

# Trauma team training under safe pressure

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## Background

### Trauma Needs

In NZ, trauma is a leading cause of death and disability<sup>1</sup>. Christchurch Hospital and the ED are a centre for Trauma Management. Recent data indicates that the Canterbury and South Canterbury areas have the highest incidence of major trauma in NZ<sup>2</sup>. The establishment of the Trauma Registry and data collection allows more accurate identification of trauma rates. In 2017 Christchurch ED saw 33,000 trauma presentations, around one third being admitted. 389 were classified as 'Major Trauma', 7-8 cases per week, providing staff with limited exposure to major trauma patients.

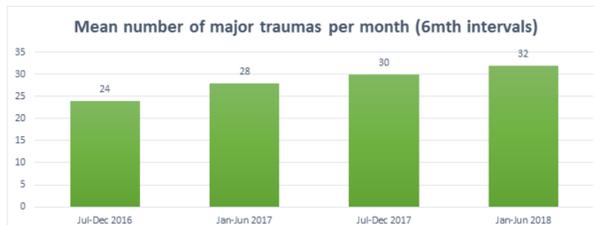


Figure 1: Mean number of Major Trauma Cases, Christchurch ED

### Massive Transfusion Policy [MTP]

In 2016 the CDHB introduced the MTP to enable staff to respond effectively to patients who needed large volumes of blood administered.

- To provide a system of rapidly delivering blood components to the patient when the MTP has been activated.
- The MTP is initiated for massive bleeding AND shock or coagulopathy.
- The MTP can be initiated by any doctor.
- It is a complex set of concurrent processes, requiring effective leadership within a functioning multidisciplinary team<sup>3</sup>.

To ensure an effective, confident and competent team approach in ED there was a need to provide opportunities for staff to work with this new service approach. Implementing the MTP is essential so that the patient gets the correct blood products at the correct time.<sup>3</sup>

Data from the Christchurch Hospital Trauma Registry has been collected since June 2016, coincided closely with the introduction of the MTP. In Christchurch Hospital in 2017 the MTP was initiated 17 times – 1-2 times per month. Staff have limited exposure to managing these complex and stressful clinical situations.

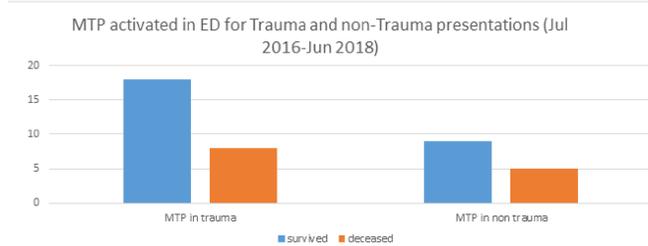


Figure 2: Number of MTP activations

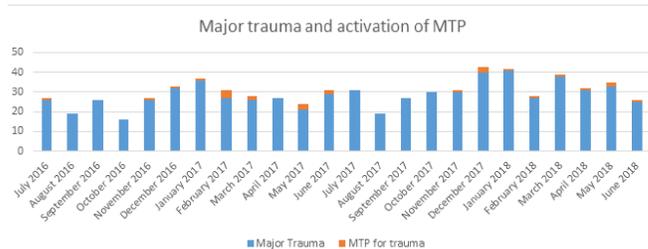


Figure 3: Numbers of major trauma and activation of MTP protocol

## Needs Assessment

Patients with major trauma require a well-trained and well-organised team of health professionals. Team training impacts positively on patient care and outcomes, improves collaboration, communication, understanding and respect for all personnel and their roles<sup>4</sup>.

Within the ED, multiple triggers for incorporating MTP and trauma into the simulation scenarios included:

- Recognition of the increase in trauma, and the emotional content associated with these situations
- The number of staff in the ED and level of exposure of individuals to such situations
- Introduction of the new protocol (MTP) and need to embed this in practice
- Response to several complex and challenging clinical trauma situations.

**Overall:** Need to support staff, improve practice and ensure quality care environment.

## Planning

ED Interprofessional Trauma Team training is scheduled on a regular basis, for 3 hours, 7-8 times per year in the Clinical skills area. The year programme includes various trauma scenarios and is planned in advance.

- Core group established: evidence based clinical and educational practice
- Simulation and clinical experts (medical, nursing, blood transfusion)
- Staff orientated to simulation, creation of a safe learning environment.
- Debrief related to key learning objectives: reflection, sharing of knowledge, problem solving.
- Opportunity for feedback: identify potential changes to policies, processes, clinical practice, training.

## Implementation of the Plan

The scenario replicated clinical practice, using simulation technology (manikin and monitoring). To enhance realism, the army provided a simulated amputated limb which pumped blood using a remote device. Simulated IV lines were used to accommodate large amounts of blood to be transfused via the Rapid Infuser (Fast Flow Fluid Warmer device), or pressure bags in conjunction with another fluid warmer (Hotline). An artificial 'Blood Bank' was set up by Blood Transfusion staff to provide simulated blood products. The scenario enabled staff to practice teamwork skills, use the Rapid Infuser, troubleshoot and identify areas for further education, training and upskilling.

