6 November 2025

Exercise Canada Paratus Post-Exercise Report

References:

A. Exercise Canada Paratus Briefing Note, September 2025
B. Exercise Canada Paratus provisional agenda
C. Exercise Trillium Cura post-exercise report, November 2024
D. Haldane, V., Beckett, A., Engels, P. et al. Preparing for resilience — Si Vis Pacem, Para Bellum. Can J Public Health (2025). https://doi.org/10.17269/s41997-025-01106-5
E. Arthur, B. How would Canada's health-care system respond in another world war?
F. Australian Government Response Plan for Overseas Mass Casualty Incidents (OSMASSCASPLAN) 2025
G. The use of wargaming to sharpen the tactical edge
H. Operation Dark Winter
I. Why you should be alarmed by the wounds I treated in Ukraine: Americans aren't prepared for the calamitous injuries produced by modern conventional weapons
J. The Emergencies Act
K. The Emergencies Management Act
L. Col (ret) Brian Eastridge, Spectre of the Next War: Implications for US Healthcare and Surgical Practice, 5 Sep 2024
M. Opinion: The risks of prolonged casualty care for conventional forces in large-scale combat operations
N. Hospital beds staffed and in operation, 2022-2023, Canadian Institute for Health Information (CIHI), 2022-2023. Ottawa, ON: CIHI; 2023

List of Acronyms:

AI	Artificial intelligence
CAF	Canadian Armed Forces
CBRNE	Chemical, biological, radiological, nuclear, and explosive
CBSA	Canadian Border Services Agency
CFHS	Canadian Forces Health Services
CIHI	Canadian Institute for Health Information
CIMVHR	Canadian Institute for Military and Veteran Health Research
CJWC	Canadian Joint Warfare Centre
CPer	Captured person
CPECC	Canadian patient evacuation and care committee
CSC	Correctional Service of Canada
CSE	Communications Security Establishment Canada
CSIS	Canadian Security Intelligence Service
DLSPH	Dalla Lana School of Public Health
DND	Department of National Defence
DoDTR	Joint Trauma System Department of Defense Trauma Registry
ECP	Exercise Canada Paratus
EMR / EHR	Electronic medical records/electronic health records
EPECC	European patient evacuation and care committee

ETC	Exercise Trillium Cura
FPT	Federal, provincial, and territorial
GAC	Government Affairs Canada
HERC	Health Emergency Readiness Canada
HHR	Health human resources
ICU	Intensive care unit
IMS	Incident management system
IPC	Infection prevention and control
IRCC	Immigration, Refugees and Citizenship Canada
ISC	Indigenous Services Canada
ISED	Innovation, Science, and Economic Development Canada
LSCO	Large-scale combat operations
MHA	Mental health and addictions
NATO	North Atlantic Treaty Organization
OFMAR	Operational Framework for Mutal Aid Requests
PCO	Privy Council Office
PHAC	Public Health Agency of Canada
PSPC	Public Services and Procurement Canada
PT	Provincial and territorial
PTSD	Post-traumatic stress disorder
RCAF	Royal Canadian Air Force
RCMP	Royal Canadian Mounted Police
TTX	Tabletop exercise

1. Lay Summary. Exercise Canada Paratus (ECP) was a pan-Canadian health security exercise that simulated the challenge of maintaining Canadians' access to care while managing a high and sustained flow of casualties evacuated to Canada for treatment and recovery. This sort of exercise is essential for identifying gaps in our systems, improving crisis response, and building strong working relationships among the leaders that would need to collaborate during a major emergency like a war. Building on the success of Ontario's Exercise Trillium Cura (ETC) held in 2024 (*Ref C, D, E*), ECP brought together from across Canada, experts from academia, federal, provincial, and territorial health systems, public sector agencies, private industry, and the Canadian Armed Forces (CAF). Together, they explored how to better prepare for the arrival of wounded and deceased individuals, while ensuring that the broader Canadian population continues to receive the care they need. ECP highlighted the importance of clear governance, coordinated evacuation and triage procedures, scalable health workforce capacity, resilient supply chains (for items like tissue, plasma, blood, equipment, prosthetics, and antibiotics), unique challenges associated with chemical, biological, radiological, nuclear, and explosive (CBRNE) injuries, and tailored mental health and addictions (MHA) supports. ECP also revealed that surgeries will have a focus on reconstructive care and rehabilitation rather than trauma care. It emphasized the importance of addressing a wide range of practice and policy issues to improve civilian-military collaboration. ECP was a critical step toward strengthening Canada's ability to respond to future large-scale emergencies and ensuring that our health systems are prepared to protect all Canadians in times of crisis.

2. Executive summary. ECP was a strategy-level tabletop exercise designed to help prepare FPT health systems for the challenge of integrating large volumes of casualties that would occur if Canada was engaged in sustained large scale combat operations (LSCO). Several key recommendations emerged regarding: (1) governance, leadership, and coordination; (2) Patient evacuation, tracking, and triage; (3) Health service delivery, health human resources (HHR), and supply chain; (4) Supporting MHA care and safeguarding social cohesion; and (5) Overcoming civilian-military policy and cultural tensions and maintaining social cohesion and trust. ECP adopted an all-hazards approach during the design and execution of the tabletop exercise (TTX). An all-hazards approach, as described by the World Health Organization, emphasizes that while hazards vary in source (natural, technological, societal), they challenge health systems in similar ways that require multisectoral response to support resilience. So, while ECP focused on the specific challenges stemming from the repatriation of warzone casualties, the insights and recommendations gleaned throughout the exercise could support other health system challenges that could involve civilian-military collaboration, including but not limited to, wildfires or extreme weather events.

BACKGROUND

3. Health system preparedness and resilience. In Canada, members of the CAF receive health care directly from the military, funded by the federal government. This is because the Canada Health Act and provincial and territorial (PT) health insurance acts exclude CAF members from the list of insured persons for PT health care coverage based on the understanding that the federal government, through the Department of National Defence (DND), is responsible for the health care of military personnel. As a result, the CAF ensures comprehensive health services for its members through direct care provision and partnerships with civilian health care organizations.

4. The CAF does not have dedicated hospitals; therefore, it purchases the specialized care and services that are not available within the military health care system through the provincial and territorial systems (through a private insurance provider). While the impact of these needs may not cause appreciable health system strain during peacetime, in a complex mass casualty situation, such as that caused by an LSCO, elevated care needs from the military could have far-reaching impacts on provincial and territorial civilian health systems. Meeting the demands of such a crisis requires careful planning to develop coordinated, innovative, and adaptive approaches to expand capacities, conserve resources, and promote resilience across civilian and military health systems; manage multiple payers' goals; and ensure high quality acute and routine care is provided to all Canadians. Efforts are needed to establish governance structures on ethics and policy to provide guidance, particularly when resources are even more constrained.

5. Exercise goals and objectives. The overarching goal of ECP was to conduct a strategy-level TTX to help prepare Canada for the challenge of integrating large volumes of casualties that would occur if Canada was engaged in sustained LSCO. More specifically, ECP's objectives were as follows:

a. To conduct an assessment, using available data, of the risks to our health care systems based on a spectrum of threat scenarios using an all-hazards

approach. This includes both the civilian and CAF health systems and considers both the care for trauma and other types (chronic and infectious disease) of care.

b. To evaluate various options to address these risks using modelling, and within a simplified set of goals, to optimize care for both returning military personnel and the Canadian population. These may include, but are not limited to:

   i. Enhancing interoperability across multiple regional, provincial, federal, and military organizations.

   ii. Defining effective pan-Canadian health system governance, funding structure, and management approaches for sustained mass warzone casualty repatriation across provincial boundaries.

   iii. Improving HHR and materials resourcing.

   iv. Anticipating supply chain shortages, mitigating supply chain breakdowns, and building resilient national supply chains.

   v. Improving medical transport to and from conflict theatres as well as within Canada.

c. To create networking opportunities to enable a rapid, integrated, effective, and cohesive response to increases in civilian health system demand required to manage different health system surge scenarios as required by NATO Article 3. This includes a NATO Article 5 scenario of a LSCO in Europe.

d. To address the needs of CAF military personnel casualties up to and including sustained mass casualty events. This may include:

   i. Identifying counterparts across the civilian and CAF health care systems below the most senior leadership level.

   ii. Identifying areas where terminology, decision rules and other standard operating procedures may conflict.

   iii. Creating a sense of shared purpose across the CAF and civilian health care systems.

6. Exercise Canada Paratus (ECP) took place from 10-12 September 2025 at Unity Health in Toronto. Originally conceived in Spring 2025, and building off the success of 2024's Exercise Trillium Cura, ECP was planned and executed through a strong partnership between the Institute for Health Emergencies and Pandemics at the Dalla Lana School of Public Health (DLSPH) at University of Toronto, Health Canada, the Canadian Institute for Military and Veteran Health Research (CIMVHR), Trauma Program – St. Michael's Hospital, Canadian Forces Health

Services (CFHS), Canada Company: Many Ways to Serve, and the Canadian Joint Warfare Centre (CJWC).

METHODOLOGY

7. The planning and execution of Exercise Canada Paratus progressed over a six-month period, as noted below:

a. June 2025: Exercise concept discussed and key partners are convened.

b. July-September 2025: Canada Company, in collaboration with DLSPH, CFHS, and CJWC designed and developed the exercise.

c. September 9th, 2025: Final participant list confirmed.

d. September 10th, 2025: Exercise setup and introductory dinner.

e. September 11th, 2025: Day 1 activities, consisting of a detailed TTX involving a diverse group of civilian, and military health system team members.

f. September 12th, 2025: Day 2 activities, including additional TTX turns, small group exploration, and presentations on key findings.

8. Participants. Annex A offers a complete list of participants. There was broad representation from provincial/territorial health agencies and institutions from British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Prince Edward Island, Nova Scotia, Newfoundland and Labrador, Yukon, Northwest Territories, and Nunavut. To ensure strong critical perspectives, participants brought clinical, health administrative, media, politics and policy, logistics and transport, and security and safety expertise. While ECP was an in-person exercise, observers representing diverse organizations and sectors attended virtually.

9. In total, 79 people attended ECP: 18 attendees were virtual observers and 61 attended in person. The 61 in-person attendees were assigned one of six roles, based on the organizations they represented:

a. The Exercise Directorate. This group consisted of the sponsors, designers, facilitators, and data capturers.

b. The Canadian patient evacuation and care committee (CPECC). Eighteen pre-selected participants formed the CPECC, which convened key decision-makers within the exercise, responsible for assessing and triaging casualties incoming from Europe, while simultaneously trying to preserve the stability of the various PT health systems.

c. The European patient evacuation and care committee (EPECC). Three pre-selected participants formed the EPECC, which convened key military health care

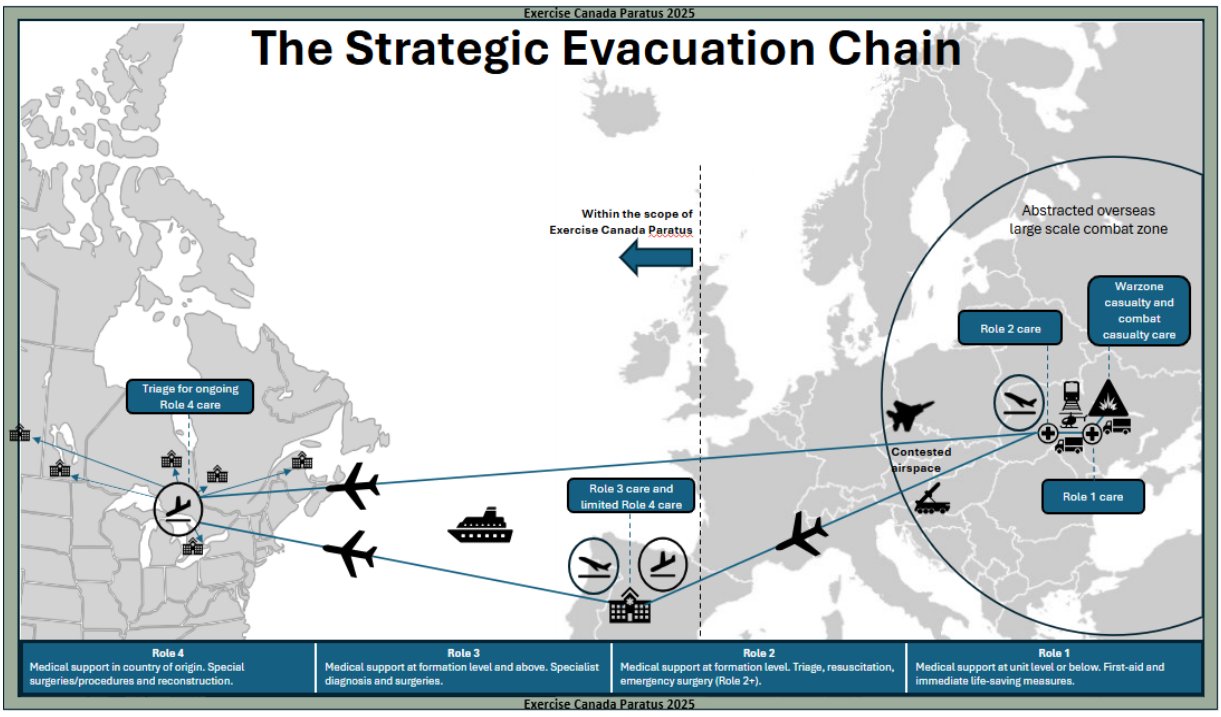
experts, responsible for assessing and triaging casualties decanted from European Role 3 care facilities and evacuation hubs, all of whom required strategic evacuation to Canada for ongoing care. During ECP, the EPECC was physically separated from the CPECC, with communication only occurring through video teleconferencing.

d. The red team. The red team consisted of four carefully chosen subject matter experts, charged with the responsibility to challenge the CPECC's assumptions, deductions, and decisions.

e. The media team. A team of one, this consisted of a journalist that represented the views of the public and was tasked with holding CPECC and EPECC members accountable for their decisions through a simulated press briefing after each round of the exercise.

f. The in-person active observers. Any attendee not assigned another role was assigned as an official active observer. Observers were responsible for tracking emergent insights, providing expertise in a specific area (e.g. infectious disease or border security), and recording challenges and potential solutions on data capture cards ('red cards'), which were collected throughout the exercise.

