



## Leading change in Canadian military medicine: determinants of success, 1685–2016

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### ABSTRACT

Success in military force health protection has more to do with the creation of systems of knowledge, efficient organizations, and command responsibility for the implementation of best practices than it does with the development of novel medical technologies or treatments. To achieve success, military leaders, both commanders and senior medical personnel, must be able to lead change effectively to create these systems in their organizations. Even in recent times, military forces have suffered crippling preventable losses when public health best practices were not implemented properly. Yet at various times in Canadian history, certain military leaders achieved noteworthy success in force health protection by systemic implementation of best practices. This article uses concepts articulated in Canadian Armed Forces leadership publications, especially those related to institutional and strategic leadership, as the analytical framework to assess which determinants of military medical leadership might still be applicable today.

**Key words:** Banting, Chisholm, leadership, medicine, military, Sarrazin, Wolfe

### RÉSUMÉ

Le succès de la protection de santé des Forces armées dépend plus sur la création de systèmes des connaissances, d'organisation efficace et de la responsabilité hiérarchique de la mise en place de pratiques exemplaires que sur le développement de nouvelles technologies médicales ou de traitements. Le succès des commandants et du personnel médical senior se mesure par leur capacité à implémenter ces systèmes de connaissances de manière rapide et efficace. Plusieurs exemples récents démontrent que les Forces armées ont subi des pertes dévastatrices lorsque les meilleures pratiques de santé n'ont pas été mises en application, par exemple, l'écllosion de dengue en 1999–2000 dans les Forces armées canadiennes (FAC) au Timor-Oriental et l'écllosion de 2003 de la malaria dans troupes américaines au Libéria. Pourtant, le Canada a réussi, à différentes occasions, à protéger la santé de ses troupes en suivant les meilleures pratiques de santé. Cette étude analyse les concepts illustrés dans les documents offerts aux cadres supérieurs au sein du corps médical des FAC, en particulier, ceux où il est question du leadership stratégique et institutionnel, comme étant le cadre analytique utilisé pour décider quels déterminants du succès de la protection de la santé sont encore pertinents aujourd'hui. Notre analyse historique examine ceux qui ont eu un grand succès de la protection de la santé des Forces armées depuis le début de ses pratiques au Canada pour nous aider à comprendre quels facteurs ont offert les meilleurs succès.

**Mots clés :** direction, médecine, santé publique, prévention des maladies, canadien, histoire, Sarrazin, Wolfe, Banting, Chisholm

Writing in a 2003 paper, Major-General Jean-Robert Bernier, former surgeon-general of the Canadian Armed Forces (CAF) and presently chairman of the North Atlantic Treaty Organization's Committee of the Chiefs of Military Medical Services, explained that “history

teaches us that we often do not learn from our past with respect to preventive health efforts. Although low injury and disease rates are usually the fruit of persistence and prolonged health protection and promotion efforts, their achievement is often seen as justification

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to scale back such programs.”<sup>1</sup> At their most sophisticated, today’s interventions against infectious disease are more advanced than at any previous time in world history. And, yet, too often these measures are rendered ineffective – even useless – when implementation falls short of potential. Prior to the twentieth century, the grim reality of war was that infectious diseases (typhus, typhoid fever, cholera, smallpox, malaria, and a host of others) would carry off many soldiers for each one who died in combat. Entire campaigns, such as the 1809 British expedition in the Netherlands during the Napoleonic Wars, where the redcoats suffered 37 disease deaths for each combat fatality, could be ruined by pestilence.<sup>2</sup>

However, more recent examples demonstrate that military forces can still suffer crippling preventable disease casualties. The early Vietnam War was a health protection nightmare for the United States, with malaria rates for the 1st Cavalry Division (Airmobile) in the Ia Drang and Vinh Thanh valleys rising as high as 600 per 1,000 individuals per year, resulting in the loss of over half the force to the *plasmodium* parasite.<sup>3</sup> Of the 620,000 Soviet Red Army soldiers who fought in Afghanistan between 1979 and 1989, over 400,000 – 67% of the force – required hospitalization for serious illness, with about one third of the entire Soviet 40th Army in Afghanistan hospitalized with infective hepatitis, typhoid fever, cholera, dysentery, or the plague at any given point in the campaign.<sup>4</sup> Closer to home, during Operation Toucan (the 1999–2000 Canadian peacekeeping deployment to tropical East Timor), 46% of Canadian personnel were incapacitated by fevers and illness, with several dozen serologically proven cases of preventable, but deadly, Dengue Fever later being revealed due to “personal protective measures [that] were less than adequate.”<sup>5</sup> The CAF’s Directorate of Force Health Protection has also expressed grave concerns about the potential effects of pandemic influenza on the future readiness of the CAF.<sup>6</sup>

Given these more recent experiences, there is a pressing need in the CAF to develop a sophisticated understanding of success in force health protection practices because the problems posed by it are never permanently “solved.” Success in disease prevention is never associated with novel medical technologies or new treatments alone. These can be extremely helpful, but, in and of themselves, they are not guarantors of low disease rates. Even the best medical interventions are ineffective if used by too few or used improperly.<sup>7</sup> No matter the

potency of the medical or pharmaceutical intervention, compliance with disease prevention measures is always determined by the creation of systems of knowledge, efficient organizations, command responsibility, and, most importantly, good leadership, which are the behavioural dimensions of force health protection. This is no less true in 2016 than it was in 1685.

