

Health & Fitness Journal of Canada

Copyright © 2020 The Authors. Journal Compilation Copyright © 2020 Health & Fitness Society of BC

Volume 13

September 30, 2020

Number 3

COMMENTARY

BC's Mobile Medical Unit (MMU): One of Dr. Jack Taunton's Olympic Legacies

Robert Stewart^{1,*}

1 Canadian Health and Fitness Institute, West Vancouver, British Columbia, Canada, V7V3A3

*Corresponding Author: robstewart@icloud.com

Abstract

This article outlines the important contributions that Dr. Jack Taunton made to get the Mobile Medical Unit (MMU) for the 2010 Olympic and Paralympic Winter Games and keeping it in BC post-Games, where it has become an important health care asset and used throughout the province. **Health & Fitness Journal of Canada 2020;13(3):33-39.**

<https://doi.org/10.14288/hfjc.v13i3.329>

Keywords: Mobile Medical Unit, Olympic Legacy, BC Disaster Response, Mobile Hospital, Emergency Management

Introduction

When the COVID-19 pandemic hit British Columbia, inmates and staff at the Mission Correctional Institution became infected with the virus and needed treatment at Abbotsford Regional Hospital, part of the province's response was to deploy the Mobile Medical Unit; the "MMU." The MMU is a high-tech hospital on wheels, and the only one of its kind in Canada.

And why not? After the 2010 Olympic and Paralympic Winter Games, the MMU has been used across the province. From Vancouver's Downtown Eastside to Terrace, from Vancouver Island to Golden, the MMU has become a valuable component of BC's health care system. In addition to assisting in the public health emergency against the novel coronavirus, it's battled a concurrent public health emergency - the opioid overdose crisis. The MMU has trained medical staff and hospitals for emergency events, and has

served as a backup emergency department during floods and hospital renovations. The MMU has also been a key support for three major sports Games: the 2010 Olympic and Paralympic Winter Games in Whistler, the 2015 Canada Winter Games in Prince George, and the 2016 Americas Masters Games in Vancouver.

Indeed, the MMU is an important legacy of the 2010 Olympic and Paralympic Winter Games. It is also the legacy of Dr. Jack Taunton, one of BC's most celebrated sports medicine physicians, and Jack's Olympic medical team. How BC acquired the MMU, not only for the Olympics but post-Games as well, is a testament to Jack's tenacity and vision. Now owned by BC's Provincial Health Services Authority (PHSA) as a service of Health Emergency Management BC, support for the MMU was mixed in the years before the Olympics, and the MMU almost didn't leave Chicago.

The idea of a mobile surgical hospital coming to BC first arose when Vancouver was awarded the 2010 Olympic and Paralympic Winter Games in July of 2003. At that time, the International Olympic Committee (IOC) noted that Whistler, where most of the alpine and sliding events would be staged, lacked local surgical capacity. For safety reasons, surgical capacity was an absolute requirement for the Games.

Olympic Games' Medical Services typically have what is called a "Polyclinic", a 24/7 multi-faceted health care centre located in the Athlete's Village(s). Each Polyclinic is staffed with doctors, dentists, nurses, and specialists to provide emergency, primary, sport medicine, and specialty medical care, including imaging. But they don't have surgical capability. Although Whistler had an urgent health care centre, the closest hospital with surgical capability was in Squamish, a 45-minute drive away, which would be an issue if safe and timely air/ground evacuation was a problem due to the patient's condition, weather, or a natural disaster in the Sea-to-Sky corridor.

Jack had been named the Chief Medical Officer for VANOC (the Vancouver Organizing Committee for the 2010 Games) in late 2005. He met with Dr. Patrick Schamasch, the IOC Medical and Scientific Director, in Torino at the 2006 Winter Olympics. It was in Torino that they discussed the preliminary medical plans for the 2010 Games, with Dr. Schamasch reiterating the need for surgical capability at Whistler.

With the possibility of the province developing surgical capability at Whistler seeming remote, Jack started looking around for ideas. He came up with a mobile hospital and approached the Canadian Armed Forces. The military had experience

with mobile hospitals in conflict zones such as Afghanistan, but they were extended, given other operational requirements, and lacked the capacity to provide a surgical hospital "under canvas" at Whistler for the Games.

