




Developing a toolkit for building a community hospital clinical research program

Élaboration d'une boîte à outils pour la création d'un programme de recherche clinique d'un hôpital communautaire

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Abstract

Purpose Although health research in Canada is primarily conducted in academic hospitals, most patients receive their care in community hospitals. The benefits of increasing research capacity in community hospitals include improved study recruitment, increased generalizability of results, broader patient access to novel therapies, better patient outcomes, enhanced staff satisfaction, and improved organizational efficiency.

Nevertheless, building research programs in community hospitals remains challenging because of a lack of support and expertise. To address this gap, we developed a toolkit to help community hospital professionals build and sustain their community hospital research programs.

Source The toolkit was developed by the Canadian Community Intensive Care Unit Research Network (CCIRNet), a group of clinician-researchers and research staff from community hospitals across Canada who have experience building community hospital research programs. Feedback from a concurrent qualitative study

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of Canadian community critical care professionals informed the toolkit's design.

Principal findings The CCIRNet toolkit outlines five stages of community hospital clinical research program development: 1) building a research team and gaining support, 2) developing a new research program, 3) choosing a first research study, 4) getting the study up and running, and 5) sustaining a research program. Feedback from qualitative interviews emphasized the need for a step-by-step approach, frequently asked questions, and essential resources. Accordingly, each stage is structured in a question-and-answer format and includes relevant resources for each section.

Conclusion The CCIRNet toolkit is a practical resource for establishing research programs in community hospitals. The toolkit may increase research participation and support clinical research capacity building in community hospitals.

Keywords community hospitals · critical care · research capacity · research program · toolkit

Canadian hospitals are broadly classified as “academic” or “community.” Academic hospitals are fully affiliated with medical schools and participate heavily in medical education and research.¹ In contrast, community hospitals are principally focused on providing patient care and consider research a lower priority.² According to the Canadian Institutes for Health Information, 90% of Canadian hospitals are community hospitals.³ Nevertheless, almost all health research is conducted in academic hospitals.^{4,5} This disconnect between where patients receive their care and where health research is conducted leads to inefficient study recruitment, inequitable patient access to novel therapies, and decreased generalizability of research results.^{2,4,6,7}

There are many potential benefits of community hospital research participation, including improved outcomes and

patient satisfaction,^{8–13} accelerated generation of evidence-based standards of care,⁹ enhanced satisfaction and retention among physicians and nurses,^{2,8,9} and improved organizational efficiency.⁹ Nevertheless, community hospitals face many barriers to research participation and program implementation. The most frequently reported barriers are insufficient infrastructure, inadequate funding, a lack of research experience among clinical staff, and a lack of research culture.^{2,4,7,8,14,15} Despite these challenges, a recent cross-sectional survey of 73 Canadian community intensive care unit (ICU) professionals found that 81% of respondents were interested in participating in clinical research.⁶ The existing literature provides little support for how to build a community hospital research program. In 2021, a set of recommendations for starting, building, and sustaining emergency medicine research programs in Canadian hospitals was developed.¹⁶ The proposed strategies provided guidance for community hospital researchers looking to build research careers; however, they did not address the practicalities of how to start and sustain a research program with capacity to conduct multicentre clinical research studies.

Recognizing the need to support community hospitals interested in clinical research participation, members of our team created the Canadian Community ICU Research Network (CCIRNet) in 2019. One of the deliverables of CCIRNet was to develop a practical resource for community hospital professionals interested in developing clinical research programs. The overall goal was to support research capacity building in Canadian community hospitals. The CCIRNet toolkit was developed with the expertise of clinician-researchers and research staff who have first-hand experience building and sustaining clinical research programs in community hospitals in Canada. The aim of this article is to describe the process of development and dissemination of the CCIRNet toolkit.

Methods

The process of development and dissemination of the CCIRNet toolkit involved three key phases.