10. Exercise scope. The entire journey of a casualty evacuated to, and cared for in Canada, can be long and complex, involving numerous stops and organizations along the way. The graphic below depicts a simplified version of a casualties' potential journey from point-of-injury to arrival in Canada. While all stages merit exploration, ECP focused on the EPECC to CPECC transfer, including triage, and onward movement to PT health systems.



11. Exercise scenario. Annex B offers complete information on the design of ECP. The exercise was designed to simulate the sustained arrival of on average 100 casualties per week who would require onward care and management from a PT health system. Each casualty had a unique story, consisting of demographics, injury mechanism, injuries, treatment received in theatre, and number of weeks needed in a burn unit, intensive care unit (ICU), rehabilitation ward, or psychiatric ward. The CPECC was charged with triaging the warzone casualties as they arrived. To ensure accuracy, the capacity of all PT health systems were modeled using up-to-date capacity and occupancy data provided by the Canadian Institute for Health Information (CIHI) (*Ref N*). Additionally, 10% of all PT health workforce were removed as a starting condition, which represented the portion of HHR that would be deployed within the military during an LSCO. Finally, additional challenges were introduced throughout the exercise, such as CBRNE attacks in theatre, Canadian environmental disasters, cyber-attacks, and the spread of multidrug-resistant infections. Altogether, this allowed participants to explore several weeks of an increasing influx of casualties and respond to expected and unexpected system stressors amidst increasing pressure and complexity.

12. Surveys. Pre- and post-exercise surveys revealed several positive changes in perceptions resulting from participation in ECP (Full results reported in Annex C). A total of 53 participants completed the pre-exercise survey and 45 completed the post-exercise survey. Survey data showed improved confidence in Canadian health systems' preparedness and coordination between civilian and military sectors during a complex mass casualty scenario. Participants reported greater clarity about their own roles and, most notably, a significant increase in understanding the roles of other organizations. However, the exercise highlighted the urgent need for a formalized governance structure to guide pan-Canadian response efforts, with participants emphasizing that leadership ambiguity remains a critical vulnerability.

13. During the exercise, participants noted challenges and potential solutions on specified note-taking cards ('red cards'), which were retained by DLSPH at the conclusion of the exercise (Full analysis reported in Annex D). The insights on these cards, along with notes and observations taken during the exercise, the pre- and post-exercise surveys, and conversations amongst the exercise directors are thematically organized and presented below, along with recommendations.

14. Assumptions. The exercise and our analysis of findings is predicated on assumptions across several areas. Below is a non-exhaustive list of key assumptions.

Geopolitical and strategic assumptions: Canada will maintain its current international alliances and these alliance structures (e.g., NATO) will continue to exist; There will be contested information environments and cyber warfare will be a component of conflict.

Theatre and health systems assumptions: Allies will have limited capacity to provide care for casualties within the theatre of war; CFHS will be stretched thin, requiring civilian-military integration for casualty care; Medical evacuation routes will be intermittently disrupted due to conflict or infrastructure damage; Mental health needs will surge, both among military personnel

and civilians, with limited capacity to respond; Public health emergencies (e.g., infectious disease outbreaks) may occur concurrently, complicating response efforts.

Canadian policy assumptions: The Canada Health Act will remain unchanged, and Canada will continue to have a single payer health system; PTs will retain jurisdiction over health service delivery, even during federal emergency declarations; existing interprovincial/territorial coordination mechanisms will be activated, and new ones will be established where necessary. Participants noted that there is precedent for stronger wartime health care provision, which last occurred during World War II.

Logistic and supply chain assumptions: Canadian transportation networks (air, rail, road) will be intermittently compromised, affecting supply distribution; Domestic production capacity for medical supplies will be limited, requiring prioritization and rationing; Cold chain logistics will be vulnerable, especially for biologics and vaccines.

FINDINGS

15. Insights and recommendations. Table 1 provides an overview of themes and insights compiled from discussion during the exercise and feedback given by participants. The details for each insight follow below and Annex D provides a summary of 188 'red cards' submitted by participants during the exercise.

Table 1. Summary of ECP themes and insights

Theme	Insights
Governance, leadership, and coordination	• Pan-Canadian governance structures will be essential but are currently unclear respecting response to LSCO. • Planning for a national level polycrisis requires frequent FPT coordination and collaboration. This includes ongoing, systematic exercises to reinforce governance and responsibility for decision making, finances, logistics, operations, and planning. Following these exercises, efforts must be made to fix identified gaps/deficiencies before the onset of LSCO. • While there are existing structures in place to manage public health emergencies and public safety emergencies, there is no existing table to coordinate federal, provincial, and territorial (FPT) health system capacity.
Patient evacuation, tracking, and triage	• Evacuation procedures are currently ad-hoc and procedures should be defined at key hand-off points and along the evacuation chain. • Strategic airlift and sealift are essential for effective evacuation of casualties to Canada. • Canada lacks an integrated patient tracking system for an LSCO scenario.

	• Triaging a large influx of complex casualties, without the aid of technology, is time-consuming and cumbersome. • Triaging and providing care for captured persons (CPer[1]) will be a challenge requiring significant coordination to meet their unique care needs, while also supporting intelligence gathering, translation, and other complex considerations for this population.
Health service delivery, HHR, and supply chain	• Sustained casualty surges will further strain already-stretched HHR. • Providing care for a large influx of repatriated casualties, many of whom will require complex and specialized treatment, will demand expansion of health system capacity, including infrastructure, workforce, and clinical expertise. • Easing pressure on the health system through decanting civilian patients should be carefully considered given the complexity associated with decanting. • Canada must be prepared to anticipate and mitigate disruptions in the supply chain, particularly regarding key items manufactured outside Canada.
Supporting MHA care and safeguarding social cohesion	• Repatriated casualties will likely require MHA care throughout their recovery and beyond. • There are unique risks to public mental health and social cohesion that arise from LSCO. • A sustained mass casualty scenario will impact the level of care Canadians receive. Any degradation of care for Canadians will influence public opinion and trust toward PT health systems and those in positions of leadership.
Overcoming civilian-military policy and cultural tensions	• There are differences between civilian and military policy and culture (e.g., guidelines for discharging military personnel versus civilians) that could lead to tensions in decision-making and service delivery. • Repatriating a large influx of casualties will create ethical dilemmas and impact the ability of the health system to provide ongoing access to high-quality routine and acute care. • Military patient discharge criteria merit further discussion. • LSCO may strain CAF resources and ability to support civilian efforts.

a. Theme 1: Governance, leadership, and coordination. This theme focuses on the structures, policies, and authorities needed to manage a sustained health polycrisis.

   i. Insight. Pan-Canadian governance structures will be essential to respond to LSCO but are currently unclear.

      a. Description. Pan-Canadian governance for sustained casualty repatriation to Canada remains unclear. This was the single-most important finding, according to ECP participants. There are critical issues requiring attention, including agreements across multiple levels and units of government, as well as identifying common terminology for these structures.

      b. Recommendation 1. Engage FPT health ministries and agencies to establish an FPT Health Emergency and Security Table, reflecting an all-

[1] CPer is defined as a person who has been deprived of liberty by a member of the CAF during an international operation. Note that CPer includes detainees, internees and prisoners of war (POW).

hazards approach to manage outstanding pressures on and threats to Canada's health systems, which would serve as the foundation of a command-and-control architecture with clarified roles, authorities, decision rights, and trigger points with an aim to mitigate any and all ambiguity in leadership and decision-making. This table, which could be called the "FPT Health Care System Preparedness Committee" would focus on coordination during emergencies. This Table requires the identification of a lead agency that clearly addresses "who is in charge" and engages with parallel PT structures. In addition to the agencies that participated in the ECP CPECC, consider also including Transport Canada, Canadian Security Intelligence Service (CSIS), Canadian Border Services Agency (CBSA), Immigration, Refugees and Citizenship Canada (IRCC), Correctional Service of Canada (CSC), Royal Canadian Mounted Police (RCMP), Government Affairs Canada (GAC), Privy Council Office (PCO), Innovation, Science, and Economic Development Canada, and Health Emergency Readiness Canada (ISED, HERC), Public Services and Procurement Canada (PSPC), Communications Security Establishment Canada (CSE), and Indigenous Services Canada (ISC). Such an agency would need a clear role during peacetime (planning , mobilization, rehearsing, etc.).

c. Recommendation 2. Ensure shared terminology for the teams/agencies that would be charged to manage a sustained mass casualty scenario. During ECP, the team in Europe managing the triage was called the European Patient Evacuation and Care Committee (EPECC) while the FPT team in Canada was called the Canadian Patient Evacuation and Care Committee (CPECC). These terms are not in the routine lexicon and are not commonly understood. That said, there does not appear to be any existing doctrinal alternatives.

d. Recommendation 3. Leverage the health security table noted above to define, validate, and test the incident management system (IMS) structure at the FPT level and its relationship to other emergency management actors including the FPT IMS and PT IMS structures. The Australian OSMASSCASPLAN model (*Ref F*) could serve as a useful starting point.

e. Recommendation 4. Define triggers/steps to progress toward IMS and other mass casualty policies. The Health Emergency and Security Table should continue to explore (1) different ways conflict may escalate and risks to Canadian health systems may emerge, and (2) authorities to escalate and de-escalate a Pan-Canadian response.

f. Recommendation 5. Once the federal IMS to support a national response is defined, conduct a follow up exercise, designed to stress-test the response, authorities, and governance.

ii. Insight. Planning for a national level polycrisis requires frequent FPT coordination and collaboration.

a. Description. Participants regarded ECP as an essential planning activity for complex polycrisis planning. But one TTX per year is not sufficient.

b. Recommendations. Conduct additional TTX and wargames to maintain planning and preparedness momentum. These additional exercises should focus on individual PT preparation, key logistical challenges, FPT integration, and mobilization. Ideally, each province could participate in their own version of ETC (the provincial level TTX held in Ontario in 2024), thereby enhancing their level of preparedness for LSCO.

b. Theme 2: Patient evacuation, tracking, and triage. This theme is about ensuring that the movement and care of repatriated casualties is tracked and coordinated from point of injury through to rehabilitation.

i. Insight. Evacuation procedures are currently ad-hoc. Procedures should be defined at key hand-off points and along the evacuation chain.

a. Description. The casualty's journey from theatre (Role 1, Role 2, Role 3) to strategic evacuation to care in Canada involves many points of coordination, particularly as responsibility for the casualty shifts from one organization to another.

b. Recommendation. Formalize the process via a contingency plan, which clearly identifies the responsible agency at each step of the process. This task must be assigned to a lead agency.

ii. Insight. Strategic airlift and sealift are essential for effective evacuation of casualties to Canada.

a. Description. During ECP, it was clear that the RCAF alone cannot complete all the necessary strategic airlift required for the strategic evacuation of casualties back to Canada.

b. Recommendation 1. RCAF, Transport Canada and other agencies should convene a working group to evaluate the many airlift options that could be leveraged for strategic evacuation. This includes exploring public-private partnerships to leverage civilian equipment and privately owned resources.

c. Recommendation 2. Consider various options for strategic sealift. This could include conversion of an existing ship (cruise ship, MV Asterix, etc.) into something akin to a hospital transport ship.

iii. Insight. Canada lacks an integrated patient tracking system.

a. Description. There is no system to track patient progress during their evacuation and care journey (from combat zone, through Role 1, Role 2, Role 3, and then into the PT systems).

b. Recommendation 1. Develop or procure technology to track casualties (friendly, adversary, combatant, non-combatant). This system needs to be interoperable (NATO, FPT, etc.). This could also include an automated casualty triage system.

c. Recommendation 2. Develop a comprehensive dataset standard for a casualty management system.

d. Recommendation 3. Develop/procure technology to track Canadian Armed Forces / CPer / friendly combatant patients to support a common operating picture. One option could be to leverage the United States trauma registry (DoDTR) and/or NATO trauma registry and trial now with infrequent medical repatriations before trying to implement at scale during LSCO.

e. Recommendation 4. Ensure recreation of a national trauma registry.

f. Recommendation 5. Ensure ability to extract and link electronic medical records/electronic health records (EMR/EHR) across Canada to support patient tracking and management.

iv. Insight. Triaging a large influx of complex casualties, without the aid of technology, is time-consuming and cumbersome.

a. Description. With hundreds of casualties being triaged in Europe simultaneously at multiple Role 3 facilities, combined with changing evacuation platforms and varying degrees of capacity in Canadian care facilities, it is challenging to develop optimized solutions.

b. Recommendation. Create an AI-enabled application that can optimize casualty triage, both in Europe and in Canada. This application would need access to real-time PT health system data. This system could also expand to include evacuation optimization. Moreover, leverage Canadian firm innovations and note differences in military and civilian triage guidelines.

v. Insight. Triaging and providing care for captured persons (CPer) will be a distinctive challenge requiring significant coordination to meet their unique care needs, while also supporting intelligence gathering, translation, and other complex considerations for this population.

a. Description. CPer present complex medical care challenges that require specialized protocols, infrastructure, and ethical oversight. These individuals may arrive with acute injuries, chronic conditions, or psychological trauma, and their care must be delivered in accordance with international humanitarian law and medical ethics. Civilian health systems may be unprepared to meet these unique needs, particularly in conflict scenarios where resources are strained and legal frameworks are unfamiliar. Without clear guidance and dedicated capacity, care delivery risks becoming inconsistent, ethically fraught, or operationally unsustainable.

b. Recommendation 1. Convene a working group consisting of CAF, RCMP, CSIS, CBSA, IRCC, CSC, provincial and territorial health systems and other groups to explore this issue.

