Canadian Journal of Emergency Medicine (2022) 24:574–577
https://doi.org/10.1007/s43678-022-00348-3

COMMENTARY

Emergency care clinical networks

R. B. Abu-Laban[1] · J. Christenson[1] · R. R. Lindstrom[1] · E. Lang[2]

Received: 17 March 2022 / Accepted: 14 June 2022 / Published online: 22 July 2022

Keywords Emergency Medicine · Network · Emergency care · Healthcare system

Introduction

The COVID-19 pandemic drew attention to numerous gaps that threaten the mission of emergency care. Moreover emergency medicine is, by its very nature as a horizontal specialty, challenged by the need to define and optimize awareness of timely evidence-informed care and best practices. The purpose of this commentary is to educate readers on a new construct known as "emergency care clinical networks". We describe two such networks currently in Canada, compare and contrast these to traditional emergency medicine associations and organizations like CAEP and AMUQ, and provide broader perspective from a recent international review. In doing so, we hope to prompt reflection on the potential role of networks in emergency care. The question we encourage readers to consider, is whether addressing challenges in Emergency Medicine continues to be optimally achieved at the level of the individual emergency physician and department, or if there is increasing merit to the consolidated sharing of expertise, clinical guidance, innovation, education and advocacy.

Network fundamentals

Although the term "network" is widely used, ambiguity exists in both its application and understood meaning. In fact, many entities proclaiming themselves to be networks lack key features that would make this term appropriate. Networks are ubiquitous in many fields beyond public health and medicine, including research, biology, education, physics, economics, psychology, political science, information science, engineering, technology, transportation, and management. This has resulted in a new field of "network science".

Inter-organizational networks are defined as three or more autonomous organizations that come together to achieve a common goal. These differ from clinical networks in healthcare, which have been defined as "voluntary clinician groupings that aim to improve clinical care and service delivery using a collegial approach to identify and implement a range of strategies" [1]. Key features of clinical networks include: inter-organizational liaison; significant clinical input; "bottom up" perspectives; multi-disciplinary; patient inclusion; evidence-based care; and effecting practice change [2].

Emergency care clinical networks in Canada

Examples of medical disciplines with clinical networks include oncology, nephrology, cardiology, mental health, trauma, child health, and primary care. Recently, both Alberta and British Columbia (BC) have established emergency care clinical networks. Table 1 outlines the many ways these networks differ from traditional emergency medicine associations and organizations.

Research and evaluation of inter-organizational networks has highlighted the importance of further understanding network development and evolution. The evolving trajectory of clinical networks suggests they experience similar issues as inter-organizational networks and the need to learn from and share approaches, successes and challenges. Increased emphasis on evidence-informed development and practice is needed as clinical networks further advance in Canada. A standardized approach to the translation and mobilization of the science

✉ R. B. Abu-Laban
abulaban@mail.ubc.ca

[1] Department of Emergency Medicine, University of British Columbia and BC Emergency Medicine Network, Diamond Health Care Centre, Vancouver, BC, Canada

[2] Department of Emergency Medicine, University of Calgary and Alberta Emergency Strategic Clinical Network, Calgary, Canada

Table 1 Unique features of existing Canadian provincial emergency care clinical networks

Feature	British Columbia emergency medicine network	Alberta emergency strategic clinical network	CAEP, AMUQ and most EM associations and organizations	Comments
Primary focus on clinical care resources and support	✓	✓	X	The BC EMN* and Alberta ESCN* are uniquely focused on open access clinical care resources and support. Most other EM associations and organizations (with the exception of TREKK) are not. Others, like NCER and PERC are focused on research
Involved in Real Time Virtual Support	✓	X	X	Real time virtual support is one of 4 programs in the BC EMN, and a major area of network activity
A priority focus on knowledge mobilization and knowledge translation	✓	✓	±	While CAEP and AMUQ have activity in this area, it is not at an equivalent level or breadth to that of the BCEMN and Alberta ESCN
No fee membership	✓	✓	X	The BC EMN and Alberta ESCN's lack of membership fees avoids barriers of inclusion in a manner consistent with their vision and mission statements
Funded, in whole or part, by the healthcare system	✓	✓	X	The BC EMN funding is in a state of evolution, and is expected to be more secure in the near future
Formal structural integration within the healthcare system	X	✓	X	Historically functionally integrated, the BC EMN is currently undergoing governance change to be structurally integrated as a formal component of the provincial healthcare system
Membership inclusive of non-physicians	✓	✓	X	Heterogeneous membership beyond physicians reflects the "team" aspect of emergency care, and includes RNs and Paramedics. Most EM organizations and associations, including provincial EM Sections, focus exclusively on physician members
Demonstrated commitment to Patient Engagement	✓	✓	+/−	Both the BC EMN and Alberta ESCN have high integration of patients and the public in their management and activity structures. Most other EM associations and organizations do not
Non-traditional management & governance structure	✓	✓	X	Both the BC EMN and Alberta ESCN have management and governance structures that are not constrained by the stipulations of traditional entities like charities and associations. This has allowed them to function in a manner consistent with the key network science principles in the row below
Adherence to network science principles including:				Very few entities, even those that call themselves "networks", truly adhere to a range of key network science principles that result in optimal network functionality
Top/down & bottom/up implementation strategy	✓	+/−	X	
Focus on creating robust relationships	✓	✓	+/−	
Minimally hierarchical decision making structure	✓	+/−	X	
Participation in a "Learning Health System"	✓	✓	X	The LHS was first described by the Institute of Medicine in 2015. It is predicated on care directly generating knowledge that circles back to influence and improve that care
Demonstrated commitment to formal evaluation:				The BC EMN and Alberta ESCN have produced peer reviewed publications related to their activities, and the BC EMN has made significant contributions to the Network Science literature
Clinical activities	✓	✓	X	
Network effectiveness	✓	X	X	
Patient engagement	✓	X	X	