A second option was the National Office for Health Emergency Response Teams (NOHERT) through the Public Health Agency of Canada (PHAC). NOHERT was developing national disaster response capability and could possibly provide a trauma team (personnel and equipment). The problem was that the program was under development and as such there could be no assurance it would be available for the Games. NOHERT did, however, provide medical support, advice and services for the Polyclinics, and for mass casualty contingency planning, including many of the emergency surgery/trauma services staff that ultimately worked in the MMU.

A third option involved General Electric (GE) Healthcare. GE was a major Olympic sponsor and had a medical division that produced imaging and other health care equipment. On a whim, Jack approached GE. Although the MMU as we know it now didn't exist in 2006, GE had developed a basic mobile hospital for use in disaster responses. GE's health care rep was very supportive of the idea and invited Jack to visit New Orleans and see what GE had provided for the response to Hurricane Katrina.

Once Jack saw GE's basic mobile hospital in New Orleans, he realized that it wouldn't meet the requirements for the Olympic/Paralympic Games, but it did spur his creative juices. By now Dr. Mike Wilkinson had joined Jack at VANOC as Medical Director. The two of them, using the concept of a mobile hospital as a start, considered many options, even spending

some time on the Langley Bypass looking at mobile homes (RVs).

To enhance the team, Jack and Mike brought on Dr. Ross Brown, then Medical Director of Emergency, Critical Care, and Trauma at Vancouver General Hospital (VGH), who had deployment experience as a trauma surgeon with the Canadian Armed Forces. Ross, along with Leanne Appleton, Clinical Operations Director Perioperative Services and Surgery VGH and UBC (VCH), were seconded to the VANOC Medical Services team and provided input into the design and utilization of the MMU.

Once the decision to move forward with the MMU had been made, a close and productive collaboration began between Jack's team, GE, and Oshkosh (Oshkosh Specialty Vehicles did some of the design and building of the MMU). Many trips were made to Chicago to oversee the project, and major modifications were made to the original GE unit that included adapting the insulation specifications to withstand Canadian winters and conforming to Canadian regulations.

The design the MMU team settled on included an operating room (OR) with an OR table and anaesthetic machine, a 6-bed emergency/trauma bay with integrated telemetry, and a staff work station for medical monitoring equipment. The MMU had the capacity to extend to 100 or more beds with a tented structure and was stocked with supplies to be self-sufficient for up to 72 hours. The surgical section was equipped and staffed to perform life and limb saving emergency surgery (known as Damage Control Surgery), which included medical imaging equipment, point of care testing, and appropriate surgical equipment. During the MMU's design and development phase, it was clear that more clinically usable space was required, so a

decision was made to build trailer slide-outs as part of the main MMU and to add a separate support tractor-trailer to accommodate the supplies and equipment.

Who would pay for the \$6 million MMU had always been an issue. The cost included the Volvo tractor trailers needed to pull the two units. GE was interested in redesigning their basic mobile hospital in order to enhance their disaster relief response capability, and saw the development of the MMU as the best way to accomplish that goal. Since GE was an Olympic sponsor, they offered the unit to VANOC as a value-in-kind (VIK) contribution. In order for Jack to be able to use the VIK, however, VANOC stipulated that he find someone to purchase the MMU and develop a viable and credible post-Games program to justify the investment and sustain the unit's capability. Otherwise, Jack wouldn't have been able to receive the MMU and it would have stayed in Chicago.

Unfortunately, as Mike (who was in charge of negotiating with potential buyers) recalled, there were numerous obstacles to someone in Canada purchasing the MMU. VANOC didn't have the financial ability to buy it and donate it to the province; there was no solid operations plan for using it in the province post-Games; and the province was dealing with the aftermath of the 2008 global financial crisis. With no idea where the funding for the MMU would come from, but undaunted, Jack continued to plug away. While Mike continued his trips to Chicago to ensure that the finished product would meet the needs and timeline of the 2010 Olympics (which were fast approaching), Jack continued to advocate for the MMU as a Games legacy that would become an excellent health care asset as a mobile hospital.