c. Recommendation 2. Consider designating a single Canadian site (or two) for CPer internment. This site would need to be secure, have accessible medical care and operate in line with international humanitarian law.

c. Theme 3: Health service delivery, HHR and supply chain. This theme is about ensuring health system readiness and capacity to deliver high quality complex care for casualties. For ethical frameworks please see Theme 5.

i. Insight. Sustained casualty surges will intensify pressure on HHR, which are already under significant strain.

a. Description. Most PT health systems in Canada operate near full capacity under normal conditions, leaving little flexibility to absorb sudden increases in demand. In the context of sustained conflict and mass casualty repatriation, these systems will face unprecedented pressure. Existing HHR, including physicians, nurses, allied health professionals, and support staff, are unlikely to be sufficient to manage the surge in complex and specialized care needs. Without targeted planning and investment in surge capacity, the system risks becoming overwhelmed, leading to delays in treatment, reduced quality of care, and burnout among health care workers.

b. Recommendation 1. Retain, increase, and enhance HHR by (1) reviewing existing PT HHR strategies and COVID-19 HHR plans and lessons learned including the FPT Operational Framework for Mutal Aid Requests (OFMAR); (2) ensuring pan-Canadian credential portability; (3) creating pathways to practice for HHR trainees; and (4) liaise with PT Colleges, Royal Colleges, and higher education training and accreditation programs.

c. Recommendation 2. Anticipate complex trauma and rehabilitation needs needs, standardizing trauma and rehabilitation care standards in consideration of a needs assessment based on complex injuries resulting from LSCO and risks unique to the conflict. Explore accreditation processes for trauma and rehabilitation centres.

d. Recommendation 3. Develop pragmatic infection prevention and control (IPC) guidelines for use during health emergencies by exploring how risk-based strategies can facilitate delivery of essential care and maintenance of service delivery, while minimizing transmission risk.

e. Recommendation 4. Expand access to virtual care, virtual peer-to-peer support for providers in remote and rural areas, and the use of digital tools and AI to support overall access to health care.

f. Recommendation 5. Develop processes to solicit HHR resources quickly from across Canada leveraging OFMAR and considering pathways to modify staffing ratios, scope of practice, pan-Canadian licensure, and rapid skills enhancement.

g. Recommendation 6. Identify models/guidelines of wartime care that reflect realities of progressively reduced HHR and increased demand such as deployment of recently retired medical professionals, medical students, and other groups.

h. Recommendation 7. Explore the possible use of the CAF supplemental reserve list as potential HHR in the event of LSCO.

ii. Insight. Providing care for a large influx of repatriated casualties, many of whom will require complex and specialized treatment, will demand expansion of health system capacity, including infrastructure, workforce, and clinical expertise.

a. Description. Providing care for a large influx of repatriated casualties will require a significant expansion of civilian health system capacity. This includes not only increasing physical infrastructure and clinical staffing, but also enhancing coordination across care settings, ensuring access to specialized services, and maintaining standards of care under pressure. LSCO can also result in casualties with highly specialized and complex care needs. Along with complex trauma, burn, and MHA care needs, conflict may produce casualties with CBRNE exposures, neurological injuries, and multi-drug resistant infections. These require advanced clinical expertise, specialized infrastructure, and, for some, strict containment protocols. The severity of these cases poses challenges for civilian health systems, which may lack the capacity, training, or equipment to respond effectively at scale. Without targeted preparedness, these unique care demands could overwhelm existing services and

compromise both patient outcomes and public safety. Without proactive planning and investment, existing systems may struggle to absorb the surge, leading to delays, diminished quality of care, and increased strain on health care workers.

b. Recommendation 1. Create designated comprehensive hospital capacity in each receiving province based on ability to utilize capacity outside of crisis.

c. Recommendation 2. Explore engaging not-for-profit/private sector, including but not limited to organizations such as the Canadian Red Cross, to help manage the casualty surges that would eminate from LSCO.

d. Recommendation 3. Specialize in sectors/patient types as part of contribution to overall NATO needs for care. For example, consider establishing centres of excellence in trauma, burn care, orthopedics or rehabilitation.

iii. Insight. Easing pressure on the health system through decanting patients should be thoroughly tested given the complexity associated with decanting.

a. Description. Decanting patients from hospitals into lower levels of care or community settings is often proposed as a strategy to free up acute care capacity during crisis scenarios. However, this approach is complex and warrants careful examination. It involves significant logistical coordination, clinical judgment, and resource availability to ensure that patient safety, quality of care, and equitable access are not compromised. Without robust planning and infrastructure, decanting may lead to unintended consequences, including care disruptions, increased burden on community providers, and adverse health outcomes.

b. Recommendation 1. Explore, model, test, evaluate, and exercise plans to decant civilian patients including, modeling of capacity and pathways for decanting under different conditions including reduced HHR, increased demand, thresholds for different models of care, etc.

c. Recommendation 2. Evaluate cross-Canada hospital capacities and existing contingency plans for decanting. Explore innovative ways to quickly create capacity.

d. Recommendation 3. Consult health agencies, like Ontario Health, who can provide real-time modelling of decanting and alternate level of care strategies to support a third iteration of the exercise and inform policy recommendations.

e. Consult social service agencies and services such as settlement services who may be critical to refugee populations to understand their ability to work with the health system and ensure rapid transition away from health services.

iv. Insight. Canada must be prepared for disruptions in the supply chain, particularly regarding key inputs for care manufactured outside Canada.

a. Description. Key medical and logistical resources, such as skin grafts, blood products, prosthetics, pharmaceuticals, ventilators, imaging equipment (CT/MRI), and blood bags, are often manufactured outside of Canada and rely on global supply chains. During LSCO, demand for these items will surge dramatically, potentially outpacing supply and leading to critical shortages. Moreover, supplies may be stockpiled in other countries with little ability for Canadian providers to access them beyond the in-country stockpiles already built into the system today. Without sufficiently large domestic stockpiles or alternative procurement strategies, Canada may face delays or disruptions in delivering essential care to casualties and the broader population.

b. Recommendation 1. Conduct a thorough risk assessment and determine key resource vulnerabilities. Where possible, develop strategic wartime stockpiles. Additionally, seek efforts to enhance in-Canada production of such resources. Work with key partners, such as Canadian Blood Services, Health Emergencies Canada, Héma-Québec, Trillium Gift of Life, and other PT agencies to review surge plans and resource/equipment availabilities and needs to better anticipate and mitigate vulnerabilities.

c. Recommendation 2. Skin will be in short supply, given the anticipated number of burn victims. Presently, most skin is sourced from the United States. This may no longer be feasible if both Canada and the United States are engaged in LSCO. Canada needs to develop an in-Canada contingency plan for acquiring skin tissue. This could include modifications to the donor card.

d. Recommendation 3. Prosthetics will be urgently needed and receiving global supplies may no longer be feasible. Canada needs to develop an in-Canada contingency plan to ensure adequate supply of prosthetics.

e. Recommendation 4. There will be an enhanced demand for blood products, both in Canada and in theatre. Canada needs to develop in-Canada solutions for collection, processing, testing, and associated logistics.

f. Recommednation 5. Develop a national predictive modelling group to plan and resource competing demands to maintain health systems during crisis.

d. Theme 4: Supporting MHA care. This theme pertains to findings related to supporting the unique mental health and addictions care needs that could arise from LSCO.

i. Insight. Repatriated casualties will likely require comprehensive and coordinated MHA care throughout their recovery and beyond.

a. Description. There is strong evidence that repatriated casualties from conflict will have significant MHA care needs. These may include post-traumatic stress disorder (PTSD), depression, anxiety, substance use disorders and other addictions, and other psychological impacts stemming from combat exposure, injury, and loss. Addressing these needs requires more than general mental health services, it demands comprehensive, trauma-informed, and culturally competent supports tailored to the unique experiences of military personnel. Without proactive planning and investment, gaps in MHA care could lead to long-term health consequences, increased system burden, and diminished reintegration outcomes.

b. Recommendation 1. Increase MHA resources and ensure high quality MHA care by (1) training health professionals/students in MHA; and (2) creating centres of excellence in MHA.

c. Recommendation 2. Improve/standardize protocols for MHA treatment in relation to LSCO, both amongst the CAF and general public.

d. Recommendation 3. Create a capacity dashboard to report on system resilience.

e. Recommendation 4. Create protocols that monitor and support MHA care for health care workers, particularly as they confront an influx of casualties with MHA issues.

ii. Insight. There are unique risks to public mental health and social cohesion that arise from LSCO.

a. Description. Canadian involvement in conflict and repatriation of casualties from conflict could have profound and often underrecognized impacts on mental health and social cohesion. These events may contribute to psychological distress across military and civilian populations, including grief, trauma, and moral injury. The public visibility of casualty repatriation can amplify collective mourning and

anxiety, particularly in communities with close ties to the armed forces. Social cohesion may be strained as individuals and groups navigate polarized views on the conflict, feelings of loss or injustice, and challenges in reintegrating veterans and bereaved families. There is already a high demand for mental health services and unmet need for many Canadians.

b. Recommendation. Develop communications strategy to support social cohesion and mental health.

iii. Insight. A sustained mass casualty scenario will impact the level of care Canadians receive. Any degradation of care for Canadians will influence public opinion and trust toward PT health systems and those in positions of leadership.

a. Description. A sustained repatriation of hundreds of casualties per week will place immense pressure on PT health systems, many of which are already operating at or beyond capacity. Over time, this surge in demand will compromise the standard of care Canadians expect and rely upon. If unmet, these disruptions could erode public trust in health institutions and government, and in extreme cases, contribute to civil unrest. Policymakers must anticipate these risks and invest in surge capacity, mental health supports, and transparent communication strategies to maintain system resilience and social stability.

b. Recommendation 1. Develop a comprehensive civil engagement plan, complete with key messages for the pre-conflict, conflict, and post-conflict periods. These messages need to focus on social cohesion and mental health support.

c. Recommendation 2. Develop a communications strategy that (1) explains the increased load on the system; and (2) aims to ease public anxiety. To be effective, such a communications strategy needs to begin prior to the start of conflict.

d. Recommendation 3. Create a real-time data-informed capacity dashboard that reports on the health of PT systems.

e. Theme 5: Overcoming civilian-military policy and cultural tensions. This theme focuses on issues around differences in policy, culture, and outcomes between civilian and military actors.

i. Insight. There are differences between civilian and military policy and culture that could lead to tensions in decision-making and service delivery.

a. Description. Civilian and military organizations often operate under distinct policy frameworks, cultural norms, and decision-making

processes. These differences, ranging from command structures and risk tolerance to communication styles and operational priorities, can lead to friction in joint planning and service delivery, particularly during high-pressure situations like LSCO. Anticipating and addressing these divergences ahead of time is critical to ensuring coordinated, effective responses. Proactive engagement, cross-sector training, and clearly defined roles can help mitigate tensions and foster collaboration when it matters most.

b. Recommendation 1. Increase civilian-military cooperation opportunities to support all hazards response by (1) facilitating additional tabletop exercises like ETC and ECP in other PTs; and (2) facilitating a third iteration of ECP that incorporates insights already gleaned and leverages capacity models informed by updated research and modelling.

c. Recommendation 2. Review other nation's military hospitals and explore what might be possible in Canada.

ii. Insight. Repatriating a large influx of casualties will create ethical dilemmas and impact the ability of health systems to provide ongoing access to high-quality routine and acute care.

a. Description. The repatriation of a large and sustained influx of casualties from conflict will place significant ethical and operational strain on PT health systems. As resources are redirected to meet urgent needs, systems' capacity to deliver high-quality routine and acute care for the general population may be compromised. This shift risks creating ethical dilemmas for health professionals, such as prioritizing care under resource scarcity, and may contribute to moral injury, particularly where civilian and military expectations or protocols diverge.

b. Recommendation. Expand existing ethics and quality of care tables to include military expertise so as to develop polices to manage civilian-military ethical/professional concerns and avoid risk of moral injury.

iii. Insight. Military patient discharge criteria merit further discussion.

a. Description. In the civilian population, health services are often delivered with a goal to return the patient to their community/home. For military casualties, evidence shows the importance of returning to duty or their unit. During LSCO, there will be a strong desire to discharge casualties as soon as they are able to return to their military units so that they can resume their role in the conflict. This could present a challenge for civilian HHR discharge planning, as different Canadian care centres will have different discharge criteria. Moreover, existing discharge criteria, as it

applies to civilian patients, may not be sufficiently suited for military personnel.

b. Recommendation. CAF, in discussion with PT health systems, should consider developing standardized discharge criteria for military casualties.

iv. Insight. LSCO may strain CAF resources and ability to support civilian efforts.

a. Description. In certain conflict scenarios, CAF may be unavailable or unable to lead domestic response efforts due to operational constraints or strategic priorities. This creates a critical gap in national preparedness, particularly in areas such as logistics, casualty management, and emergency coordination. Civilian systems, especially health, public safety, and emergency services, must be equipped to operate independently and effectively under such conditions. Without adequate civilian capacity, response efforts risk delay, fragmentation, and reduced effectiveness during high-stakes events.

b. Recommendation. Build civilian response capacity that accommodates potential conflict scenarios where CAF is unavailable.

16. Next steps. ECP generated a number of recommendations that address ways of (1) improving health system governance during a crisis; and (2) ensuring capacity to manage care during a crisis that relies on civilian-military collaboration. Key first steps like establishing committees and IMS structures will go a long way towards developing ethics and policy frameworks that support collaboration. Ensuring that we have data assets to manage the sort of challenges envisioned in ECP will be critical to success. Improvements to health system capacity, particularly around critical inputs to care and the ability to deploy technology could be first steps in improving overall health system capacity. The data generated by ECP, including stresses on our acute care system as well as MHA and rehabilitation systems can provide the foundation for effective capacity modelling that will help health systems across Canada, regardless of the crises they confront. ECP helps illuminate a path on which Canada could become a leader in preparedness while realizing its NATO health system commitments. The time to begin this work is now.

