



This is a repository copy of *Preparing for the next COVID-19 wave in Canada : managing the crisis facing emergency management leaders in healthcare organisations.*

White Rose Research Online URL for this paper:
<https://eprints.whiterose.ac.uk/175492/>

Version: Accepted Version

Article:

Hertelendy, A.J., Tochkin, J., Richmond, J. orcid.org/0000-0002-8854-5958 et al. (1 more author) (2021) *Preparing for the next COVID-19 wave in Canada : managing the crisis facing emergency management leaders in healthcare organisations.* *BMJ Leader.*

<https://doi.org/10.1136/leader-2020-000437>

This article has been accepted for publication in *BMJ Leader*, 2021, following peer review, and the Version of Record can be accessed online at <http://dx.doi.org/10.1136/leader-2020-000437>. © 2021 Authors (or their employer(s)). Reuse of this manuscript version (excluding any databases, tables, diagrams, photographs and other images or illustrative material included where a another copyright owner is identified) is permitted strictly pursuant to the terms of the Creative Commons Attribution-Non Commercial 4.0 International (<https://creativecommons.org/licenses/by-nc/4.0/>).

Reuse

This article is distributed under the terms of the Creative Commons Attribution-NonCommercial (CC BY-NC) licence. This licence allows you to remix, tweak, and build upon this work non-commercially, and any new works must also acknowledge the authors and be non-commercial. You don't have to license any derivative works on the same terms. More information and the full terms of the licence here:
<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

Preparing for the next COVID-19 Wave in Canada – Managing the crisis facing emergency management leaders in healthcare organizations

Attila J. Hertelendy, PhD,^{1,2,3} Jeffrey Tochkin, MA, CEM⁴ John G. Richmond, PhD,⁵ Gregory R. Ciottone, MD^{2,3}

¹ Department of Information Systems and Business Analytics, College of Business, Florida International University, Miami, Florida, USA

² Fellowship in Disaster Medicine, Department of Emergency Medicine, Beth Israel Deaconess Medical Centre, Boston, Massachusetts, USA

³ Department of Emergency Medicine, Harvard Medical School, Boston, Massachusetts USA

⁴ Alberta Health Services, Edmonton, Alberta, Canada

⁵ School of Health and Related Research, The University of Sheffield, UK

Contributors: All four authors (AJH, JT, JR, GRC) have contributed to the commentary. All provided empirical description of leadership in the health system, AJH took the lead in the framework and writing.

Funding: There are no funders for this project

Competing Interests: None declared

Key Terms: Emergency Management, Leadership, Hospital Emergency Incident Command,

HEICS, COVID-19

Introduction:

The ability of health system leaders to coordinate emergency responses to the novel coronavirus SARS-CoV2 pandemic known as COVID-19 is a significant global issue. An effective response to emergencies in health organisations is predicated on the enactment of robust emergency management planning and activities. While these activities vary between countries, they share fundamentals that include the Hospital Emergency Incident Command System, (HEICS) which is often led by the organization's chief executive. This incident command system has been utilized in the United States and other countries since 1991.¹ Events such as the 1995 Tokyo Subway Sarin attack and the 2003 SARS outbreaks in Asia and Toronto, Canada have transformed the requirements for hospital emergency management.¹ While health emergency planning is widespread in the United Kingdom it's not clear whether health organizations in that country are integrated into the emergency response, and whether they function effectively as a system.² In the United States, several healthcare systems have attributed successful outcomes such as effective ventilator management to the implementation of HEICS.^{3,4,5} Meanwhile, in Canada COVID-19 has tested these systems, and weaknesses are beginning to show in the capabilities of hospitals to provide a prolonged disaster response.⁶ Moreover, there is inconsistency across the Canadian provinces in the standardization of incident command structures. The application of emergency management systems by Canadian healthcare leaders seems inconsistent and underutilized.^{7,8} Internationally, healthcare leadership (HL), those individuals in key positions of power whose decisions have considerable influence on emergency response activities, are not well integrated with emergency management (EM) systems and practices.⁹