Leadership is the key, as it underwrites all of the other factors. Not simply tactical leadership on the part of medical officers (who are usually painfully aware of how little they are listened to) but also operational, strategic, and institution-level leadership. The Department of National Defence has provided some excellent tools for assessing leadership and change in its doctrinal publication *Leadership in the Canadian Forces: Conceptual Foundations* (2005), which provides a broad understanding of leadership from the individual to the institutional level.<sup>8</sup> According to *Leadership in the Canadian Forces*, the objective of strategic leadership is to ensure the long-term effectiveness of the CAF, developing and maintaining capabilities that will enable success at the tactical and operational levels of command. This is done in part through the management of organizational systems, but, more importantly, by positioning the armed forces favourably in relation to their external environment.<sup>8</sup> The most effective force health protection measures are products of high-level leadership, and, in fact, we can think of medical leadership in almost identical terms to strategic leadership since it fundamentally has the same goals: protecting and maintaining the health of the force.

Studying the successful implementation of force health protection through effective medical leadership is not simply a theoretical exercise. At many points in Canadian history, military and medical leaders have achieved conspicuous success in leading change in military medicine through the systematic implementation of the best practices of their own eras. Using the leadership models of *Leadership in the Canadian Forces* as a point of reference, one of our ongoing projects is to draw upon our own past Canadian experiences to analyze how force health protection measures are implemented and which leadership behaviours and traits are most closely associated with success. At Forum 2015 in Québec City, we presented as proof of concept for our methodology four historical case studies highlighting military leaders who led change in military medicine in Canada. A short description of each one follows.

Michel Sarrazin (1659–1734) began his medical

career as a regimental surgeon with *les Troupes de Marine*, first deployed to New France in 1685, and quickly became the senior most medical official in the colony. Responsible not only for the troops on campaign and in garrison, he also attained a seigneurship and a seat on the Conseil Superieur, enacting the first public health reforms in New France's urban areas. Sarrazin is best remembered as a botanist and natural scientist and was the first to catalogue many North American plants and ecosystems, which became the source of many medical remedies at the time, sometimes at great personal risk.<sup>9</sup>

Major-General James Wolfe (1727–1759) was best known for his victory and death on the Plains of Abraham in 1759, but as a military commander was keenly (and uncommonly, for his age) aware that his force was only as strong as the soldiers who composed it were healthy. He read extensively on the natural sciences and the management of campaigns, integrating thought and action like few other British officers.<sup>10</sup> Wolfe's insistence upon good hygiene and strict sanitation discipline in his force was openly mocked by his fellow officers as being beneath an officer's dignity, but it helped to minimize disease casualties in an age where camp illnesses were always more lethal than combat.<sup>11</sup>

Sir Frederick Banting (1891–1941) was the Nobel Prize-winning discoverer of insulin, but his first medical experience came in the First World War as a regimental doctor with the Canadian Army Medical Corps. His insulin work transformed him overnight into Canada's leading researcher, and at the outbreak of the Second World War, Banting helped reorganize the country's medical research establishment to help with military research. Most impressively, Banting and his research associates were responsible for fostering Canada's aviation medicine program, developing innovative technologies for the health and protection of airmen at a time when few other Allied countries were paying attention to the topic.<sup>12</sup>

Major-General Brock Chisholm (1896–1971) also came from humble origins but won the Military Cross and Bar as a platoon commander in the Canadian army during the First World War and, afterwards, decided to explore his own shell shock symptoms by becoming an medical doctor and psychiatrist. During the Second World War, he served as director of personnel selection and director-general of medical services, the top medical command in the Canadian army, where he implemented key health protection policies. In 1948, Chisholm was appointed the first director-general of the World Health

Organization, where he worked hard for public health measures on a global scale.<sup>13</sup>

These four – Sarrazin, Wolfe, Banting and Chisholm – are a few of the best examples of military medical leadership in the 400 years of Canadian history. Historical assessments of their behaviour, using the CAF's *Leadership in the Canadian Forces*, helps to highlight some of the key predictors for success in military medical leadership:

- (1) Orientation to the external environment – meaning an ability to look beyond the narrow confines of the institution to appreciate the physical and political conditions a force will have to operate within;
- (2) Scientific and medical literacy – even if a leader is not a medical expert or professional in the field themselves, they must have an understanding of the medical dimensions of military force; and
- (3) Political connectedness – the ability to successfully manoeuvre in the existing political environment of their age and turn it to their advantage.

The full results of our case studies will be published elsewhere, but the four medical leaders from our case studies all demonstrated these key behaviours in support of Canadian military forces. We believe that they are the best predictors for how leadership can affect best practices in force health protection.

Most importantly, these examples emphasize that good medical leadership is not – and cannot be – confined to the medical personnel who are often thought of as being responsible for health services. The four case studies include a regimental surgeon, a military commander, a medical researcher, and a senior medical administrator. Whatever their differences in rank, social standing, and context, all achieved conspicuous success in health protection efforts and force preservation by applying good practices in their own eras. True medical success is the product of high-level institutional leadership.

Although our research on this topic remains preliminary, we believe that the best way to develop these traits in future strategic and medical leaders is through education. The study of force health protection considerations has never been prominent in Canadian senior officer professional military education (PME).<sup>14</sup> However, the greater inclusion of medical and force preservation issues as a core part of PME curricula at the Canadian Forces College, coupled with historical examples

of successful and unsuccessful past operations, could provide a foundation for both medical literacy in non-medical military professionals and a heightened orientation toward the external environment for all senior officers.

A renewed emphasis upon force health protection is imperative for the CAF, whether on deployment abroad or at home. Major biomedical threats to operational effectiveness will be a reality of future combat operations, but our interventions against them will only be as good as the leadership that shapes the behaviour on the ground. A 50% preventable disease casualty rate has occurred on operations in recent decades and will occur again without the proper preventive steps. Serving and future CAF members deserve nothing less than the best health protection that they can receive, and history teaches us that this requires a clear understanding by all senior CAF leaders of best practices in the creation of systems of knowledge, efficient organizations, and command responsibility.

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## CONTRIBUTORS

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