Phase one: developing the content

The development of the CCIRNet toolkit content was coordinated by a panel of seven community hospital physicians (CCIRNet members) with clinical research experience, two community hospital research coordinators, a community hospital research manager, and a communications specialist. Members of the panel were recruited from the Community Acute and Critical Care (CACC) working group, an initiative led by the

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Canadian Critical Care Trials Group's (CCCTG) COVID-19 Network of Clinical Trials Networks (NoN). Established in 2021 in response to the COVID-19 pandemic, the COVID-19 NoN was funded by the Canadian Institutes of Health Research to help build clinical research capacity in Canada through cross-collaborations between research networks.¹⁷ The toolkit panel met monthly from February 2022 to February 2023 to identify the steps involved in starting a clinical research program as well as existing resources to support program development. The panellists also engaged with existing literature on the barriers and facilitators of community hospital research program development to support these steps. Additionally, the panellists conducted a high-level scan of existing research toolkits. During the high-level scan, three related resources were identified and reviewed for similarities and differences.^{18–20} At the end of this phase, feedback from members of the CACC outside of the panel was collected, reviewed, and integrated iteratively into a final version.

Phase two: structuring the Canadian Community Intensive Care Unit Research Network toolkit

The structure of the CCIRNet toolkit was informed by semistructured interview data collected as part of a concurrent qualitative descriptive study titled, "Factors influencing community intensive care unit research participation: a qualitative descriptive study."²¹ The study comprised virtual, semistructured interviews with community hospital professionals from across Canada. Participants were purposefully sampled to achieve variation in professional roles (i.e., health care professionals, research staff, hospital administrators) and research program status (i.e., nonestablished, emerging, established). Participants were recruited via professional networks, social media, in-person conferences, and snowball sampling. Interviews were analyzed using both content analysis²² and team-based rapid qualitative analysis²³ to triangulate our findings. The interview guide included three open-ended questions focused on understanding the motivating factors, barriers to, and facilitators of engaging in research, as well as recommendations for a toolkit. These questions were developed by the principal investigator and piloted in their home institution, modifying the guide to ensure the study aims could be accurately captured. With respect to the toolkit, participants were asked what types of tools would be helpful for community hospital professionals implementing local clinical research programs. In keeping with an integrated knowledge translation approach, responses to this question were reviewed and iteratively integrated into the CCIRNet toolkit. Integrated knowledge

translation collaborates with knowledge users and applies principles of knowledge exchange and application during the research process.²⁴ It is distinct from end-of-grant knowledge translation, which is focused on disseminating the end results of a research study.²⁴ For this reason, participant feedback from the qualitative study was integrated iteratively.

Phase three: dissemination of the Canadian Community Intensive Care Unit Research Network toolkit

The final version of the CCIRNet toolkit was converted into an online format in consultation with a communications specialist and a graphic designer. Members of the CACC working group reviewed the online CCIRNet toolkit and provided feedback about content and design. Members of the working group subsequently edited the webpage contents before its formal launch.

Results

Phase one: developing the content

The CCIRNet toolkit content was developed through monthly panel meeting discussions between February 2022 and February 2023. Meetings were held virtually to help coordinate schedules and ensure meetings took place every month. Although some panel members were not able to attend every meeting, no meetings were cancelled.

The CCIRNet toolkit is divided into three sections. The first section provides a description of target users, namely community hospital clinicians, research staff, and administrators, who are interested in building and sustaining a community hospital research program. Toolkit design and structure are explained, including the fact that contents are based on personal experiences and opinions of the working group. It also includes a list of published articles on the topic of building clinical research capacity in community hospitals. The second section describes the five key stages in building a clinical research program ([Table](#)). While these stages are presented as a linear process, organizations may move fluidly between stages at any given point, depending on organizational needs. The third and final section of the CCIRNet toolkit includes the profiles of the panel members and tools for knowledge users to provide feedback. The purpose of the profile page is to establish a community of practice among community hospital researchers. Incorporating a section for feedback will further instill a community of practice.