John Lavery, Executive Director of Health Emergency Management BC, coordinated a lot of Jack's discussions with the province. John remembers Jack as being "tenacious" in his efforts to secure a buyer. These connections proved fruitful because, in the summer of 2009 as the final touches were being put on the MMU in the Chicago factory, and time was running out to ship it to BC and train the staff on its capabilities, the Province of BC graciously stepped up and provided the capital funding to purchase the MMU. This development was significant because it allowed the Games to be staged and ensured that the MMU would remain in BC after the Games.

The MMU was delivered to Vancouver in the fall of 2009. It was 'revealed' to the public at a press conference at the Vancouver General Hospital (VGH) in the midst of the BC Ambulance Service (BCAS) strike, but in time for the team to run multiple training weekends. The training was a collaborative effort, paid for by VANOC and NOHRT, and utilized VGH's education and simulation staff from the Centre of Excellence in Surgical Education and Innovation (CESEI) and the Canadian Forces Trauma Training Centre (CFTTC-West) to prepare over 100 medical team members to work in the Polyclinics and MMU.

Once the MMU arrived at Whistler, it was set up behind the Polyclinic in the Athletes' Village, just south of Whistler's town centre. For the purposes of accrediting the staff that worked in the MMU, the MMU became part of Vancouver Coastal Health (VCH) through a ministerial order for the duration of the Games. This meant that the MMU was affiliated with VGH as an extension of their hospital designation to include a mobile unit, and all medical staff were credentialed through

VGH. To ensure the highest quality of care during the Games, all appropriate VCH protocols and guidelines were adopted by the MMU.

Figure 1: The MMU attached to the Polyclinic in the Whistler Athlete's Village.



At one point, the MMU staff from NOHRT were deemed 'non-volunteers' because they were receiving a stipend from NOHRT/PHAC and thus were not entitled to the 2010 Games clothing (uniforms) and red mittens that had been promised to the volunteers. Upon learning this, the MMU staff were terribly disappointed. "That was one of my worst days", recalled Jack, "I thought none of the staff would show up after that." It was discouraging, and led Mike to comment: "this thing started out life as a flightless bird (the unit was originally called the EMU - "Emergency Medical Unit", not the MMU), when perhaps it should have been called the Albatross." Undeterred, Jack found an alternate source for 2010 Games clothing and mittens so the staff could be recognized as part of the VANOC team, and preparations for the Games continued. The MMU medical staff from Vancouver Coastal Health, NOHRT, and across Canada from coast to coast was now in place. Final preparations for the

other VANOC Medical Services were being completed, and everyone was getting ready to welcome the world to BC.

Over the Games period (early February to mid-March of 2010), the MMU was used frequently. A number of athletes with potentially life-threatening injuries were “long-lined” (by helicopter) from the slopes of Whistler directly to the MMU. Sadly, it was also where, on the day of the Opening Ceremony, the Georgian luger, Nodar Kumaritashvili, was taken after his tragic accident during a training run at the Sliding Centre. Resuscitation continued at the MMU, without success.

As the Games progressed, the number of athletes using the MMU’s medical services, and the number of officials getting tours of the novel service, steadily increased. Everyone, athlete and official alike, was impressed. One day during the Games, Jack was giving the King and Queen of Sweden a tour of the Whistler Polyclinic and MMU. As Jack and the Swedish Royals were leaving the MMU, they bumped into a group that included IOC President Jacques Rogge; Dr. Schamasch; and the heads of GE World, GE Canada, and GE Olympics; and they all began discussing the MMU. At that point the Queen of Sweden said to the head of GE: “I will take three of them.” Jack and his GE counterpart just smiled at each other; it seemed that the flightless bird had taken flight.

There was an amazing sense of camaraderie amongst the MMU staff that worked the Games, and many memorable moments. Leanne recalled the night the Slovenian cross-country skier Petra Majdic came into the MMU. She had taken a nasty fall during a training run earlier that day, but continued qualification racing and eventually came third in the Individual Classic Sprint final, despite being in obvious pain. After the final, she was

Figure 2: Jack Taunton showing off the interior of the MMU.



transported to the MMU, where Petra learned she had four broken ribs and a pneumothorax (collapsed lung), injuries serious enough for transport to Vancouver General Hospital. As Petra was being prepared for the ambulance, she realized that the medal ceremony was about to take place at Whistler, and insisted on attending. The MMU staff obliged, hooked her chest tube up to a portable system (Heimlich valve), called ahead to make sure the ceremony wouldn’t start without her, and off they went in the ambulance. As Petra’s name was called and she stepped onto the podium, an MMU critical care nurse and BCAS paramedic stood with her, supporting her on either side as she received the Olympic bouquet and the bronze medal was placed around her neck. Then she got back onto the stretcher and into the ambulance. When Petra arrived back at the MMU wearing her medal, she gave her bouquet to the critical care nurse, and everyone was in tears.