The COVID-19 pandemic is a generational crisis that has significantly impacted the Canadian healthcare system. To date, the virus has not been contained, and while vaccinations have begun

in Canada, future logistical and distribution challenges mean COVID-19 is still an ever-present concern. Globally there have been over 167 million COVID-19 cases resulting in 3.4 million fatalities with case counts in Canada surging past 1.3 million and 25,000 deaths.¹⁰ Early in the pandemic it seemed that Canada had effectively managed the response to the pandemic based on lessons learned from the 2003 SARS and 2009 H1N1 pandemics, which killed 44 and 428 Canadians respectively.¹¹ The second wave of the pandemic, however, has surged across Canada and has rapidly overwhelmed resources, resulting in record numbers of COVID-19 infections and increased fatalities across Canada.¹² Announcements by pharmaceutical companies Pfizer, Moderna and BionNTech made in the fall of 2020 have demonstrated that vaccines are more than 90% effective. To date 21 million vaccinations have been administered however the third wave of COVID-19 infections including variants of concern are on a steep upward trajectory necessitating continued pragmatic organizational planning and response.^{13,14} Hospitals across Canada continue to face significant challenges resulting from workforce shortages, rising bed-occupancy rates, and surge management vulnerabilities.¹⁵

Emergency Managers play a key role in preparing Canadian healthcare organisations for disasters and emergencies. They are responsible for creating and maintaining plans, and ensuring logistics and communication systems function effectively in times of crisis. The establishment of formal lines of communication and accountability are a key aspect of EM. Within the health sector, the most widely adopted EM coordination structure is the HEICS,¹⁶ enacted to provide hospital leaders clarity on their roles in the organisation's emergency response.¹⁷

Empowering and training healthcare leaders in EM can be problematic, as they typically lack the knowledge and experience in managing crises effectively. This commentary addresses the global EM competency gap and the need for better integration with HL, using the specific case of Canada

to develop policy recommendations, while raising awareness of these concerns internationally. Through a review of early provincial evidence and conversations with Canadian national emergency management leaders, we build on our own EM experience to summarise the challenges and potential opportunities for HL as they manage the ongoing COVID-19 crisis, and plan for future disasters.

Background: Emergency Management in Canadian Healthcare Organisations

In Canada, universal health care is embedded at a federal level, while each province has responsibility for the design and delivery of its health system. Federal legislation and the Canadian Health Act provide coverage for medically necessary care, while individual provinces have discretion over the provision of other services. This variation in service provision challenges Canada's ability to mount a coordinated and standardized response to the COVID-19 national health crisis. This has also led to untested and uncoordinated emergency management plans between levels of government, and struggles over jurisdictional issues.^{18,19}

EM is a developing profession in Canadian Healthcare, and the value of an emergency manager is not yet fully understood by HL. In some organizations the EM role is not dedicated and has been thrust upon clinical leaders, often from the nursing ranks, who typically lack sufficient training and experience to effectively lead a disaster response.²⁰ Dual roles create operational inefficiencies when the nurse leader is required to prioritize immediate lifesaving patient care in the emergency department while concurrently leading a disaster or crisis response.^{21,22,23}

Emergency Management in the Canadian COVID- Response

The EM role in monitoring COVID-19 in Canada started in late 2019, with interagency situational awareness calls led by public health entities. Collaborative planning activities within the health

sector gained momentum in late February 2020, however, these timelines varied both provincially and regionally. By early March 2020 efforts were underway to prepare hospitals, as case counts around the world increased dramatically and the World Health Organization declared COVID-19 a global pandemic.²⁴ This triggered provincial and municipal states of emergency being declared across Canada.²⁵ Immediate efforts included postponing elective surgeries, personal protective equipment (PPE) sourcing and stewardship, launching testing sites, and utilizing technology to provide alternate consultations, such as telephone or virtual care platforms.²⁶

We know that provincial health systems are attentive to what their neighbours are doing, and learn from each other to redesign their governance structures with an emphasis on improvement capacity. However, to our knowledge no assessment of divergences and convergences in the emergency management structures adopted by provinces prior to or during COVID-19 has been completed. Further, there is a paucity of information describing the use of HEICS in healthcare settings across the Canadian provinces.

Addressing the EM Competency Gap for Leaders

To date there are few studies that discuss the significance of HL's role in successful hospital emergency preparedness and response.⁹ One explanation for this may be competing interests, whereby emergency management falls lower on HL agendas than other issues they perceive to be more pressing.²⁷

EM activities, such as triggering the HEICS system in mid-crisis or for planned events, may not be entirely understood by HL. There is a gap in understanding and under-estimation of the value of EM to the organization. Simply put, EM may not be at the decision-making table, or not aware of competing priorities within the organization. Findings from our recent survey of health EM

Professionals' perspectives on COVID-19 Preparedness and Response in Canadian Healthcare Organizations show that just over half of response teams were led solely by a healthcare leader, and that more than a quarter of those healthcare leaders had not received any training in their role, nor on the system²⁸.

Our early findings showing the appointment of executives to leading EM positions in Canadian healthcare is encouraging, as they are of sufficient influence and power to enact disaster response effectively. With good support and training from EM professionals, these executive leaders should be well-positioned to make effective decisions.

