Trauma Team Training: Evaluation of a TTT Update course in Georgetown, Guyana

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PURPOSE:
The Trauma Team Training (TTT) Update course was piloted in Georgetown, Guyana in November 2011. The purpose of this study is to evaluate the course and several course components for the purpose of creating an official Canadian Network for International Surgery (CNIS) course. The three major evaluative components consist of:

- **Participant Perception & Knowledge Acquisition**
  - Overall evaluation using pre- and post-interviews and multiple choice tests
- **APED Learning Approach**
  - Evaluate the Assist, Perform, Evaluate, Discuss format used for teaching skills
- **Teamwork Assessment Tool**
  - Assess reliability of two tools: the new TEAM tool and previously used TTAT

BACKGROUND:
Increasing attention in the developing world is being placed on trauma case management. The role of trauma education is thus vital in training adequately prepared trauma case personnel. Currently, the international trauma education gold standard is the Advanced Trauma Life Support (ATLS) course. However, the focus of the ATLS course is not directed at the specific trauma patterns, resources and health systems that are unique to low income countries. In response to this gap in trauma education, CNIS developed the TTT course, specifically for trauma education in low- and middle income settings.

TTT Course At A Glance
- 1 day TTT Update course conducted at Project Dawn in Georgetown, Guyana
- 22 participants from urban and rural Guyanese centres
- Interdisciplinary course and participants included: orthopedic technicians, nurses, General Medical Officers (GMO), etc.
- Course content covered skills stations and trauma team simulations

METHODS:
The overall study design was based on a mixed methods approach, drawing on both qualitative and quantitative methodologies, dependent on the evaluative variable.

**Perception & Acquisition**
Overall course evaluation aimed to assess two major areas: participant perception and knowledge acquisition.

Perception: Local participants in Georgetown were selected for pre- and post-course descriptive qualitative interviews and an informal group exit interview was conducted. Interviews were recorded and coded manually.

Knowledge Acquisition: All 22 participants completed a pre- and post-MCQ test to assess the impact of the course on immediate knowledge translation. Paired student t-tests were run in order to interpret the data.

RESULTS:

<table>
<thead>
<tr>
<th>Quantitative Results: TEAM Tool &amp; Knowledge Acquisition</th>
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<tbody>
<tr>
<td>Team Tool Expert</td>
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<tr>
<td>Team Tool Non-Expert</td>
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<td>TTAT Expert</td>
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<td>TTAT Non-Expert</td>
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<td>Profession vs. Average Pre- and Post-Test Scores</td>
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<td>Non-GMO</td>
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**TTT Course participants were divided into four groups and rotated through 2 skills stations: chest tube insertion and intubation. Both skills were taught in a non-structured and structured format (APED). All participants experienced one skill in a non-structured format and one skill in an APED format. Local participants were then questioned during their post-course descriptive qualitative interviews regarding the learning format. Interviews were recorded and coded manually.**

**TEAM Tool**
Four mock trauma resuscitations were filmed during the update course. Scenarios were reviewed and assessed by an expert (N=12) and non-expert (N=10) panel. The TEAM tool and the Trauma Team Assessment Tool (TTAT) were both used to assess team performance. Expert panel inclusion criteria included ATLS training and 2 years of trauma exposure. Inter-rater reliability was determined using Intra-class correlation coefficient (ICC) calculations for each tool.

DISCUSSION:
From the perspective of the learner, there is a significant need for a TTT update course that allows TTT graduates to refresh their skills at regular intervals. Although data suggests that nurses benefit most in knowledge acquisition, the impact of the course on skill retention/ performance is unknown. Majority of participants also prefer teaching methods that reinforce key concepts through various perspectives and practice. Ultimately, the development of an official update course and manual is highly recommended and should ensure an optimal learning environment. The course may wish to draw on APED methodology and the TEAM tool to do so.

LIMITATIONS/FUTURE DIRECTIONS
- MCQ test had only face and content validity
- Due to travel constraints, only participants that lived close to GPSC were interviewed
- The impact of the course and more specifically APED learning and the use of the TEAM tool on skill performance must be evaluated

**What’s that?**
APED Learning Approach: An assist, perform, evaluate, discuss format, that allows participants to rotate through various roles in an attempt to teach chest tube insertion and intubation from various perspectives.

Teamwork Emergency Assessment Measure (TEAM): An assessment tool developed by Cooper et al, 2010 that comprehensively measures team performance during resuscitation scenarios. The TEAM tool was used by evaluators in the TTT Update course to provide feedback to participants.

“IT is more accepted because you are allowed to interchange. You realize that your role changes 5 times on that paper...it reinforces learning...”
- Participant, GMO

“IAm more confident. The more experience you get doing these things, the more confident you feel...and the refresher really enhances your skills...I really think it might be a very good idea to have it yearly because it keeps you on your toes.”
- Participant, GMO