TUCK-a-more:

a Newfoundland term for tangled stands of spruce and balsam fir. “Most of the growth occurs on the lee sides, the windward branches having been nipped by the wind, salt air, and cold. Tuckamore forests are tight places, very difficult to penetrate.” One tree cannot survive alone, but together the stand is indestructible. (Charles Frazier)

The Innovation

The Tuckamore Simulation Research Collaborative (TSRC) uses the same principles as spruce and balsam trees, to thrive together as a tuckamore in our harsh meteorological climate. Born in the discipline of Emergency Medicine (EM), the Collaborative was developed to support research activities united by the use of simulation as an educational tool within Memorial University, across many disciplines, faculties and geographical locations. This includes Faculty of Medicine, Schools of Human Kinetics and Recreation, Nursing and Pharmacy, Centre for Cold Ocean Research in Engineering (C-CORE) and the Marine Institute.

We value community, collegiality, mutual support and respect, and sharing goals for success. By providing individuals or programs interested in simulation research a community with common interests, and nurturing naturally occurring synergies, we hope to achieve growth and excellence in research and practice. Celebrating the unique perspective of PhD/MD collaboration in health professions education scholarship, we work in “Pasteur’s Quadrant”,

where research and its practical application intersect, with the expectation that the knowledge thus acquired will eventually help society.

As it relates to Memorial's division of EM, the TSRC provides a strong collaborative support system for innovation. Our EM ultrasound researchers are currently studying best practices for introducing ultrasound in undergraduate, post-graduate and CME settings. Our biomedical engineers are researching distance technologies for ultrasound image production and interpretation, with practical application in our distributed learning environment, including Labrador, Nunavut, Haiti and the Newfoundland offshore. Our pediatric colleagues are examining the utility of video simulation debriefing. Communication strategies between rural and urban physicians are under analysis, as is cognitive load, for which EM is arguably the poster-child.

The work of TSRC occurs in our new Human Experiential Learning, Performance and Safety (HELPS) lab, where students from many disciplines work side-by-side in a space uniquely designed to facilitate interdisciplinary collaboration. This environment stimulates and facilitates the flow of ideas among kinesiologists, human factor engineers, nurses and physicians.

Leadership

The TSRC has adopted a meta-leadership style. This is an overarching framework for strategically linking the efforts of different units to "provide guidance, direction, and momentum across organizational lines that develop into a shared course of action and commonality of purpose among people that are doing what may appear to be very different work." (Marcus *et al.*, 2006).

One year in, our success stories include seven ongoing projects, six peer-reviewed publications, many presentations at local, national and international conferences, and several research awards.

One of the key activities designed to build capacity amongst our partners is research skills workshops. In our inaugural year we held bi-monthly workshops, followed by continued mentorship over a year-long project for each participant. February 2015 marks the end of the first iteration of these workshops. In addition to the typical teaching evaluations we have conducted a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis with workshop participants (see Table 1).

Reflections

Appendix 1 provides a summary of the SWOT analysis. In general, the format proved challenging for our clinical participants' erratic schedules. One participant commented "Gaps between workshops allows for informational decay over time". Additionally, a major perceived program threat was overreliance on the lecturer, as evidenced by this comment "If the leader becomes overcommitted or is unavailable".

In response to the SWOT, we will offer a three days “bootcamp” instead of a distributed format. This will be followed by milestone-based curriculum, which will be supported by a number of existing and new faculty, some of whom will be drawn from the current workshop participants. An initial face-to-face immersion will be the foundation supporting our work, which will be completed using distance technologies. This fellowship will soon be offered to physicians and partners, as well as to residents and trainees in a condensed version. Details can be found at: http://www.med.mun.ca/TSRC/WhatWeDo/Workshops.aspx

We hope that this modified format will let us build internal capacity, and in turn will facilitate growth in all other dimensions of the Tuckamore Collaborative.

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Appendix

Strengths	Weaknesses	Opportunities	Threats
Skill development geared towards attending audience	Potential for informational overload	Format can easily be adapted to new and differing audience	Time intensive
Collaborative environment	Gaps between workshops allows for informational decay over time	Contacts and networking with other disciplines and professionals	Lack of motivation from participants
Engaging and Informative	Inaccessibility to lectures/instructional curriculum	Potential to engage other simulation lab users	Negative or non-collaborative participants
Multidisciplinary approach	Teleconferencing/ Telemedicine barrier (only audio instead of audio/visual)	Enhanced Teleconferencing/ Telemedicine may lead to more engagement and collaboration	Further Technological barriers
Combination of detailed lecturing and practical application	The schedule is rigid – obstacle if unavailable to attend workshop date	Participants emboldened to proceed with other ideas	If there is not enough autonomous action from participant/too much dependence on the leader
Minimal or no previous knowledge required to attend	Approach may be too broad – possibly beneficial to start with St. John's and branch out	Mobile simulation unit for outreach and training	Lack of interest from participants
Small group size	Group size dwindled with time and was too small for the interactive/collaborative environment	Further engagement of engineering to test and use technologies	Lack of time available for participants
Expert leadership – great speaker and educator with good knowledge translation skills	Group easily veering off course or drifting from topic while in discussion	Further streamlined in order to keep participants on track	If the leader becomes overcommitted or is unavailable
Allows participant to view research/research associated tasks as less daunting	Lack of connection with formal simulation lab	Closer alignment of research and clinical practice	Research topic generation can still be difficult – may be a deterrent

Table 1. Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of Tuckamore Simulation Research Collaborative Workshops.