CONCLUSION

17. ECP was a landmark pan-Canadian health security exercise that marked a significant step forward in advancing health system resilience by planning for a sustained mass casualty event resulting from LSCO. The exercise highlighted the complexity of the problem space, revealing critical vulnerabilities and interdependencies across governance, patient movement, health service delivery, MHA care, and civilian-military coordination. It underscored the urgent need for clear pan-Canadian governance structures, robust evacuation and patient tracking systems, scalable HHR, and resilient supply chains. The exercise also emphasized the importance of tailored MHA supports and the potential risks to social cohesion and public trust posed by overwhelmed health systems and prolonged conflict. In addition, ECP highlighted the cultural

and policy differences between civilian and military systems that could hinder coordinated responses. These findings reinforce the necessity of a "team of teams" approach, mobilizing FPT, and military partners toward a shared objective. The insights and recommendations outlined above offer a strategic foundation for continued planning and action. Developing, testing, and rehearsing a comprehensive contingency plan to care for repatriated casualties must remain a national priority to ensure readiness, safeguard public health, and strengthen the resilience of Canada's health systems against all hazards.

A. Brown CAHS
Professor & Dean
Dalla Lana School of Public Health, University of Toronto

David Pedlar PhD
Strategic Research Advisor,
Canadian Institute for Military and Veteran Health Research

MGen Scott F. Malcolm CMM, MSC, CD, MD
Surgeon General
Canadian Armed Forces

David Klein MD MBA
Physician & Associate Professor
Unity Health

Blake C. Goldring C.M., O.Ont, M.S.M., CD
Founder and Chair
Canada Company

Luke Carter MPA
Executive Director/Directeur Exécutif
Indigenous, Federal, Provincial, Territorial Relations Directorate / Direction des relations autochtones, fédérales, provincials et territoriales
Health Canada

Annexes:
Annex A – Participant list
Annex B – Exercise design
Annex C – Pre- and post-exercise surveys
Annex D – Red card summary

Distribution List:
CAF
Dean DLSPH
CIMVHR
Chair, Canada Company
Unity Health
Exercise participants (Annex A)

Annex A
Participant list

Team	#	Role	Name
Directorate and Facilitation	1	Co-exercise director	**Adalsteinn Brown**
	2	Co-exercise director	**William Rideout**
	3	Co-exercise director	**Andrew Beckett**
	4	Co-exercise director	**David Pedlar**
	5	Facilitator	**Anthony Robb**
	6	Facilitator	**Jon Jeffrey**
	7	Data capture lead	**Victoria Haldane**
CPECC	8	Prince Edward Island	**Steven George**
	9	Newfoundland	**Gillian Sweeney**
	10	Nunavut	**John Coyne**
	11	Yukon	**Dale Cheeseman**
	12	Saskatchewan/Manitoba	**Rob Fowler**
	13	Ontario	**Kieran Moore**
	14	British Columbia	**Harvey Hawes**
	15	Alberta	**Gene Smith**
	16	Quebec	**Amelie Bourassa**
	17	CAF-DRFIM	**Kevin MacLean**
	18	CAF-SJS	**Jason Barbagallo**
	19	Public Health Agency of Canada (PHAC)	**Mark Roberts**
	20	CAF-CFHS	**Ashley Helpin**
	21	Pearson airport	**Dean Wright**
	22	Political advisor	**Heather Watt**
	23	Health Canada	**Jo Voisin**
	24	Sunwest Aeromedical	**Jory Jenson**
EPECC	25	Military health advisor	**Colleen Forestier**
	26	Ornge	**Homer Tien**
	27	CAF-RCAF	**Skye Simpson**
Media	28	Press	**Bruce Arthur**
Red Team	29	Sunnybrook Health Sciences Centre	**Ru Tagger**

	30	Canadian Institute for Military and Veteran Health Research (CIMVHR)	**Colin McKay**
	31	Ontario Health	**Judy Linton**
Active Observer (In Room)	32	Harvard University	**Margaret Bourdeaux**
	33	PHAC	**Stephen Bent**
	34	Ontario Hospital Association	**Anthony Dale**
	35	Veterans Affairs Canada	**Cyd Courchesne**
	36	Ontario Health	**Rose Cook**
	37	Canadian War Museum	**Tim Cook**
	38	Canada Health Infoway	**Tania Ensor**
	39	Canadian Blood Services	**Jody Faught**
	40	CBSA	**Marija Cuvalo**
	41	Veterans Affairs Canada	**Alexandra Heber**
	42	The Centre for Addiction and Mental Health (CAMH)	**Allison Crawford**
	43	Sunnybrook Health Sciences Centre	**Amanda Mayo**
	44	Sunnybrook Health Sciences Centre	**Stephanie Mason**
	45	Office of the Chief Coroner and Ontario Forensic Pathology Service	**Reuven Jhirad**
	46	Health Emergency Readiness Canada	**Stephanie Gan**
	47	CAF-DivSurg	**Melissa Gear**
	48	Joint Centre for Bioethics	**Jennifer Gibson**
	49	University Health Network	**Isaac Bogoch**
	50	Health Canada	**Luke Carter**
	51	NATO-SHAPE	**Dan Ayotte**
	52	Committee of Chiefs of Military Medical Services in NATO/ Surgeon General - CAF	**Scott Malcolm**
	53	NATO-UK	**Timothy Steele**
	54	Government Operations Centre	**Jean-Francois Duperré**
	55	Public Safety	**Gabriel Turmel**

	56	Ontario Health	**Paul Engels**
	57	Santé Québec	**Raphaëlle Fragasso**
	58	CHU de Québec-Université Laval	**Julien Clément**
	59	Political advisor	**Dani Saad**
	60	Ontario Ministry of Health	**Justine Hartley**
	61	Unity Health	**Christine Fahim**
Observers (Virtual)	62	Yukon	**Wendy Hafemeister**
	63	British Columbia	**Jonathan Carroll**
	64	Nova Scotia	**Melissa Boland**
	65	Manitoba	**Kevin Tordiffe**
	66	Prince Edward Island	**Erin Bentley**
	67	Prince Edward Island	**Andrew Erskine**
	68	Saskatchewan	**Shaylene Kenaschuk**
	69	Ontario Ministry of Health	**Zahraa Saab**
	70	Ontario Ministry of Health	**Kate Allan**
	71	Ontario Ministry of Health	**Carol Ma**
	72	McGill University	**Prativa Baral**
	73	PHAC	**Cynthia Wenn**
	74	PHAC	**Monica Ramos**
	75	CAF	**Richard Hassan**
	76	Health Canada	**Supriya Sharma**
	77	CIMVHR	**Nick Held**
	78	Health Canada	**Jeffrey Tong**
	79	Health Canada	**Meghan Conly**

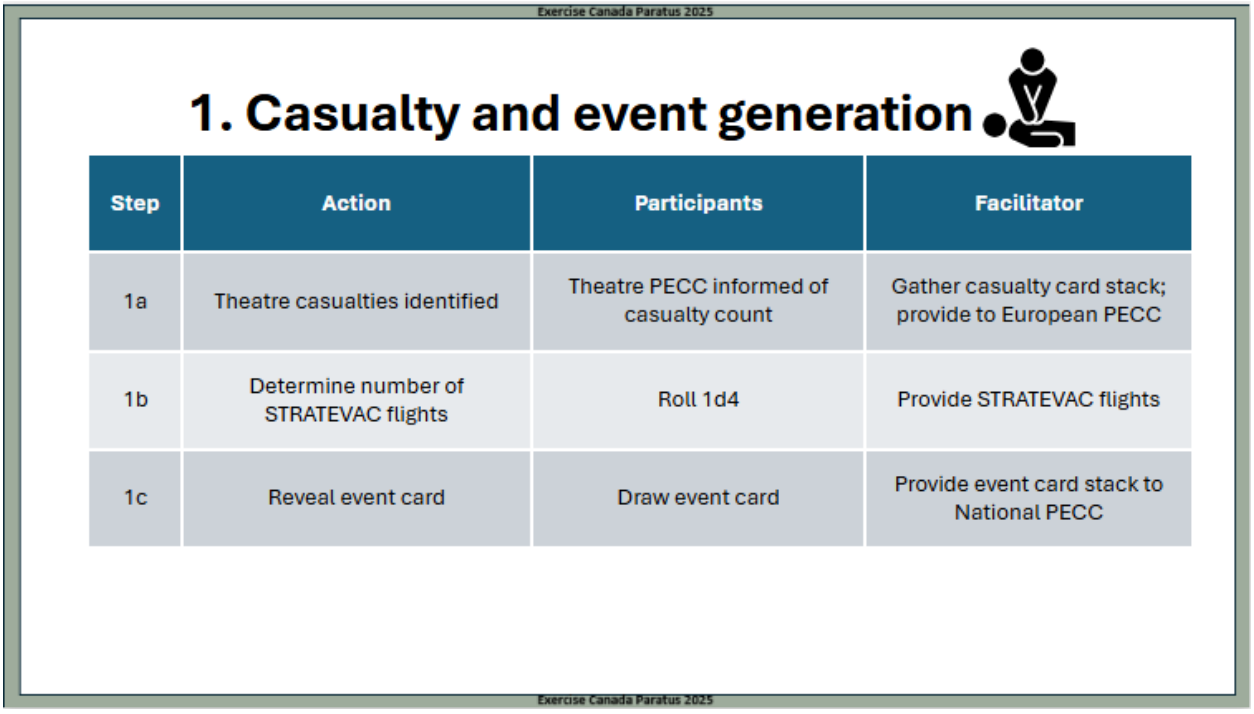
Annex B
Exercise design

Exercise design. Exercise Canada Paratus (ECP) was a turn-based tabletop exercise, with each turn representing one week of time. Each turn consisted of six steps:

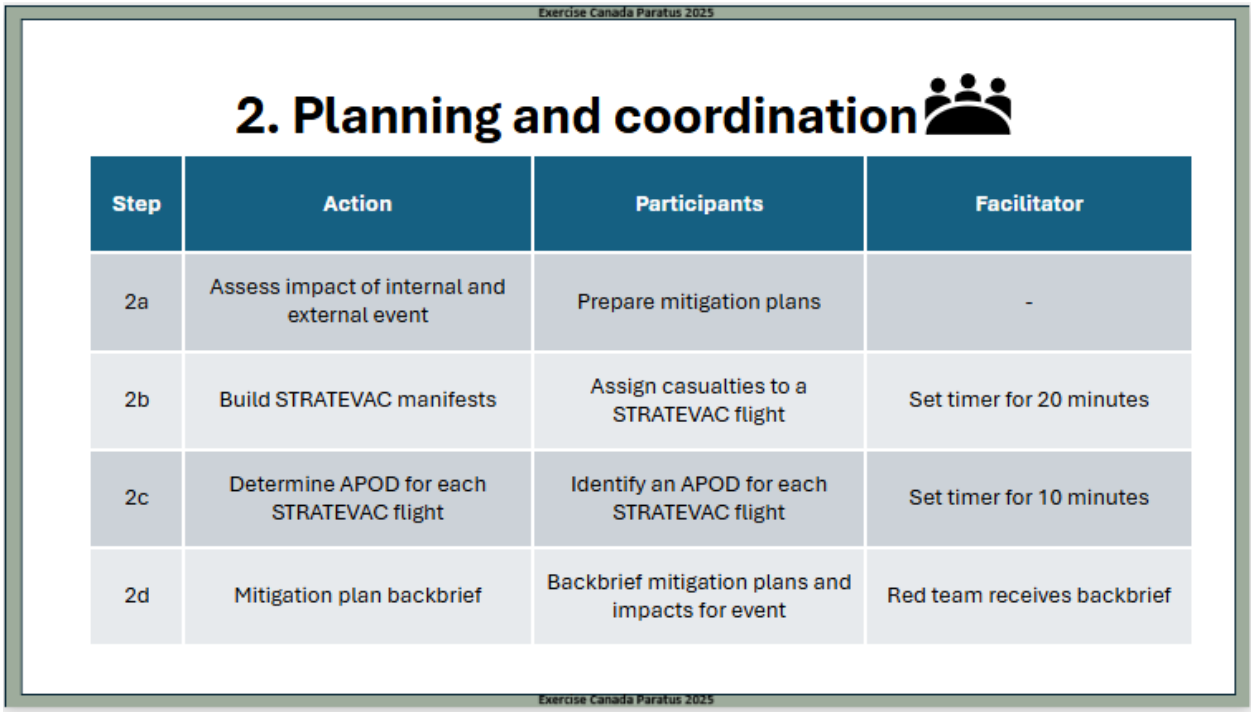
- Step 1 focused on generating a week's worth of civilian and warzone casualties (see example of a casualty card below), along with adverse supplemental events, further complicating the evacuation dilemma.
- Step 2 was where exercise participants assessed the evacuation options, the casualties in need of return to Canada, and the adverse events. They then made key decisions based on casualty details, hospital occupancy levels, and available logistics.
- Step 3 focused on intra- and inter-PT movements of casualties and resources within Canada.
- Step 4 included a check for HHR, over-capacity concerns, all of which was a function of hospital overload.
- Step 5 was a mortality check on all warzone casualties within the PT health systems. Mortality was a function of many factors.
- Step 6 was a media engagement, aimed at challenging participants on the decision taken during the preceding turn.

Exercise limitations. ECP was a tabletop exercise aimed at simulating the sustained inflow of warzone casualties into the Canadian health systems. As it was model, there were some limitations, which are noted below:

- Each turn represented one week of time. Therefore, ECP was only able to model the first few months of the challenge. It would be worthwhile to explore this problem space one or two years into this challenge as there would likely be additional insights and recommendations.
- ECP brought (almost) everyone together in a single space. In reality, it is unlikely that all members of the health systems table will be physically co-located, which could exacerbate the challenge of coordination.