The Need to Integrate Health Leadership with EM.

Traditionally, emergency services personnel (Paramedics, Firefighters, etc.) tended to be appointed to EM roles in health organisations. While these individuals are equipped with operations level expertise, their ability to engage at a strategic level is lacking. Hence, leaders with decision-making authority who can address both the public and ethical dimension of emergencies must take a role in EM.⁹ As suggested by Khan et al. incorporating an ethical leadership perspective enhances health emergency preparedness.²⁹ For example, deciding who will receive life-saving vaccines *“cannot be informed solely by science, and failure to acknowledge underlying value judgements can result in a loss of public trust”*.²⁹

Before the emergence of COVID-19, EM within healthcare organizations may not have been viewed as a priority among HL. This may be more common in areas that have not experienced recent disasters. Another culprit is likely competing healthcare priorities that have undermined the strategic importance of EM, whereby the value was inherent in so far as it was required for compliance with Accreditation Canada standards for Emergency and Disaster Management

Programs.³⁰ These standards however are not requirements. In many organizations once a hospital accreditation or reaccreditation cycle is completed or a crisis has passed it is back to business as usual. Further, the Canadian Standards Association Z-1600 (2017) aimed at EM and business continuity programs has not been widely adopted by healthcare organization across Canada.³⁰ As a result many healthcare organizations in Canada remain chronically un-prepared for mass casualty events, active shooters, or global pandemics.⁶ It is often individuals holding leadership positions that determine the level of organisational commitment to EM.¹¹

Opportunities to improve current and future pandemic response:

Policy Recommendation: Reinstate National Training Programme for Emergency Management

Currently there is a lack of consistent formalized training of HEICS in hospitals settings. This applies not only to leadership but from the individual hospital unit level upwards. With few exceptions, the effectiveness of unit response is a reflection of best efforts and emergent team problem solving vs. using a definitive emergency management structure.

The Canadian Emergency Management College was a federal institution created in the 1950s to train and prepare leaders across the country to respond to disasters and emergencies.³¹ In 2012 Canada closed the Canadian Emergency Management College, the national equivalent to the USA's Federal Emergency Management Agency (FEMA)'s Emergency Management Institute.³¹

It is unknown to what extent losing this training and preparedness resource has impacted the healthcare operational capacity to respond to a public health emergency. Opportunities for leaders to gain EM experience, with the exception of mock-drills and exercises, is now almost entirely dependent on the occurrence of crisis events. Advanced training opportunities, outside of the

organization, may be difficult to access due to a combination of barriers, including lack of funding and restrictions on the availability of training programs. We recommend the Canadian government reinstate the Canadian Emergency Management College as part of an empirically-derived and theoretically informed strategy for implementing a sustainable emergency management framework for local/regional public health response. This strategy aims to compliment the Emergency Management Framework for Canada 3rd edition, and strengthen hospital emergency preparedness capabilities by providing ongoing leadership training for hospital staff and administrators in HEICS and overall emergency preparedness.^{28,29,32}

Leadership Recommendation: Consider Emergency Management as an essential core competency of Health Leadership. Following up on the competency gap addressed earlier, we believe the core competencies of hospital leaders should include integration of emergency management skills. This would, at a minimum, see health leaders learning about the ‘incident commander’ position in HEICS, or similar incident management systems, prior to the occurrence of a crisis. Ideally health leaders will obtain and maintain certification in the operational aspects of emergency management alongside their organization’s EM professionals. As an alternative measure, we suggest incorporating the EM function within a health organizations senior leadership team. Such a change might involve a senior health leader adopting an EM responsibility and representing EM around the senior leadership table. Making this transition requires an integration of both technical emergency management skill sets and the ability to apply business and healthcare operations at a strategic level, including ethical considerations and public engagement.³³

Future Directions for EM and Leadership Research

There is a paucity of research pertaining to how leaders behave in emergencies and their role in disaster preparedness. Additional research is needed to improve understanding of how healthcare

leaders have integrated and utilized emergency management structures and professionals in response to crisis. Further consideration must be given to uncovering issues related to how the overall EM system is organized globally in comparison to Canada, how it engages with the public, and how its effectiveness and outputs can be measured and compared against systems elsewhere. In order to adequately support Canadian HL we must first understand how EM is effectively integrated with existing organizational management and leadership systems. By developing this understanding, we can better support leaders to make informed decisions about how EM expertise can be utilized to improve future pandemic preparedness and response.