- This scenario has been run 12 times (6 different days)
- The programme provides opportunities to learn about trauma and team work
- The process is inclusive and allows staff to practice roles
- Active participants and observers are included in the learning process
- Simulation team have pre-set roles: preparation, implementation, debriefing, evaluation

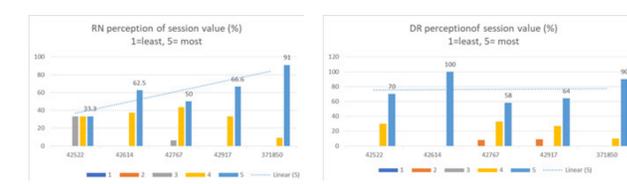


## Results and Findings

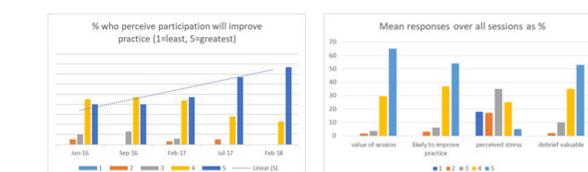
110 Medical and nursing staff returned evaluations. Each day the scenario ran twice, 1hr20mins included pre brief, scenario and debrief with a different team each time. 3-4 nurses and 3-4 doctors participated in each scenario. Observers also completed evaluation forms (incomplete data for 1 day not included).



Participants were asked to rate the value of the sessions, whether they perceived participating in the scenario would improve their clinical practice.

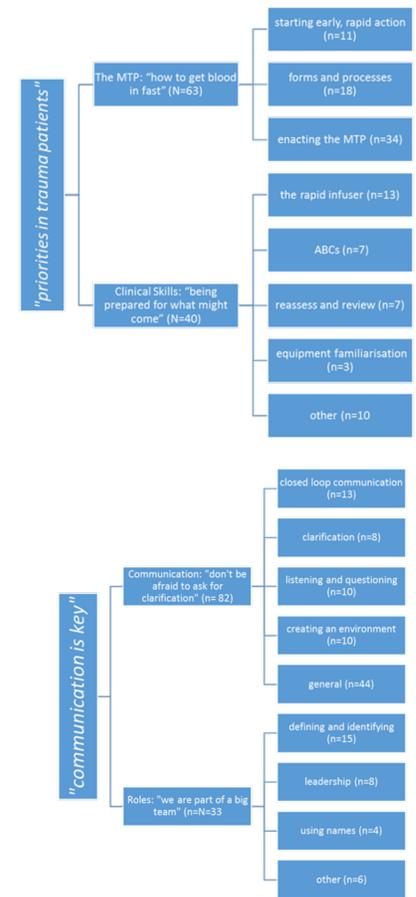


Overall this training was perceived as valuable or very valuable. For the nurses over time the perceived value increased. While medical staff indicated a consistent level of high value.



It was perceived these sessions would improve clinical practice. Participants indicated a range of stress levels similar to what may be seen in clinical practice. This may reflect engagement in the scenario as participants reflected that it felt 'very realistic'. Other factors identified included the value of the debrief- this is where reflection occurs and knowledge and behaviours can be reinforced or changed to improve practice.

Participants were asked to make comments on the most important things learnt. The comments are presented as a Thematic Analysis below:



Two major themes emerged. These were 'priorities in trauma patients' which related to clinical skills acquisition and the MTP; and 'Communication is key' which included teamwork and communication skills.

## Embedding and Sustaining

Responding to needs assessment:

### Policy

- MTP Algorithm was clarified. The document was reviewed and edited (consultation with ED and Blood Transfusion Service).
- The algorithm for the unidentified patient requiring the MTP was reviewed and edited (consultation with ED and Blood Transfusion Service).

### Processes

- Offer increasing opportunities to expand the inter-professional element
- Recognising the contributions and expertise of others to strengthen the programme
- Continued support from ED nursing and medical management

### Clinical practice

- Increased opportunities for staff to practice clinical skills related to Rapid infuser
- Increased opportunities to problem solving alternative ways to administration of blood products rapidly
- Agreement to set up the Rapid Infuser prior to Ambulance arrival with pre-set criteria
- Introduction of extra nursing resource for managing the MTP

### Training

- Continued trauma simulation training of new and existing nursing and medical staff [140 nurses and 60 medical staff]
- Future proofing – importance of showing relevance, engaging staff and ongoing development for education team
- Continuing to develop realistic scenarios

## Acknowledgments

Photos – Canterbury Health Precinct. Trauma and MTP Data- Melissa Evans & Wendy Davie, Trauma Nurse Coordinators, Christchurch Hospital. Jo Lily and Sandra Jacobs, Blood Transfusion Service. Christine Beasley & Alysha Chua, Clinical skills. Michael Sheedy and Lawrence Quek, Biomedical Engineering staff. ED nursing and medical staff. Anne Esson, ED Nurse Manager and David Richards, Clinical Director for support of programme.

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