After the 2010 Olympic and Paralympic Winter Games were over, ownership of the MMU was transferred to the province and in 2011 the MMU became part of PHSA. Over the subsequent months, Leanne

Olympic Legacies

developed an Operations Plan, PHSA, and the regional health authorities agreed to cost-share its operations, and the MMU was put into service. It has been used throughout the province ever since.

Figure 3: Leanne Appleton, Ross Brown and Laura St. Pierre with the Olympic bouquet Petra Majdic presented to the MMU team.



As Peter Hennecke, current Clinical Operations Director of the MMU explained, “Having such an asset unique to BC has added capacity and contingency options for emergency management and the BC healthcare system. With over 60 missions to date, including wildfires, the opioid crisis, and Covid-19 pandemic, the BC Mobile Medical Unit and personnel continues to support BC.”

And Provincial Health Officer Dr. Bonnie Henry recently described the MMU team and equipment as “... kind of an amazing thing and it's a great asset that we have here in the province.”

Dr. Ross Brown, Whistler Polyclinic Manager during the Games and the person who compiled the list of 10 damage control surgeries that the MMU would be capable of during the Olympics, said that the MMU has “become a touchstone for how the province uses and considers its disaster response resources and education.”

In the end, the MMU's acquisition and success wasn't due to any one person. Many people, from the BC Ministry of Health, Health Emergency Management BC, the health authorities, and many, many others, had seen the MMU in action and could see its potential. All of these folks had a hand in keeping the MMU in the province of BC. However, without Jack and his team, the MMU wouldn't be one of BC's Olympic legacies.

Not only has the MMU been a worthwhile legacy for the province, it's been extra special because so many of the VANOC Medical staff that helped to design and operationalize the MMU for the Olympics - in particular Ross Brown, Leanne Appleton, Landon James, and David Thanh - are still involved with it today. And that highlights a 'double legacy' of sorts, something that those of us lucky enough to have worked with Jack over the years have had a chance to experience first-hand: the legacy of Jack's unique collaborative

Figure 4: Dr. Jack Taunton and the MMU at the Whistler Athlete's Village.



nature. It is not only what Jack does, but how he goes about doing it - Jack's collaborative approach enables the success of his endeavours while also building people up to carry on doing great things.

Provincial Health Services Authority
(2020). Mobile Medical Unit.
Retrieved from www.bcmmu.ca

Acknowledgements

I would like to thank the following people for their significant contributions to this article: Dr. Mike Wilkinson, Dr. Ross Brown, Leanne Appleton, John Lavery, Peter Hennecke, and Brenda Sawatzky-Girling.

Author's Qualifications

The author's qualifications are as follows: Robert Stewart MBA, PMP.

References

- Brown, D.R., Heidary, B., Bell, N., Appleton, L., Simons, R. K., Evans, D.C., ... Quinn, L. (2013). Creating a gold medal Olympic and Paralympics health care team: a satisfaction survey of the mobile medical unit/polyclinic team training for the Vancouver 2010 winter games. *BMC Research Notes*, 6(1). doi:10.1186/1756-0500-6-462
- Vu, M. P., Hennecke, P., Veenstra, J., Betts, K., Gardner, R., & Flesher, M. (2015). The Mobile Medical Unit: A unique program in British Columbia. *British Columbia Medical Journal*, 57(9), 382-386.
- Beamish M. (2010, February 18). Slovenia's Petra Majdic's determination, grit wins her Olympic cross-country bronze. The *Vancouver Sun*. Retrieved from <http://www.vancouversun.com/sports/Olympic+cross+country+Slovenia+Petra+Majdic+determination+grit+wins+bronze/2583221/story.html>