The Canadian Institutes of Health Research is the source of federal health research funding. In setting the priorities for health services and policy it has funded several rapid research grant projects during COVID-19. Additional resources and specific grant funding announcements need to be made to study the role of EM and leadership integration across Canadian hospitals to ensure future pandemics, climate change induced disasters, and crises can be managed effectively.³⁴

Conclusion

The COVID-19 pandemic further highlights the important role of healthcare emergency managers, and the need for them to be incorporated into the executive leadership teams of healthcare organizations. Making that transition requires an integration of both technical emergency

management skill sets and the ability to apply business and healthcare operations at a strategic level.³³

As a model that can be used globally, Canadian policy makers should consider providing both the funding and regulatory structures to ensure healthcare emergency managers are integrated into the leadership structure of healthcare systems. Regulatory frameworks should explicitly mandate the requirement to hire full-time dedicated emergency managers, and outline the structures required for various healthcare institutions. Funding must be provided to sustain comprehensive emergency management programs that form an integrated clinical and business solution for healthcare organizations, and to ensure public health resiliency and preparedness. Healthcare leaders must also consider the integration of EM professionals and incident management structures like HEICS as the systematic framework for organizing and managing all phases of hospital emergency management, including mitigation, preparedness, response, and recovery. This most importantly includes leaders taking up the mantle as champions of EM within their organizations. COVID-19 is not the time to abandon an emergency management system framework, but it must be better understood. With global implications, healthcare systems would be best served by utilizing a well-planned, structured approach to crises that integrates smoothly into the overall regional emergency response system, thereby enhancing community resiliency.

References

1. Arnold, J. L., Dembry, L., Tsai, M., Dainiak, N., Rodoplu, U., Schonfeld, D. J., ... & Selig, S. (2005). Recommended modifications and applications of the Hospital Emergency Incident

Command System for hospital emergency management. *Prehospital and disaster medicine*, 20(5), 290.

2. Lee, A. C., Challen, K., GARDOIS, P., Mackway Jones, K., Carley, S., Phillips, W., ... & Goodacre, S. (2012). Emergency planning in health: scoping study of the international literature, local information resources and key stakeholders. Final report.

3. Tosh, P. K., Bucks, C. M., O'Horo, J. C., DeMartino, E. S., Johnson, J. M., & Callies Jr, B. I. (2020, September). Elements of an Effective Incident Command Center. In *Mayo Clinic Proceedings* (Vol. 95, No. 9, pp. S3-S7). Elsevier.

4. Parikh, S. R., Avansino, J. R., Dick, A. A., Enriquez, B. K., Geiduschek, J. M., Martin, L. D., ... & Ojemann, J. G. (2020). Collaborative Multi-Disciplinary Incident Command at Seattle Children's Hospital for Rapid Preparatory Pediatric Surgery Countermeasures to the COVID-19 Pandemic. *Journal of the American College of Surgeons*.

5. Schmidt, J. M. (2020). Seeking evidence-based COVID-19 preparedness: A FEMA framework for clinic management. *NEJM Catalyst Innovations in Care Delivery*, 1(2).

6. Nantais, J., Gabbe, B. J., Nathens, A., & Gomez, D. (2020). The current status of disaster preparedness in Canadian trauma centers. *Journal of Trauma and Acute Care Surgery*, 89(3), e78-e83.

7. Born, C. T., Briggs, S. M., Ciraulo, D. L., Frykberg, E. R., Hammond, J. S., Hirshberg, A., ... & O'Neill, P. A. (2007). Disasters and mass casualties: I. General principles of response and

management. *JAAOS-Journal of the American Academy of Orthopaedic Surgeons*, 15(7), 388-396.

8. Powers, R. (2007). Organization of a hospital-based victim decontamination plan using the incident command structure. *Disaster Management & Response*, 5(4), 119-123.

9. Lee, A. C., Challen, K., GARDOIS, P., Mackway Jones, K., Carley, S., Phillips, W., ... & Goodacre, S. (2012). Emergency planning in health: scoping study of the international literature, local information resources and key stakeholders. Final report.

10. Johns Hopkins University & Medicine. COVID-19 Dashboard. 2020. Retrieved April 21, 2021 from <https://coronavirus.jhu.edu/map.html>

11. Leslie M, Fadaak R, Davies J,(2020). Integrating the social sciences into the COVID-19 response in Alberta, Canada. *BMJ Global Health*, doi:10.1136/bmjgh-2020-002672.