Step	Action	Participants	Facilitator
1a	Theatre casualties identified	Theatre PECC informed of casualty count	Gather casualty card stack; provide to European PECC
1b	Determine number of STRATEVAC flights	Roll 1d4	Provide STRATEVAC flights
1c	Reveal event card	Draw event card	Provide event card stack to National PECC



Step	Action	Participants	Facilitator
2a	Assess impact of internal and external event	Prepare mitigation plans	-
2b	Build STRATEVAC manifests	Assign casualties to a STRATEVAC flight	Set timer for 20 minutes
2c	Determine APOD for each STRATEVAC flight	Identify an APOD for each STRATEVAC flight	Set timer for 10 minutes
2d	Mitigation plan backbrief	Backbrief mitigation plans and impacts for event	Red team receives backbrief

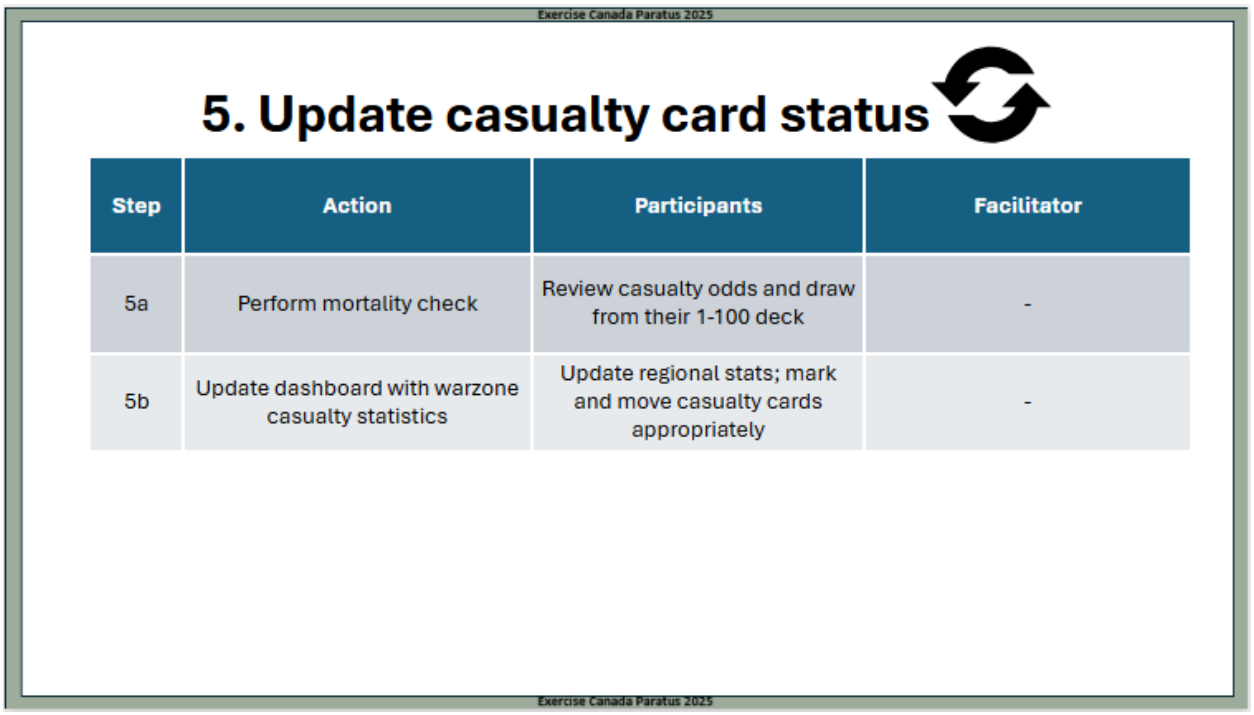
3. Intra-regional movement

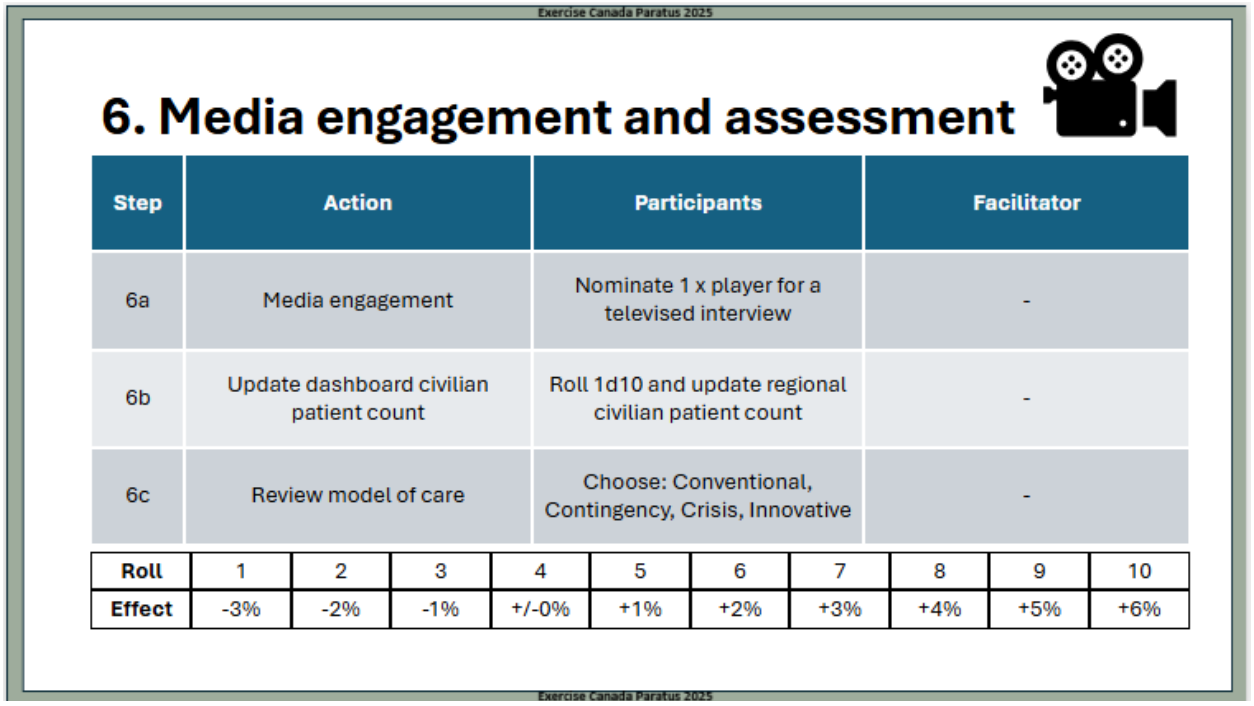
Step	Action	Participants	Facilitator
3a	Actions at the APOD	Develop plan for actions at each APOD	Set timer for 10 minutes; Conduct MDRO check (25%)
3b	Actions at the APOD	Brief plan; movement of casualties from APOD to care facility	Red team to receive briefs
3c	Update dashboard and placemats	Warzone casualties added to regional counts	-

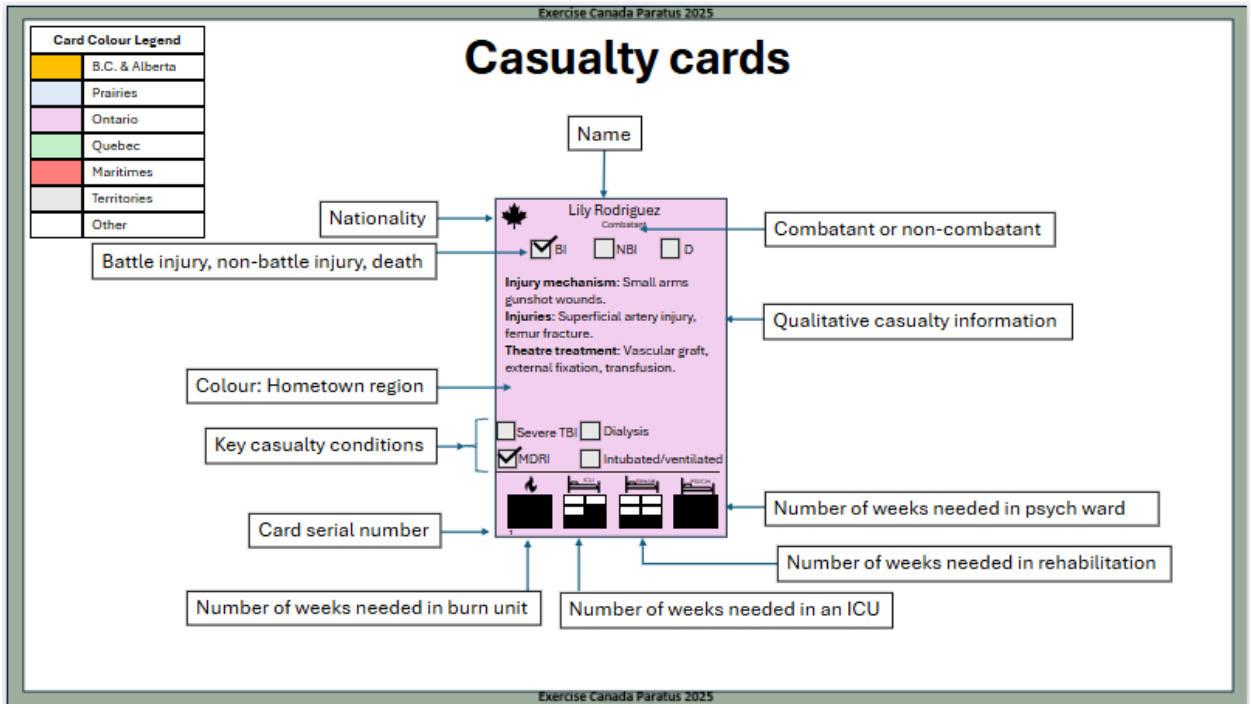
4. Assess impact to health systems

Step	Action	Participants	Facilitator
4a	Check for regional maxcap	Roll 1d10 for maxcap	Odds of maxcap depend on region maxcap factor

Maxcap factor	Risk of maxcap	1d10 die roll for maxcap
0.00-1.00	0%	-
1.01-1.10	10%	1
1.11-1.20	20%	1-2
1.21 and above	30%	1-4
Conventional +0 Contingency +1 Crisis +2 Innovative +?		
Maxcap puts the region out-of-play for subsequent turn		


Exercise Canada Paratus 2025
5. Update casualty card status
Step
Action
Participants
Facilitator
5a
Perform mortality check
Review casualty odds and draw from their 1-100 deck
-
5b
Update dashboard with warzone casualty statistics
Update regional stats; mark and move casualty cards appropriately
-
Exercise Canada Paratus 2025


Exercise Canada Paratus 2025
6. Media engagement and assessment
Step
Action
Participants
Facilitator
6a
Media engagement
Nominate 1 x player for a televised interview
-
6b
Update dashboard civilian patient count
Roll 1d10 and update regional civilian patient count
-
6c
Review model of care
Choose: Conventional, Contingency, Crisis, Innovative
-
Roll
1
2
3
4
5
6
7
8
9
10
Effect
-3%
-2%
-1%
+/-0%
+1%
+2%
+3%
+4%
+5%
+6%
Exercise Canada Paratus 2025


Exercise Canada Paratus 2025
Casualty cards
Card Colour Legend
B.C. & Alberta
Prairies
Ontario
Quebec
Maritimes
Territories
Other
Name
Nationality
Lily Rodriguez
Combatant
Combatant or non-combatant
Battle injury, non-battle injury, death
BI
NBI
D
Injury mechanism: Small arms gunshot wounds.
Injuries: Superficial artery injury, femur fracture.
Theatre treatment: Vascular graft, external fixation, transfusion.
Qualitative casualty information
Colour: Hometown region
Key casualty conditions
Severe TBI
Dialysis
MDRI
Intubated/ventilated
Card serial number
Number of weeks needed in psych ward
Number of weeks needed in rehabilitation
Number of weeks needed in burn unit
Number of weeks needed in an ICU
Exercise Canada Paratus 2025

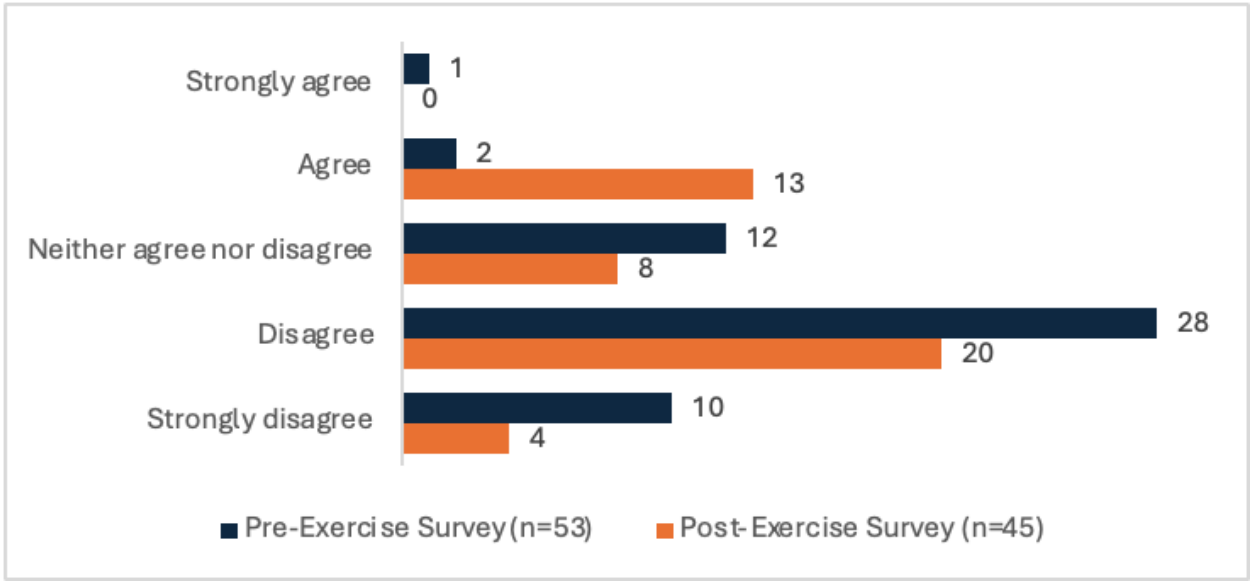
Annex C
Pre and post exercise surveys

1. Pre- and post-survey summary

A total of 53 participants completed the pre-exercise survey and 45 completed the post-exercise survey. The analysis of pre- and post-exercise survey data reveals marked improvements in participants' self-reported perceptions of their preparedness and understanding related to a complex mass casualty scenario. After ECP, more participants reported feeling prepared to respond and coordinate across civilian and military health systems. Understanding of their own organization's role increased, while the most notable improvement was in understanding the roles of other organizations. Overall, the exercise enhanced participants' perception of their clarity, confidence, and coordination capacity in responding to mass casualty events.

