

**Title:** Embedded Health Sensors in the Future Solider - Monitoring from the Moment of Injury (Submission ID 62)

Congress Theme: PTSD – Resilience – PFA and Moral Injury

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Institution: 12 (Vancouver) Field Ambulance, Canadian Armed Forces

### **Summary**

Embedded health sensors in clothing have seen greater use in high performance athletes and astronauts over the past decade. There has been research in the use of these embedded sensors for remote monitoring during training and in combat environments with different military organizations around the world. Within the current pandemic there is a possible use for this technology not only in remotely monitoring acutely ill patients but also in those that are in intense training environments, such as firefighters or infantry. The ability to obtain high fidelity and precise real-time and continuous monitoring of vital signs opens the possibility to not only optimize the warfighter for the battlefield but then to also provide advice and care to them - even at a distance. The ability to not only project care, but to prepare for care to be delivered when an injured patient is en-route to a higher level of care provides a unique opportunity to improve outcomes. A Hexoskin smart garment which included textile sensors embedded into the fabric for continuous cardiac, respiratory, and activity monitoring was worn by a member of 12 Field Ambulance during Ex TRAINED MEDIC, the final weekend exercise of the 2020-21 training year. Continuous data collection for 30 hours was done. During the final mass casualty exercise the device bluetooth connectivity was tested on cell phones while in the field for real time point-of-care monitoring. Data was then downloaded and analyzed using the computer based Hexoskin Connected Health Platform. Preliminary results illustrate that the data quality and collection was robust enough for a 30 hour period in austere field conditions. Analysis will include examination of patient response to stressful mock scenarios including ambush, attack, and mass casualty scenarios. This was the first research trial of Hexoskin embedded health sensors in a Canadian Reserve Field Ambulance environment. We were able to illustrate that the quality of the data was robust and was able to be collected in a real field environment. Further research is required to assess the utility of real-time clinical vital signs monitoring in providing care under fire, prolonged field care, and during transport and infectious disease monitoring situations. This research project was approved by the Surgeon General's Health Research Program.

**Title:** 12 golden rules of parenting: Leadership lessons from the home front, for the front lines (Submission ID 60)

Congress Theme: PTSD – Resilience – PFA and Moral Injury

Author: Maj. Paul Dhillon (CAN)

Co-Authors: Surgeon Commander Matthias Zaccarin (DEN), Maj. Vishnu Vijaykumar (UK)

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### **Summary**

Utilizing their conjoint experience across 3 nations and 5 children the authors examine and critically appraise parenting lessons learned through fatherhood and medicine and how they directly address many historical and modern challenges on the battlefield. This presentation will allow you to take challenges in parenting and utilize them to recall and use military leadership principles to make you a more effective, resilient, and adaptable military leader.