*EMN = "Emergency Medicine Network".

*ESCN = "Emergency Strategic Clinical Network".

behind networks is overdue, [3] and the two existing Canadian emergency care clinical networks we describe below have made significant contributions in this regard.

The British Columbia EM Network

The BC Emergency Medicine Network was built on network principles of engagement of practitioners and other stakeholders [4]. It launched in 2017 as a mechanism to enable emergency practitioners to share easy access to clinical resources, continuing education, research and innovation and the advancement of real-time virtual support [5]. A prior comprehensive needs assessment found that a single source for relevant support and a forum for practitioners to share experiences and solutions to common problems would be of value. The establishment of the BC Emergency Medicine Network enabled the UBC Department of Emergency Medicine to realize the full potential of its vision*: A provincially integrated department committed to clinical and academic leadership in the creation and exchange of knowledge to promote excellence in emergency care*. The BC Emergency Medicine Network vision is: *Exceptional emergency care. Everywhere*.

Since its launch, the BC Emergency Medicine Network has steadily grown both in membership and content. As of December 2021, the website contains 236 short point-of-care clinical summaries, 223 patient discharge sheets (many in multiple languages), and 131 procedural videos. Over 1100 practitioners are members, 113 of whom have contributed content. The BC Emergency Medicine Network website is visited some 11,000 times every month.

From its inception, evaluation was incorporated into the BC Emergency Medicine Network framework across 3 domains: network structure and function; patient engagement; and impact on the emergency system and clinical care [6]. Recent evaluations have confirmed wide respect for the BC Emergency Medicine Network across the BC community and the value of patient partners. In 2019, a Scientific Program was added as means to strengthen system and outcome evaluation. It is focused on advancing access and quality of EM-relevant data, and evaluating major system changes such as real-time virtual support to enable an effective "Learning Health System". A significant challenge for the BC Emergency Medicine Network has been the financial and governance stability required for the network to be formally and structurally integrated in the BC healthcare system.

The Alberta emergency strategic clinical network

The province of Alberta operates under a single health authority, Alberta Health Services (AHS), that serves a population of more than 4 million citizens. AHS has made a substantial and sustained investment in Strategic Clinical Networks, and currently has 16 of these across a wide range of healthcare domains. These networks are viewed as the "enablers of change" within the health system [7].

The Alberta Emergency Strategic Clinical Network was among the original core entities, and has undergone considerable growth since its inception. The Alberta Emergency Strategic Clinical Network leadership structure, like other AHS networks, includes a Senior Medical Director and a Senior Provincial Director as well as a Scientific Office overseen by a Scientific Director and an Assistant Scientific Director. The Alberta Emergency Strategic Clinical Network vision is to "Build an inclusive network that supports the advancement of evidence-informed emergency care for all Albertans" and its mission is to "support quality patient and family centered emergency care driven by education, innovation and practice changing research through collaboration" [8].

The Alberta Emergency Strategic Clinical Network has catalyzed and managed a myriad of improvement efforts in recent years, all aligned with the "Transformational Road Map" that all Strategic Clinical Networks are charged with developing in conjunction with relevant stakeholders. Specific efforts have focused on the initiation of opiate agonist therapy across all Alberta emergency departments, improved resource stewardship in patients with GI bleeding, suspected pulmonary embolism, or minor traumatic brain injury and addressing workplace violence and racism. Much of the impetus for innovation has come through provincial health funding to support projects aimed at ensuring the successful implementation of improvement and efficiency initiatives. This is made possible through a program of research funding known as Partnerships for Research and Innovation in Health Systems which is resourced through a partnership with AHS and Alberta Innovates [9].