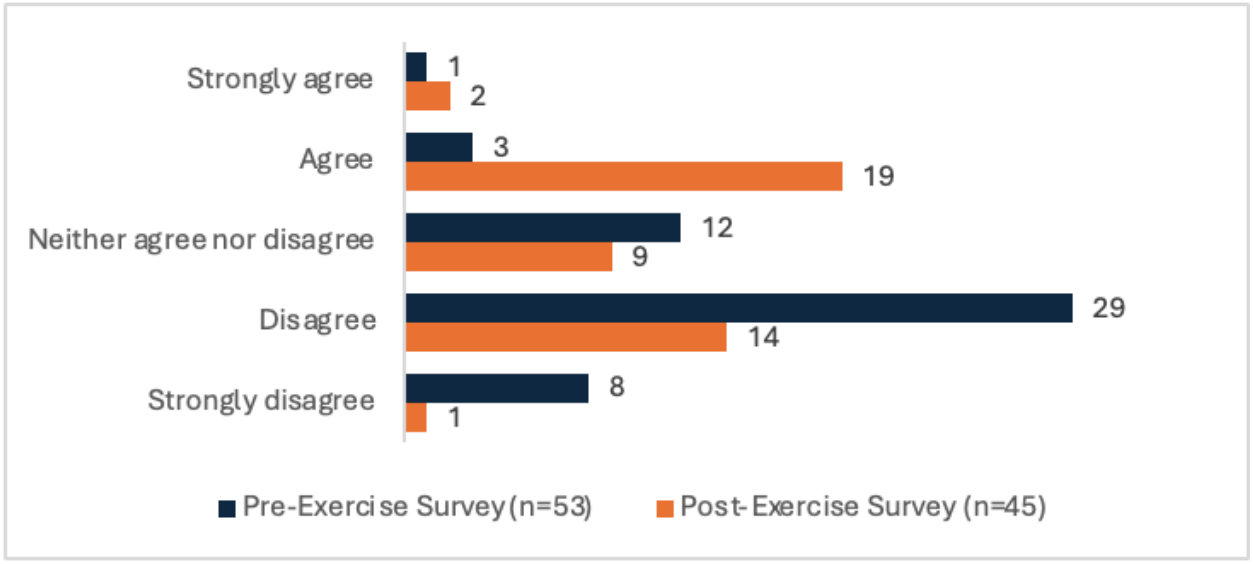
1. Please rate your agreement with the following statements. Based on your role in the civilian or the military health system or related agencies, do you think that Canadian health systems (all of their elements) are:

1.1. Prepared to respond to a complex mass casualty scenario:



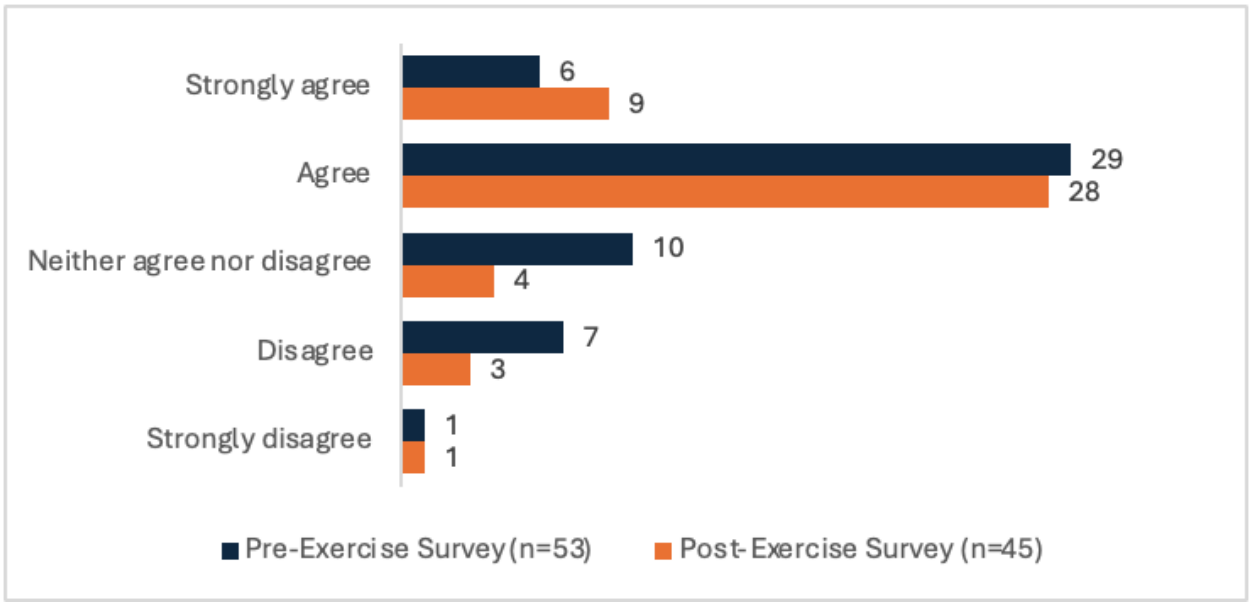
Following participation in ECP, respondents reported a modest shift in perceptions regarding the preparedness of Canadian health systems to respond to a complex mass casualty scenario. Prior to ECP, the majority expressed skepticism, with 38 out of 53 respondents selecting "Disagree" or "Strongly disagree." Post-ECP, this number decreased to 24 out of 45 while agreement levels rose, 13 respondents selected "Agree" compared to just 2 pre-ECP. Although neutrality remained relatively stable (12 pre vs. 8 post), the overall trend suggests a positive change in perceived preparedness, with fewer strong negative responses and a greater proportion expressing moderate confidence in system readiness.

1.2. Prepared to coordinate between civilian and military health systems (all of their elements) in response to a complex mass casualty scenario:



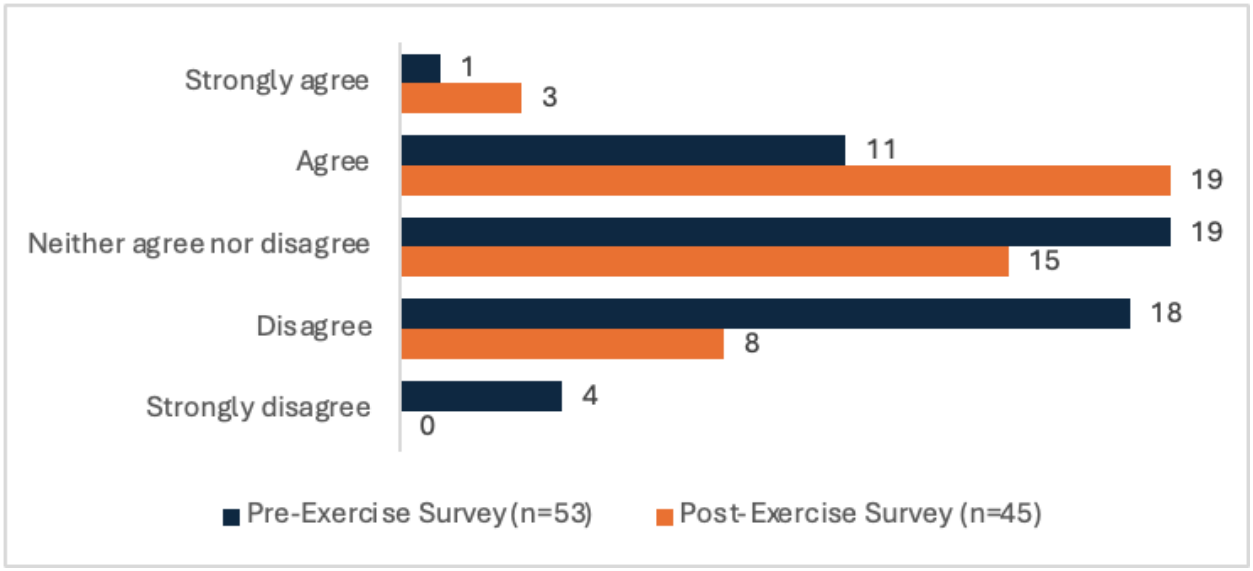
Responses to the question on coordination between civilian and military health systems in a complex mass casualty scenario showed a clear positive shift following ECP. Pre-ECP, 37 out of 53 respondents expressed disagreement ("Disagree" or "Strongly disagree"), while only 4 indicated agreement ("Agree" or "Strongly agree"). Post-ECP, disagreement dropped to 15 out of 45, and agreement rose substantially to 21 respondents ("Agree" or "Strongly agree"). Neutral responses remained consistent (12 pre vs. 9 post). These results suggest that participants gained greater confidence in the ability of actors to coordinate across sectors after engaging with ECP.

2. I understand the role of my organization in a complex mass casualty scenario.



Participants' understanding of their organization's role in a complex mass casualty scenario improved following ECP. Pre-ECP, most respondents already expressed agreement (35 out of 53 selected "Agree" or "Strongly agree"), though 18 remained neutral or disagreed. Post-ECP, agreement increased slightly to 37 out of 45, with a notable rise in "Strongly agree" responses (from 6 to 9). Disagreement decreased from 8 to 4, and neutrality dropped from 10 to 4. These shifts suggest that the ECP helped clarify organizational roles for participants, reinforcing existing understanding and reducing uncertainty.

3. I understand the role of other organizations in a complex mass casualty scenario.



Participants' understanding of the roles of other organizations in a complex mass casualty scenario improved following ECP. Pre-ECP responses showed considerable uncertainty and disagreement, with 22 out of 53 respondents selecting "Disagree" or "Strongly disagree," and 19 remaining neutral. Only 12 expressed agreement. Post-ECP, agreement increased to 22 out of 45, while disagreement dropped to 8 and no respondents selected "Strongly disagree." Neutral responses also declined slightly to 15. These changes suggest that the ECP helped clarify inter-organizational roles, reducing ambiguity and enhancing participants' confidence in collaborative preparedness.

4. [PRE-EXERCISE SURVEY] What do you hope to learn by participating in Exercise Canada Paratus?

Participants consistently emphasized the need for greater role clarity and system-level understanding in responding to complex mass casualty scenarios. Many sought to "confirm the role of my organization" and understand "how my organization might fit within the bigger picture of the response." There was a strong desire to grasp the roles of other actors, including "how the federal and provincial systems interact to solve this complex problem" and "the role of each level of government." Coordination and interoperability were also key concerns, with

participants highlighting the importance of "interoperability between military sending and civilian receiving health care organizations" and "better understanding transportation/logistic plans at national level." These reflections underscore a shared interest in activities to improve cross-sector collaboration, governance clarity, and operational integration.

Participants conveyed a proactive mindset focused on identifying system vulnerabilities and strengthening resilience before a crisis occurs. Many emphasized the importance of uncovering "the points of weakness in our system and potential mitigating approaches" and expressed a desire to "test findings, explore solutions." Strategic preparedness was a recurring theme, with participants calling for "foresight to be able to study and plan," and stressing that "we need to practice, align, gain awareness and plan for a future we hope never comes." Others highlighted the value of exercises like ECP, noting "the capacity to run them for my organization" and the need to "establish a concept of operations and governance for integrated Civil Military planning." One participant captured the urgency by stating, "assuming governments will play a leadership role is naive and wrong. It's up to the health care institutions and providers in this province to fill the leadership vacuum."

5. [POST-EXERCISE SURVEY]: What is the single most important idea that came up during the exercise that could help Canada be better prepared?

Many participants reported the urgent need for a clear, coordinated, and formalized governance structure to guide Canadian health systems' response during a large-scale conflict or mass casualty event. Many noted that ambiguity in leadership remains a critical vulnerability, with one participant stating, "even at the end no one can answer the question of who is in charge." Ideas from survey feedback included establishing a national command and control (C2) architecture, creating a FPT health security table, and clarifying roles, authorities, and decision rights. As one participant put it, "we need a governance structure and established forum for joint civil and military planning in Canada." Others stressed the importance of avoiding ad hoc responses and formalizing coordination mechanisms, noting the need for "enhanced governance and less ad hoc procedures." Participants also framed health system readiness as a whole-of-society effort, with one remarking, "health care is a truly critical piece of a nation-defining effort."

In addition, participants raised concerns about health human resources, emphasizing the need to "replenish and support civilian health systems before and during conflict." Several cited Canada's post-COVID workforce shortages and called for a national strategy to train and retain healthcare workers, describing it as "critical to national security." Data systems and technology integration were also highlighted, with calls for interoperable trauma registries, EMR integrations, and AI-enabled tools to support decision-making. One participant noted the need for "data standards and information systems to manage patient movement especially at high volume." Finally, participants stressed the importance of early mobilization and preparedness activities, urging that "the time to act/plan is now" and recognizing the value of tabletop exercises to build strategic capacity and readiness.

6. [POST-EXERCISE SURVEY]: What challenge or topic surprised you the most during the exercise?