12. Detsky, A. S., & Bogoch, I. I. (2020). COVID-19 in Canada: Experience and response. *Jama*. 324(8):743–744. doi:10.1001/jama.2020.14033

13. Public Health Agency of Canada. Canadian report on COVID-19 vaccine doses administered. Ottawa: Public Health Agency of Canada; April 21, 2021. <https://health-infobase.canada.ca/covid-19/vaccine-administration/>

14. Duong, D. (2021) What’s important to know about the new COVID-19 variants? *CMAJ* Jan 2021, 193 (4) E141-E142; DOI: 10.1503/cmaj.1095915

15. Globe and Mail. The Editorial Board. The pandemic second wave arrived right on schedule – and still caught the Ford government by surprise. Retrieved on December 12, 2020 from:

<https://www.theglobeandmail.com/opinion/editorials/article-the-pandemic-second-wave-arrived-right-on-schedule-and-still-caught/>

16. California Medical Emergency Services Authority. HICS background and history. 2020. Retrieved November 18th, 2020 from: <https://ems.ca.gov/hics-history-and-background/>
17. Bahrami, P., Ardalan, A., Nejati, A., Ostadtaghizadeh, A., & Yari, A. (2020). Factors Affecting the Effectiveness of Hospital Incident Command System; Findings from a Systematic Review. *Bulletin of Emergency & Trauma*, 8(2), 62.
18. Silversides A. (2009). Canada's ability to respond to a national health crisis hampered by jurisdictional issues, untested emergency plans. *CMAJ*, Jun 9;180(12):1193-4, 2009; doi: 10.1503/cmaj.090870.
19. Vogel, L. (2018). Many Canadian health facilities unprepared for disasters. <https://www.cmaj.ca/content/190/35/e1057> accessed Dec 15, 2020
20. Whetzel, E., Walker-Cillo, G., Chan, G. K., & Trivett, J. (2013). Emergency nurse perceptions of individual and facility emergency preparedness. *Journal of emergency nursing*, 39(1), 46-52.
21. Veenema, T. G., Lavin, R. P., Griffin, A., Gable, A. R., Couig, M. P., & Dobalian, A. (2017). Call to action: the case for advancing disaster nursing education in the United States. *Journal of Nursing Scholarship*, 49(6), 688-696.
22. Baack, S., & Alfred, D. (2013). Nurses' preparedness and perceived competence in managing disasters. *Journal of Nursing Scholarship*, 45(3), 281-287.

23. Amberson, T., Wells, C., & Gossman, S. (2020). Increasing disaster preparedness in emergency nurses: a quality improvement initiative. *Journal of emergency nursing*, 46(5), 654-665.
24. Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*, 91(1), 157.
25. Canadian Civil Liberties Association. Emergency orders declared across the country. 2020. Retrived from: <https://ccla.org/coronavirus-update-emergency-updates/> on December 21st, 2020.
26. Wang, J., Vahid, S., Eberg, M., Milroy, S., Milkovich, J., Wright, F. C., ... & Irish, J. (2020). Clearing the surgical backlog caused by COVID-19 in Ontario: a time series modelling study. *CMAJ*, 192(44), E1347-E1356.
27. Cagliuso, S., & Nicholas, V. (2014). Stakeholders' experiences with US hospital emergency preparedness—Part 2. *Journal of business continuity & emergency planning*, 8(3), 263-279.
28. Richmond, J. G., Tochkin, J., & Hertelendy, A. J. (2021). Canadian health emergency management professionals' perspectives on the prevalence and effectiveness of disaster preparedness activities in response to COVID-19. *International Journal of Disaster Risk Reduction*, 102325.
29. Khan, Y., O'Sullivan, T., Brown, A. et al. Public health emergency preparedness: a framework to promote resilience. *BMC Public Health* 18, 1344 (2018).
<https://doi.org/10.1186/s12889-018-6250-7>
30. Z-1600 CSA Standard Retrieved December 20, 2020 from
<https://www.csagroup.org/standards/>

31. Public Health Agency of Canada. Emergency Management Training. Retrieved from:

<https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/mrgnc-prprdnss/mrgnc-mngmnt-trnng-en.aspx>

32. Public Safety Canada. An Emergency Management Framework for Canada - Third Edition

2017. <https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2017-mrgnc-mngmnt-frmwrk/index-en.aspx> Accessed Dec 18, 2020

33. Groysberg, B., Kelly, L. K., & MacDonald, B. (2011). The new path to the C-suite. *Harvard business review*, 89(3), 60-68.

34. McMahon, M., Nadigel, J., Thompson, E., & Glazier, R. H. (2020). Informing Canada's Health System Response to COVID-19: Priorities for Health Services and Policy Research. *Healthcare Policy*, 16(1), 112.