systematic Reviews*, 5(170), 1–7.
39. Wenger, E. (1996). How we learn. Communities of practice. The social fabric of a learning organization. *Health Forum Journal*, 39(4) 20–26.
40. Brown, J.S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working. *Learning, and Innovation. Organization Science*, 2(1), 40–57.
41. Rogers, E.M. (1995). Diffusion of innovations: Modifications of a model for telecommunications. In A. Mahler & M.-W. Stoetzer (Eds.), *Die Diffusion von Innovationen in Der Telekommunikation* (pp. 25–38). Berlin, GE: Springer.
42. O’Brien, M.A., Rogers, S., Jamtvedt, G., Oxman, A.D., Odgaard-Jensen, J., Kristoffersen, D.T., Forsetlund, L., Bainbridge, D., Freemantle, N., Davis, D.A., Haynes, R.B., & Harvey, E.L. (2007). Educational outreach visits: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 4, 1–74.
43. Schmidt-Mende, K. (2014). Clinical utility of educational outreach visits to optimize prescribing in primary health care—Health professionals perspective. *Journal of Psychosomatic Research*, 76(6), 513–513.
44. Health Management. (2017). The importance of continuous education in healthcare. *Health Management*, 17(2). URL: <https://healthmanagement.org/c/healthmanagement/issuearticle/the-importance-of-continuous-education-in-healthcare> [September 8, 2021].
45. Fontaine, M.A., & Millen, D.R. (2004). Understanding the benefits and impact of communities of practice. In Paul Hildreth & Chris Kimble (Eds.), *Knowledge Networks: Innovation Through Communities of Practice* (pp. 1–14). Hershey, PA, USA: Idea Group Publishing.
46. Ranmuthugala, G., Plumb, J.J., Cunningham, F.C., Georgiou, A., Westbrook, J.I., & Braithwaite, J. (2011). How and why are communities of practice established in the healthcare sector? A systematic review of the literature. *BMC Health Services Research*, 11(1), 273–299.
47. London, M., & Sessa, V.I. (2006). Continuous learning in organizations: A living systems analysis of individual, group, and organization learning. *Research in Multi Level Issues*, 123–172.
48. McMurchy, D. (2018). Evidence synthesis: Strategies and approaches to enhance family physician engagement. URL: [https://www.researchgate.net/publication/330765139\\_Evidence\\_Synthesis\\_Strategies\\_and\\_Approaches\\_to\\_Enhance\\_Family\\_Physician\\_Engagement](https://www.researchgate.net/publication/330765139_Evidence_Synthesis_Strategies_and_Approaches_to_Enhance_Family_Physician_Engagement) [May, 2021].
49. Rahman, S., Majumder, M.A.A., Shaban, S.F., Rahman, N., Ahmed, M., Abdulrahman, K.B., & D’Souza, U.J. (2011). Physician participation in clinical research and trials: Issues and approaches. *Advances in Medical Education and Practice*, 2, 85–93.
50. Macleod, D.I., Clarke, N. (2009). Engaging for success: Enhancing performance through employee engagement, a report to Government. Surrey, UK: Crown Copyright.
51. Institute for Healthcare Improvement. Social system for spreading changes. [IHI website]. URL: <http://www.ihl.org:80/resources/Pages/Changes/SocialSystemforSpreadingChanges.aspx> [September 8, 2021].

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A Peer-to-Peer  
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52. Carriere, B.K., Muise, M., Cummings, G., & Newburn-Cook, C. (2009). Healthcare succession planning: An integrative review. *Journal of Nursing Administration, 39*(12), 548–555.
53. Laur, C., Bell, J., Valaitis, R., Ray, S., & Keller, H. (2018). The sustain and spread framework: Strategies for sustaining and spreading nutrition care improvements in acute care based on thematic analysis from the More-2-Eat study. *BMC Health Services Research, 18*(1), 930-941.