Participants were surprised by the extent of governance and coordination gaps exposed during the exercise. Many expressed concern over the "lack of an existing federal governance currently for a national health emergency," with some noting they were "surprised that this governance structure doesn't already exist." The complexity of coordinating across federal, provincial, and military actors was evident, with one participant describing "the potential tension that arose between PTs" and another highlighting "the gaps between federal orgs, DND, and PT organizations." Logistical challenges also stood out, particularly around transportation and repatriation, with comments such as "securing air transport ahead of time" and "the limited ground transportation capabilities." While some saw promise in AI, others cautioned against overreliance, noting "AI tools are not a silver bullet" and calling for more focus on basic coordination.

Civil-military integration emerged as another area of concern, with participants noting "complete dependence on civilian systems" and a "lack of understanding of how DND and the CAF function." Cultural differences between military and civilian health systems were also highlighted, including "different understandings on a number of items" and the reality that "soldiers go back to the line upon discharge." Finally, participants reflected on the broader societal implications of large-scale conflict, with one stating, "everyone would be affected despite being far from the conflict zone." The lack of national war planning was noted as a critical gap, and several called for replicating exercises like Trillium Cura across provinces and territories to build a national base of preparedness.

7. [POST-EXERCISE SURVEY]: Please provide any feedback or areas for improvement.

Participants widely praised the exercise for its relevance, structure, and collaborative environment. Many described it as "excellent," "absolutely necessary," and "very well organized," with one noting, "lots to take away for my jurisdiction." The realistic scenario design and comprehensive game approach were appreciated, with comments highlighting the "vast scope" and "great ways to consider variables, likelihood and risk." At the same time, participants offered constructive feedback to improve future iterations. Suggestions included faster pacing, more time for reflection, and expanding the game to three days to allow deeper exploration of issues. Several emphasized the need to "stress test the CPECC" and incorporate senior political decision-making for added realism. Others called for broader provincial representation, better digital tools, clearer role descriptions, and improved logistics such as audio-visual equipment and room setup. As one participant put it, "the time to act/plan is now," underscoring the urgency and value of continued preparedness efforts.

Exercise Canada Paratus
Red Card Summaries

1. Data and Innovation

There is an urgent need for real-time data systems, interoperable registries, and AI-driven triage models to support decision-making when repatriating a large influx of complex casualties.

Key Messages:

- Lack of real-time tracking and patient data integration across jurisdictions.
- Need for centralized systems to monitor hospital capacity and patient movement.
- Use of AI and modeling tools to support triage and logistics.
- Reinstating national trauma registries and improving data coding standards.

Sample Solutions:

- Engage CIHI and federal/provincial teams to build real-time data dashboards.
- Develop AI-supported triage models using existing platforms.
- Create automated systems to align patient needs with available resources.

Exercise Canada Paratus highlighted significant gaps in Canada's ability to track and manage patient data across jurisdictions during a mass casualty event. Participants noted the absence of a national trauma registry and the need for real-time data on hospital occupancy, ICU capacity, and patient movement. Interoperability between provincial systems remains limited, complicating coordination and continuity of care. There was strong support for engaging CIHI and other data agencies to develop dashboards and modeling tools that can support triage and resource allocation.

Innovative solutions proposed include AI-driven triage systems that incorporate variables such as injury severity, home province, and transport availability. Participants also emphasized the importance of learning from logistics companies to improve real-time tracking. The need for automated systems to align patient needs with available resources was repeatedly mentioned, alongside calls to prioritize and accelerate existing initiatives like Canada Health Infoway's connected care work and CIHI's iHospital platform.

Insights from Red Cards

- **S009_Issue**: Tracking casualties. Engagement with subject matter experts in global tracking.
  Solution: Companies like Purolator, FedEx, OPS transport globally every day – could we learn from their expertise in tracking in real time.
- **S012_Issue**: If we are assuming unconventional warfare and unconventional injuries, the care and supplies (countermeasures) may also be considered unconventional.
  Solution: The intelligence gathering and communication of the medical and health products that are required will need to be managed. Closer analysis and supply chain vulnerabilities especially for a prolonged conflict will also be required.
- **S014_Issue**: Ability to mobilize healthcare personnel, including mechanisms for expected training for war-time care to be provided overseas.

Solution: Develop plans on how to train deployable surgeons, nurses, healthcare personnel on a just-in-time / on-the-job fashion.

- **S028_Issue**: Modelling team for triaging – AI system build.
  Solution: Need to immediately establish a team to develop a model to support triaging based on things like: home province, Canadian or prisoner of war, severity, fed by real time data on capacity, number of planes/cruise ships available, add variables (Gemini may have AI models to repurpose).
- **S036_Issue**: CIHI data will need to be updated in real-time and should be linked to information about incoming casualties + placements.
  Solution: Engage CIHI leadership in the exercise from the beginning + set up dedicated data teams in PTS + the federal govt to update data + model scenarios.
- **S040_Issue**: We need to engage CIHI leadership to work directly with PTs + federal government to provide real-time data on hospital occupancy + patient data.
- **S112_Issue**: Lack of alignment between patient needs and resources and lack of method to create this alignment in an automated fashion (make it a lean process).
  Solution: Need clinical + AI-augmented triage pathways and a pre-existing register at key capacities for every province to align patient need with resource in an automated way. Need a hierarchy of expertise. Burn → trauma hospital → general medsurg → etc.
- **S140_Issue**: No patient tracking that meets needs (real time, cross-org).
  Solution: We need a system.

2. Ethics, Communication and Solidarity
It is essential to ensure transparent communication, mental health support, and ethical frameworks during crisis response.

Key Messages:

- Crisis communication strategies to maintain public trust and combat misinformation.
- Psychological support for patients, families, and healthcare workers.
- Ethical considerations in triage and care prioritization.
- Inclusion of volunteer organizations and peer support networks.

Sample Solutions:

- Establish crisis communication teams and public advisory panels.
- Implement mental health planning tables and psychological first aid principles.
- Train civilian clinicians in trauma-informed care and PTSD management.
- Engage organizations like True Patriot Love for family support logistics.

Ethical considerations and public communication emerged as central concerns. Participants stressed the importance of transparent, coordinated messaging to maintain public trust and avoid the confusion and misinformation seen during COVID-19. There was a call for crisis communication teams to work closely with federal and provincial actors, and for public advisory panels to test messaging strategies. Psychological distress among the population and healthcare workers was also flagged, with recommendations to mobilize mental health services and apply principles of psychological first aid.

Solidarity was reflected in discussions about supporting families of injured personnel, especially foreign nationals. Organizations like True Patriot Love were identified as key partners in providing logistical and emotional support. The need for culturally competent care and peer support networks was emphasized, particularly for military patients with PTSD. Participants also raised questions about ethical frameworks for triage and care prioritization, suggesting that these should be clarified and embedded in planning processes.

Insights from Red Cards

- **S010_Issue**: Engage military volunteer organizations to audit with logistical and other support for ill and injured personnel from outside regions and equally importantly their families, who will and should be kept in proximity to their injured loved one.
  Solution: True Patriot Love, one of Canada's largest military volunteer organization likely to participate in future TTX, to look at the role they and like organizations might be able to bring to the table.
- **S017_Issue**: Ensure, from outset, we have a crisis communications expert team, who are keeping Canadian public informed and onside.
  Solution: Set up team crisis communication experts who work with the federal players who are leading the effort.
- **S020_Issue**: For mental health patients no discussion of where this treatment should happen. Not all psychiatrists equipped to manage MH condition of war.
  Solution: Establish mental health treatment settings. Also consider mental health of all patients and providers.
- **S041_Issue**: Lack of specific mental health planning table to cover issues such as: Principles of Psychological First Aid, Suicide Reporting Guidelines, (to help lower occurrence of suicide), etc.
  Solution: Set up/ accommodate a specific section of the exercise to plan the mental health principles/actions required in a wartime situation. E.g. crisis communication, leadership support, early observation for and support for signs of psych decompensation (lack of sleep, crying, anger, suicide identification/maladaptive drug use), family and peer support, reinforce collective community competence.
- **S050_Issue**: Psychological communications. Need guidelines for safe media reporting so as not to increase psychological distress.
  Solution: See suicide reporting guidelines for example. The same applies for providing details of injury.
- **S054_Issue**: How to communicate to civilian population how decisions occur in a "military" operation. There are different states of thinking.
- **S160_Issue**: (1) battling misinformation + weaponized disinformation, (2) inform Canadian public + transparency.
  Solution: Need a dedicated and nimble comms team to be proactive and pre-empt and combat mis/disinformation while informing the Canadian public.
- **S127_Issue**: Mental health care – delivery of services given high needs + importance of peer support. Challenged by human resources challenges.
  Solution: Need to provide mental health services throughout hospital stay. Ensure outreach/community-based delivery as well. Need to find peer supporters with military experience.

- **S175_Issue**: Sharing resources for mental health – communities of practice (mental health). With MH patients distributed across country and lack of knowledge + cultural competence among staff, we can use virtual communities of practice to increase capacity and knowledge.
  Solution: This will also be helpful when patients need to be discharged closer to home.

3. Clinical Issues and Treatment
Health service delivery, rehabilitation, and clinical pathways for war-related injuries will need to be developed and strengthened with an aim to ensure ongoing access to acute and routine care.

Key Messages:
- Specialized care needs for burns, amputations, and PTSD.
- Coordination of discharge and return-to-duty processes.
- Rehab triage based on injury type and facility capabilities.
- Expansion of prosthetic and orthotic services across regions.

Sample Solutions:
- Develop clinical pathways and communities of practice for trauma care.
- Create rehab databases and triage protocols for complex injuries.
- Train clinicians through mini-fellowships in burn, ICU, and trauma care.
- Localize prosthetic manufacturing and expand regional rehab centers.

Clinical care challenges were extensive, ranging from specialized treatment needs to discharge planning. Participants noted the complexity of treating burns, amputations, and psychological trauma, and called for expanded prosthetic and rehabilitation services, especially in regions like Atlantic Canada. There was concern about the lack of standardized clinical pathways and the need for communities of practice to support knowledge sharing among civilian and military clinicians.

Discharge and return-to-duty processes were flagged as needing clearer guidelines, particularly for addressing mental health and addictions. The importance of triage, both in Europe and upon arrival in Canada, was repeatedly emphasized, with suggestions to use American Burn Association standards and develop rehab triage databases. Participants also proposed mini-fellowships to train clinicians in niche specialties and called for better integration of civilian hospitals into military care pathways.

Insights from Red Cards
- **S002_Issue**: If you have care provided in different provinces throughout their care path, there is no interoperability between provinces. There is much better EMR interoperability within provinces.
  Solution: Need to land the patients from abroad within their province that will provide their entire care journey. That will be easier than building a pan-national EMR.
- **S008_Issue**: Burns + limb loss acute + rehab needs specialized acute + chronic needs PTSD trauma-based care teams needed. CAF-VA current defined prosthetic rehab providers.
  Solution: There could be more than one point of transport within Canada, not only

Pearson. Suggest Toronto, Edmonton/Calgary. Expansion of CAD/VA prosthetic rehab teams.

- **S015_Issue**: Walking wounded triage. May not need EMAT, EM, etc. Many need wheelchairs, gait aids. May be able to repatriate more casualties per flight.
  Solution: Triage further in Europe, plan for assistance equipment and accessibility needs for arrival.
- **S037_Issue**: The discharge of CAF patients from civilian facilities will need to be seamless and without delay.
  Solution: Establish and/or ensure clinical pathways are well understood between CAF Health Services and the discharging facilities. Will need to ensure CAF Health liaison officer (likely an RN) to be in-person and coordinate discharging and later fitness to return to duty determination.
- **S038_Solution**: Increase training pathways for 'mini fellowships' in the at-need niche/specialty areas (e.g/ burn care, ICU, trauma)… for MDs, RNs, therapists.
- **S039_Issue**: Need to understand clinical pathways of the injured -> we all need a common understanding
  Solution: Clinical experts to develop.
- **S045_Issue**: The care provided to CAF patients in hospital will require our civilian healthcare staff (docs, RNs, RTs, OTs, PTs) to be educated on how to manage + support their very unique mental health needs (eg. PTSD) they will need to develop this competence.
  Solution: Focused skill development. Communities of practice with front unit healthcare providers with CAF psychiatrists to help support learning, sharing, etc.
- **S047_Issue**: Rehab + prosthetic, Atlantic Canada – NB one of the biggest centers for myoelectric prosthesis.
  Solution: Expand NB capabilities for Atlantic Injuries (close to home longitudinal care).
- **S052_Issue**: What really does rehab mean if the goal is to return to front line/keep close to where they came from etc. Can we distribute across Canada and logistics of returning to duty?
- **S057_Issue**: Discharge procedures and link with DND. In general, it needs to have greater detail in the POW patient journey as well as the civilian soldier's journey back to community or back to their units.
  Solution: Discharge will also have an impact on long-term care needs. We are not equipped in Canada to manage high-needs long-term care on a large scale.
- **S113_Issue**: Burn triage/ prioritization of patients for burn centers vs other centers.
  Solution: American burn association triage tables are available to guide triage decisions and disaster standards of care.
- **S114_Issue**: Rehab patients need to know etiology and rehab needs eg TBI, SCI, amputation, psych trauma, before assigning location to take.
  Solution: Rehab triage process, database of rehab capabilities of provincial sites, prosthetic, orthotic capabilities seating clinics.
- **S115_Issue**: Need to develop what an expanded model and care will be for burns
  Solution: Explore utilization and plastic surgeons, general surgeons OT, PT.
- **S131_Issue**: Discharge and return to duty guidelines? Certification?
  Solution: CAF directed guidelines enacted by civilian clinicians.

- **S132_Issue**: Prosthetics manufacturing. P & O specialist.
  Solution: Locally produced prosthetics. Locally innovative solutions in Canada for making prosthetics.

4. Governance and Structures
Efforts are needed to articulate clear command and control**,** intergovernmental coordination**,** and policy frameworks to manage large-scale health emergencies.