Emergency care networks internationally

The above Canadian examples illustrate the major role networks can play in emergency care systems and network science. To obtain wider context, the BC Emergency Medicine Network recently engaged the *North American Observatory on Health Systems and Policies* (NAO) to undertake a review of the prevalence and characteristics of emergency care clinical networks worldwide. This was completed in 2021, and is available by open access in full text [10].

The NAO review was supported by the *International Federation for Emergency Medicine* (IFEM), and involved a survey invitation sent to all 68 IFEM General Assembly Members, as well as all 53 ACEP state chapters. Participants were provided definitions for "emergency care" and "clinical network", and asked about the existence of

emergency care clinical networks in their jurisdiction. Identified networks were subsequently adjudicated for further surveying. This resulted in 32 networks identified at the multi-national, national, and sub-national levels.

The identified networks were primarily focused on connecting emergency providers, providing resources and supports, and improving patient outcomes. However, significant heterogeneity was observed across the identified networks, likely because of the broad inclusivity of the definitions provided to participating IFEM members. Despite this limitation, the NAO review revealed many interesting things. For example 90% of identified networks were involved in CPD and clinical resources; 74% were involved in research; 63% included nurse members; and 48% were involved in real-time support. Only eight networks measured impacts from their activities, and only three had formal evaluation. Eleven networks, including both from Canada, were felt to potentially support the goals of a Learning Health System. Finally, many networks reported challenges throughout their development and expansion, with financial sustainability frequently cited as a key issue.

Closing thoughts

Currently in Canada, only two western provinces have emergency care clinical networks. We hope this commentary provides insight on the distinctive nature and potential value of such networks, and how their structure, resources, institutional support and stakeholder engagement can vary. Both the BC Emergency Medicine Network and the Alberta Emergency Strategic Clinical Network continue to evaluate their impact on care delivery.

As invaluable as traditional provincial and national EM organizations and associations are, in many situations more local and specific entities are required to operationalize guidance, include the needs of other emergency care providers and patients, and optimally support and evaluate system change and quality improvement. This commentary addresses how clinical networks can contribute to our investment in the future of emergency care. We believe there is tremendous value in creating robust clinical networks to support the development and delivery of transformative emergency healthcare across all Canadian provinces and territories.

Funding Drs. Abu-Laban, Christenson and Lindstrom are affiliated with and receive financial support from the BC Emergency Medicine Network. Dr. Lang is affiliated with and receives financial support from the Alberta Emergency Strategic Clinical Network.

References

1. Haines M, Brown B, Craig J, D'Este C, Elliott E, Klineberg E, McInnes E, Middleton S, Paul C, Redman S, Yano EM. Determinants of successful clinical networks: the conceptual framework and study protocol. Implement Sci. 2012;7(16):1.
2. McInnes E, Middleton S, Gardner G, Haines M, Haertsch M, Paul CL, Castaldi P. A qualitative study of stakeholder views of the conditions for and outcomes of successful clinical networks. BMC Health Serv Res. 2012;12:49. https://doi.org/10.1186/1472-6963-12-49.
3. Lindstrom R, Noseworthy T. Evidence Brief #219: Network science & clinical networks in BC: a perspective. Vancouver: BC Academic Health Science Network; 2019.
4. Christenson J. A network to improve emergency patient care by facilitating practitioners to effectively support practitioners. Healthc Manag Forum. 2014;27:132–5.
5. Abu-Laban RB, Drebit S, Lindstrom RR, Archibald C, Eggers K, Ho K, Khazei A, Lund A, MacKinnon C, Markham R, Marsden J, Martin R, Christenson J. The British Columbia emergency medicine network: a paradigm shift in a provincial system of emergency care. Cureus. 2018. https://doi.org/10.7759/cureus.2022.
6. Marsden J, Drebit S, Lindstrom RR, MacKinnon C, Archibald C, Abu-Laban RB, Eggers K, Ho K, Khazei A, Lund A, Martin E, Christenson J. The BC emergency medicine network: evaluation approach and early findings. BCMJ. 2019;61(4):164–71.
7. Manns BJ, Wasylak T. Clinical networks: enablers of health system change. CMAJ. 2019;191(47):E1299–305. https://doi.org/10.1503/cmaj.190313.
8. https://www.albertahealthservices.ca/scns/Page9682.aspx. Accessed 09 Ma 2022
9. McLane P, Holroyd BR, Lang E. Emergency strategic clinical network: advancing emergency care in Alberta through collaborative evidence-informed approaches. CMAJ. 2019;191:S24–6. https://doi.org/10.1503/cmaj.190591.
10. Roerig M, Carbone S, Lynch M, Abu-Laban R, Duncan R, Marchildon G, Allin S. An international review of emergency care clinical networks. Toronto: North American Observatory on Health Systems and Policies. Rapid Review; 2021.