Table Overview of toolkit contents

Contents	Description	Subtopics
Building a research team and gaining support	Forming a research team is important in building a clinical research program. The CCIRNet toolkit outlines strategies to achieve this aim, including ideas for recruiting staff and coinvestigators as well as how to achieve buy-in from hospital leadership and clinical staff.	<p>Research team roles</p> <ul style="list-style-type: none"> • What support will I need when building a research team? • What dedicated research personnel do I need on my research team? • How do I find a qualified research coordinator? <p>Strategies to achieve buy-in for your research program</p> <ul style="list-style-type: none"> • How do I get my hospital administration to buy into research? • How do I get physicians and bedside clinical staff to buy into research?
Developing a new research program	This section describes the many time- and resource-intensive steps necessary to build a research program. These include securing start-up funding, training staff, developing necessary infrastructure, policies, and procedures. It includes detailed strategies for how to find funding and manage a study budget. It also identifies necessary research training certifications, infrastructure, and policy requirements.	<p>Start-up funding</p> <ul style="list-style-type: none"> • How do I fund my new research program? • How do I ensure I have enough money for the first year of my study? <p>Research training</p> <ul style="list-style-type: none"> • How do I train my first research coordinator? • Who needs mandatory training? <p>Infrastructure</p> <ul style="list-style-type: none"> • What infrastructure is required to run a research program? <p>Research policies and procedures</p> <ul style="list-style-type: none"> • How do I develop the necessary research policies and procedures?
Choosing a first research study	The panel recommended strategies for selecting an initial study type, topic, and assessing feasibility with a focus on ensuring early success.	<ul style="list-style-type: none"> • How do I determine which study to do first? • How do I assess the feasibility of my first study for my site?
Stages of getting the study up and running	This section describes the process of identifying an appropriate research ethics board, navigating ethics review, reviewing/negotiating study contracts, study start-up procedures, patient recruitment, consenting, data collection, monitoring the study, and closing out the study.	<ul style="list-style-type: none"> • Research Ethics Board • Contract review and negotiations • Trial start-up • Recruitment phase • Trial monitoring • Trial close out
Sustaining a research program	This includes considerations for sustaining and expanding a clinical research program from both a managerial and financial perspective.	<ul style="list-style-type: none"> • How do I keep the clinical team engaged in research? • What are some strategies for managing my budget? • How do I overcome challenges? • How do I involve volunteers in my research program? • How do I keep going when I have staff turnover?

The full toolkit is available on the Canadian Critical Care Trials Group website (see Footnote A).

CCIRNet = Canadian Community Intensive Care Unit Research Network

Phase two: structuring the Canadian Community Intensive Care Unit Research Network toolkit

The CCIRNet toolkit design is based on feedback from a qualitative study of factors influencing Canadian community hospital participation in research. The final sample included 38 participants, representing six provinces and 20 community hospitals. Techniques to increase enrolment and provincial representation included disseminating posters on social media, at in-person conferences, and via professional networks with national audiences and membership. Participants requested a sequential list of the steps involved in starting, implementing, and sustaining a clinical research program. Additionally, participants suggested a “frequently asked questions” section, a list of essential resources, and contacts for mentorship. Considering this feedback from target knowledge users, the CCIRNet toolkit content is structured into a question-and-answer format, arranged in sequential stages conforming to the stages of building a research program. Each section highlights existing resources and networks of support.

To improve accessibility and enable collaborative feedback, an interactive online format is available.^A Links to existing resources and support are directly embedded as well as forms for feedback and suggestions. A communications specialist and a graphic designer facilitated transfer of the toolkit contents into an online format, highlighting the importance of collaborating with other networks when undertaking similar projects.

Phase three: dissemination of the Canadian Community Intensive Care Unit Research Network toolkit

The CCIRNet online toolkit was officially launched at the CCIRNet symposium in November 2023, coinciding with the Fall 2023 Scientific Meeting of the CCCTG.

Discussion

We have developed a practical resource for community hospital professionals to support the development and sustainability of clinical research programs in Canadian community hospitals. The content of the CCIRNet toolkit is organized into three sections based on the feedback received from the expert panel. The main content section

describes strategies and resources for building and sustaining a clinical research program based on five key steps. The final section provides mentorship profiles and a forum to collect feedback from knowledge users and establish a community of practice. Results from concurrent qualitative interviews with potential knowledge users informed the structure of the online toolkit. The online toolkit was formally launched at the CCIRNet symposium on 28 November 2023.