Key Messages:
- Unclear roles and responsibilities across federal and provincial actors.
- Lack of pre-established governance structures for mass casualty scenarios.
- Need for centralized incident command and decision-making authority.
- Integration of emergency legislation and strategic planning.

Sample Solutions:
- Form federal tiger teams to define governance and coordination roles.
- Establish capacity panels for patient dispersal planning.
- Modify the Emergency Measures Act and FERP to include mass casualty provisions.
- Draft and formalize oversight structures with FPT collaboration.

Governance issues were among the most frequently cited concerns. The exercise revealed confusion around roles and responsibilities, particularly at the federal level. Participants called for a clear incident command structure and a designated authority to oversee patient dispersal and resource allocation. The Federal Emergency Response Plan (FERP) was deemed inadequate for mass casualty scenarios, prompting recommendations to revise it and establish a pan-Canadian coordination body.

There was also discussion about the need for a “Minister of Everything” figure to make rapid decisions during wartime, echoing historical models. Coordination between federal, provincial, and territorial governments was seen as essential, with suggestions to convene tiger teams and capacity panels in advance. Participants emphasized that governance structures must be formalized and stress-tested through simulations to ensure readiness.

Insights from Red Cards
- **S004_Issue**: 1x EU PEC not realistic. PEC is a national responsibility Canada PEC will need to comm w/ multiple foreign PEC’s – higher likelihood of C2 command/comms issues. +0% chance to organize patients by home residents (i.e. only pick up ON residents for 1 flight).
- **S089_Issue**: Command + control structure. Unclear as to who CAF exped. Forces (CJOC) in theatre is working with/for to coordinate causality transfer back to Canada
  Solution: Designated 1 node within FERP team to act as Lo for incoming patients, one node to disseminate and relay into direction.
- **S116_Issue**: Death of foreign nationals on Canadian soil. Coordination of care while awaiting and death-related services when deceased.
  Solution: Work with GOC/ intergovernmental affairs and where to bury if local, how to repatriate worked out with foreign governments and embassy.

- **S120_Issue:** With designation of a few recovery hospitals etc. → there will need to be regional IMS structures at the ready to support decant + load balancing of pts. from Sunnybrook to other hospitals/ care departments across the region/province. Will also need to support local model of care change on the ground (i.e. → changes to community care as a result of HHR redeployments).
  Solution: Regional IMS structures convened across Ontario Health Regions.
- **S124_Issue**: Federal structure of response (What incident command would be stood up, who would run? How would health be represented?) unclear. Relatedly, what federal resources, roles and responsibilities would be forthcoming?
  Solution: In report on this exercise, include questions for feds + next exercise needs to be designed for more stakeholders.
- **S143_Issue**: Establishment of governance/oversight structure given # of stakeholders & fact this is war related.
  Solution: Based on today's discussion, start of draft & then formalize the structure with FPTs.
- **S147_Issue**: Consider the role of other orgs – Red Cross etc. could play. Discussed among the group – prior establishment of a crisis management structure + players that can be activated quickly as needed.
- **S153_Issue**: Revenue loss from federal "takeover" of transport assets.
  Solution: Federal subsidy program.
- **S154_Issue**: Who or what framework is used to determine the ethical framework to determine levels of care is to be provided.
- **S159_Issue**: In a long war, such as the Second World War, there was the need for a single coordinator/decision maker for wartime industry. Does Health require a C.D. Howe-type figure, known as "Minister of Everything", to coordinate and, most importantly, make rapid decisions.
  Solution: This likely requires the Emergency Act to be enacted, which comes with its own problems.
- **S162_Issue**: The inter-government command and coordination structure is not defined in advance. This is paralyzing game play. In reality, as the geo-political situation destabilizes and a crisis occurs, there will likely be some time to form this governance body.
  Solution: Have a federal tiger team pre-meet to figure this out. Recommended participants are DND, Ps, TC, HC, PHAC, IRC, CBSA. They should include commanders, plans, ops, legal, finance, PA/comms, logistics and emergency management.
- **S166_Issue**: Governance/command + control for patients dispersal planning. Need authority to establish a forum to receive bulk patient movement requests.
  Solution: Agree arrangements + composition of a capacity panel to receive details of patient movement requests and plan patient dispersal planning.
- **S168_Issue**: The authority to establish the CPECC has not been determined. The Federal Emergency Response Plan (FERP) was cited but there are significant gaps in it as it pertains to health as it focuses on public health issues, usually pandemic and isn't presently written to tackle a mass casualty scenario requiring pan-Canadian patient coordination.
  Solution: The Emergency Measures Act, the FERP, and subordinate plans will need to be

altered in order to establish the governance structure and authority to establish the CPECC and its oversight.

5. Human Health Resources and Other Resources
Strategies will need to be developed to address staffing shortages**,** training needs**,** and resource mobilization to sustain healthcare delivery during crises.

Key Messages:
- Surge capacity planning for physicians, nurses, paramedics, and specialists.
- National registries for credential recognition and mobility.
- Infrastructure expansion for evacuation and treatment sites.
- Supply chain resilience for medical equipment and prosthetics.

Sample Solutions:
- Create readiness strategies using reserve and volunteer personnel.
- Fund national registries for healthcare professionals and paramedics.
- Develop digital fabrication and local manufacturing for prosthetic components.
- Plan for rotating deployments to prevent clinician burnout.

Human resource constraints were a major theme, with participants warning of immediate and long-term shortages in physicians, nurses, paramedics, and specialists. The draw on Reserve Forces and the impact on civilian staffing were highlighted, along with the need for national registries and credential recognition to enable mobility across provinces. Training programs for high school and college students were proposed to build surge capacity.

Infrastructure and supply chain issues were also prominent. Participants discussed the need for prosthetic manufacturing within Canada, stockpiling antibiotics, and securing blood and plasma products. The importance of rotating clinicians to prevent burnout was emphasized, as was the need for alternate care models and expanded home care support. Logistics planning, including transport, accommodation, and equipment readiness, was seen as critical to sustaining operations.

Insights from Red Cards
- **S007_Issue**: Need to recruit health professionals from civilian hospitals.
  Solution: Consider ‘readiness’ strategy such as reserve medical personnel (civilian).
- **S021_Issue**: The group has early on coalesced around the notion that care should be centralized so a small group of caregivers can develop experience treating war wounded. But there has been little to no discussion about the trade-offs with this approach – namely this puts a pretty hard ceiling on your care workforce capacities.
  Solution: Discuss if there are any ways expertise in treating those patients could be expanded.
- **S025_Issue**: If the assumption is AE from Europe to Canada is contracted, HHR will be an issue. For ongoing operation, 3 flights/planes (A330) and 8 critical care / 30-50 wounded = 15 med pers per plane. 72 hr turnaround on flight due to transit, crew rest. 2 full crews per plane can reduce turnaround = 90-100 AE pers. Composition can vary by mission critical care MD, critical care nurses, EMS.
  Solution: Canada wide contribution to a national AE transport team. Would

embark/debark YYZ. Would likely need lodging local during needs of war. Potentially could assume 30% contribution from CAF AE personnel. Potential for just in time training for team augmentation to trained AE pers.

- **S032_Issue**: It has become clear w/ onset of LSCO there will be an assumed immediate/near immediate draw of health resources (physicians, nurses, paramedics), from Res F to health services (CMERT etc). Unknown what would be req but would have immediate impact on civilian staffing/ capabilities.
  Solution: Project/plan for impact of Reserve Force draw on civilian health system resources, so health systems PT can understand impact on LSCO declared to create contingency plans.
- **S067_Issue**: Mobility of health, human resources.
  Solution: Implementation in advance of national registries and credential recognition across PTs in advance. War is already underway to advance labour mobility for physicians + nurses. HC is funding the national registry for physicians (thus the medical council of Canada) + is encouraging the federation of medical regulatory authorities of Canada to implement federated national licensure for physicians. HC is also funding nurses – national registry for nurses. + the Can Council of Registered Nurse Regulators is working to advance nursing labour mobility.
- **S072_Issue**: HHS limitations
  Solution: Utilize medical residents and fellows. They have an MD degree; they have Canadian certification and can practice medicine with limited supervision. There are thousands of them in Canada.
- **S083_Issue**: Need to consider plan to increase HHR production → who leads this, funds it. This would be part of mobilization efforts.
- **S122_Issue**: Prosthetic + orthogonal clinicians. Prosthetic + orthotist HHR shortage. P+O component supply chain must be outside of Canada. Eg. Rely on outside supplies. Liners, socks, etc.
  Solution: 1) Increase HHR. 2) Digital fabrication solutions CAD/CAM 3D print, 3) Development of Canadian in-country component manufacturing + supplies.
- **S130_Issue**: I'm curious about ways to increase healthcare worker capacity/surge. Most discussion is about having regular HWF do more with less (a lot less). Modeling a civilian protection health surge workforce might be useful.
  Solution: Creating basic medical training programs for college/high school students; training general surgeons to care for burns or other non-related specialty care?
- **S156_Issue**: HHR challenge – air medical team support (ORNGE) – need capacity support from provinces.
  Solution: All provinces/territories expected to provide critical care team support to ORNGE for international repatriation missions.
- **S180_Issue**: National registry underway for physicians (and possibly nurses) to facilitate cross PT border mutual aid, as a large-scale incident progresses this exercise has made us aware that transfer of patients between hospitals (or port of entry) to other hospitals would become critical and there is a current paramedic shortage in many provinces and it will quickly overwhelm the EMS/EHS system and cripple the system's ability to transfer patients.
  Solution: Add paramedics to Health Canada work plan for national registry, physicians and nurses are critical but out of hospital/inter-facility system would be a limiting factor

to spread patients inside land between PTs to lower congestion as well as continue to respond to regular ops (all calls, civilian patients, med/surg, etc.).

6. Strategies for Maintaining Forward Momentum
Long-term planning**,** resilience building**,** and scenario testing is essential to ensure sustained response capacity.

Key Messages:
- Simulation exercises to stress-test systems and identify bottlenecks.
- Planning for sustained operations and evolving conflict scenarios.
- Defining success metrics (e.g., mortality, return-to-duty, population health).
- Infrastructure mapping and contingency planning for transport and care.

Sample Solutions:
- Run national simulations and establish guidance principles.
- Build airfield medical staging facilities and regional reception capacity for patient flow.
- Evaluate thresholds for care changes and resource allocation.
- Invest in scalable infrastructure and training programs.

To maintain momentum during prolonged crises, participants stressed the need for scenario planning, resilience-building, and clear success metrics. Simulations were recommended to test system capacity and identify bottlenecks. There was a call to define thresholds for shifting care models and to evaluate outcomes based on mortality, return-to-duty rates, and long-term population health.

Participants also emphasized the importance of infrastructure mapping and contingency planning, particularly for transport and triage facilities. The idea of a national organization to oversee resilience planning and guidance was proposed. Long-term strategies included investing in scalable systems, expanding reception capacity at airports, and ensuring that lessons learned from exercises are translated into actionable policies and protocols.

Insights from Red Cards
- **S011_Issue**: The Government of Canada (GOC) was not clear in its roles and responsibilities. There normally would be a huddle of the feds before there would be a discussion bringing in PTs. (CAF, DND, PS, ITC, PHAC)
  Solution: In the simulation, the prep time should have encouraged the GOC team to discuss first to determine under what authorities and scenario the exercise would take place.
- **S014_Issue**: Ability to mobilize healthcare personnel, including mechanisms for expected training for war-time care to be provided overseas.
  Solution: Develop plans on how to train deployable surgeons, nurses, healthcare personnel on a just-in-time / on-the-job fashion. → General surgeon→ ATOM+AUGT course → War, → Nurse → TCCC/TNCC/ATCN → War, etc.
- **S022_Issue**: Patient/POW capacity.
  Solution: Manitoba has been developing a permanent evacuation site that housed 300 evacuees this year but can hold up to 10000.

- **S024_Issue**: Each leg of transport is logistically challenging and difficult for patients (esp critical care) and impact mortality. Having centralized institute like Pearson with transport to Sunnybrook to triage, then transport back to Pearson is a lot of movement.
  Solution: Suggest airfield medical staging facility at Pearson / or airport with 12–24 hr holding capacity prior to moving onward to final destination. Each province will need reception set up for more than 5–10 pts at a time. These requires space, equipment, personnel.
- **S025_Issue**: If the assumption is AE from Europe to Canada is contracted, HHR will be an issue.
  Solution: Canada wide contribution to a national AE transport team. Would embark/debark YYZ. Would likely need lodging local during needs of war. Potentially could assume 30% contribution from CAF AE personnel. Potential for just in time training for team augmentation to trained AE pers.
- **S028_Issue**: Modelling team for triaging – AI system build.
  Solution: Need to immediately establish a team to develop a model to support triaging based on things like: home province, Canadian or prisoner of war, severity, fed by real time data on capacity, number of planes/cruise ships available, add variables (Gemini may have AI models to repurpose).
- **S032_Issue**: Immediate draw of health resources from Reserve Force to health services.
  Solution: Project/plan for impact of Reserve Force draw on civilian health system resources, so health systems PT can understand impact on LSCO declared to create contingency plans.
- **S036_Issue**: CIHI data will need to be updated in real-time and should be linked to information about incoming casualties + placements.
  Solution: Engage CIHI leadership in the exercise from the beginning + set up dedicated data teams in PTS + the federal govt to update data + model scenarios.
- **S075_Issue**: Surface assumptions about how much care and life-saving impact at each stage. What are the measures of success?
  Solution: Evaluate objectives around mortality rate, return-to-duty, long-term population health, as priorities across conventional, crisis, contingency, innovation parameters. Define thresholds as guidance.
- **S178_Issue**: No end-to-end view of hubs to show what an integrated system would need to look like in wartimes or times of strain preparing for resilience.
  Solution: Create this view. Run simulations for scenarios planning and stress testing. A national org should run and/or get this output and principles established as guidance in advance – for locations and resources.