Existing literature emphasizes the need for increased research capacity building initiatives in community hospitals;^{2,4,6,7} yet, community hospitals face many barriers to research participation.^{2,4,7,8,14,15} Strategies for building community hospital research capacity include investment in dedicated infrastructure, increasing collaborations, and providing training and mentorship opportunities.^{2,4,6,8,14–16} Nevertheless, participant feedback from our qualitative interviews revealed that community hospital professionals did not know how to access existing resources and were uncertain of the steps involved in building a research program from the ground up. Existing literature provides guidance on how to conduct a clinical trial and how to build a research career but does not describe how to build a clinical research program in the absence of pre-existing infrastructure.^{16,18,19} Launching a clinical trial, in particular, requires specialized infrastructure, the ability to meet regulatory standards, and an experienced multidisciplinary team, which can pose significant challenges for community sites without pre-existing infrastructure.²⁵ The Fraser Health Authority, in British Columbia, Canada, has built an online toolkit that provides an overview of the research process, including resources for starting and conducting a research study.²⁰ Unlike our toolkit, it is not specifically targeted to community hospitals and it encompasses a lot of information that is specific to British Columbia. Our toolkit provides a unique perspective on strategies applicable to building and sustaining clinical research programs in the community hospital setting and is applicable to hospitals across Canada.

The CCIRNet toolkit has several strengths. Firstly, its content was developed by clinicians and research staff with first-hand experience building clinical research programs in community hospitals. They provide unique insight into strategies for developing a Canadian community hospital research program with capacity to conduct clinical trials, thereby addressing a current gap. In addition to this first-hand experience, the two principal investigators cofounded CCIRNet and have extensive experience mentoring other clinicians in building research programs in their respective community hospitals, giving them broad exposure to the challenges involved. Additionally, the integrated

^A *Canadian Community ICU Research Network*. A guide to building a community hospital clinical research program: strategies from a multidisciplinary front-line perspective. Available from URL: <https://www.ccctg.ca/our-initiatives/network-of-networks/a-guide-to-building-a-community-hospital-clinical-research-program> (accessed July 2024).

knowledge translation approach used in the toolkit design ensures its applicability to target knowledge users.

The CCIRNet toolkit also has several limitations. First, given a lack of formal scholarship in this area, it is primarily based on first-hand experience rather than formal literature review. Second, there may be relevant resources on the topic beyond those included in the CCIRNet toolkit. Ideally, these resources will be suggested by toolkit users and added over time. Finally, the panel members and the participants in the qualitative descriptive study that informed the toolkit were primarily ICU physicians and critical care staff. Thus, the resources and strategies included in the toolkit may be more tailored to the ICU setting. To offset this, several panel members have experience running research studies outside the ICU and efforts were made to ensure broad applicability of the toolkit contents to research conducted in other areas of the hospital.

Our intention is for the CCIRNet toolkit to be a dynamic and collaborative resource. Future directions for this project include collecting and integrating user feedback from a wider, multidisciplinary audience to help improve the transferability of the CCIRNet toolkit to non-ICU community hospital research as well as to a broader array of hospital settings, including suburban, rural, and remote community hospitals. While the CCIRNet toolkit is not a fully collaborative writing application,^{26,27} the process of collecting and integrating feedback will be iterative to maximize its effectiveness in enhancing clinical research capacity in community hospitals. Moving forward, this feature will enable us to evaluate the perceived impact of the CCIRNet toolkit in relation to our overall goal of increasing Canadian community hospital involvement in clinical research.

Engaging community hospitals in clinical research should increase equitable access to research and to novel therapies as well as improve the overall efficiency and applicability of clinical research in Canada. The CCIRNet toolkit is an evolving tool to help support community hospital professionals develop local clinical research programs, thereby expanding clinical research capacity across Canada.

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