Disaster Simulation
Table Top Model to Large Scale Drill

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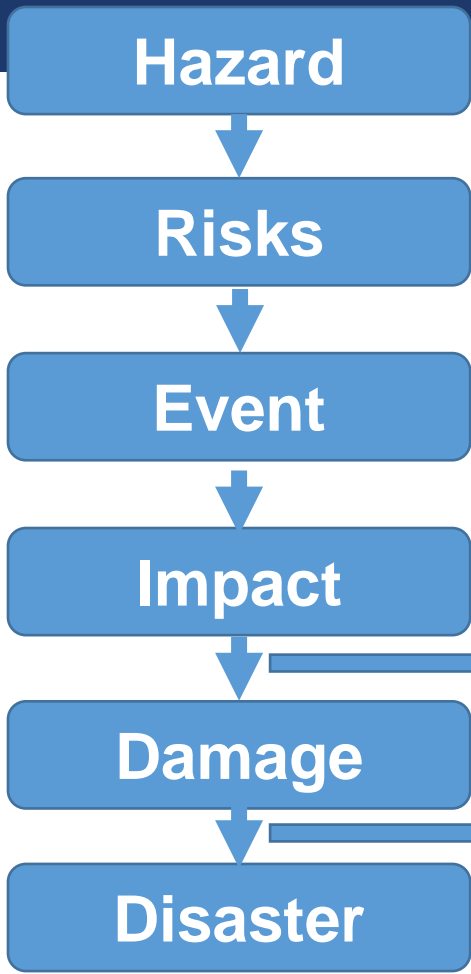
Ministry of Public Safety and Security

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Disclosures

None

Hazard → Risks → Event → Impact → Damage → Disaster

Prevention

Mitigate

Preparedness

Disaster Management

Resilience
Absorbing capcity
Buffering capacity

Response

Acute medical response
Prehospital
Hospital

Recovery development

by Hendro Wartatmo

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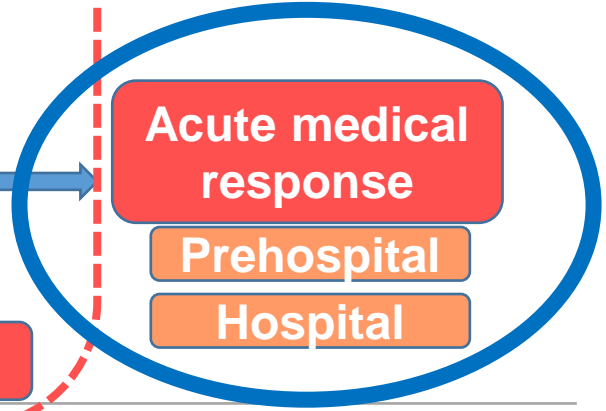
Disaster

… impacts the hospital and the community

Healthcare providers

… are not prepared enough

Existing education

… problems

Disaster simulation

… is effective

Disaster Simulation… needs

- To be linear

- To be interactive

- To be able to assess performances

Disaster Simulation

Patient Safety Community Safety

Competency Credential

Reflective Learning

Feedback Debriefing

Experiential Learning

Repetition Excellence

Hospital Disaster Preparedness

Triage

Incident command

Procedures (life-saving)

Surge capacity

Special hazards

Table Top Simulation

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Table Top Simulation

- Simultaneously train multidisciplinary personnel
- Train the whole response stages in disaster
- Control training operation
- Suitable for dynamic situations
- Relatively cheaper than other modules

Table top simulation… key factors

- Keep it simple and straightforward

- Don't make it too big a scenario and too complicated

- Determine the scope

Table top simulation… key factors

- Suggest no more than 10 participants in the exercise

- Never have an exercise before making sure that people are trained

- Needs to be about team building and relationship building

"Hospital Disaster Preparedness for Community Safety"

Understand importance of hospital disaster preparedness, and set up incident command system in order to protect and enhance disaster response in the community

"Hospital Disaster Preparedness for Community Safety"

20 participants

Course Contents

Introductory Lecture (Triage, Surge Capacity, Incident Command)

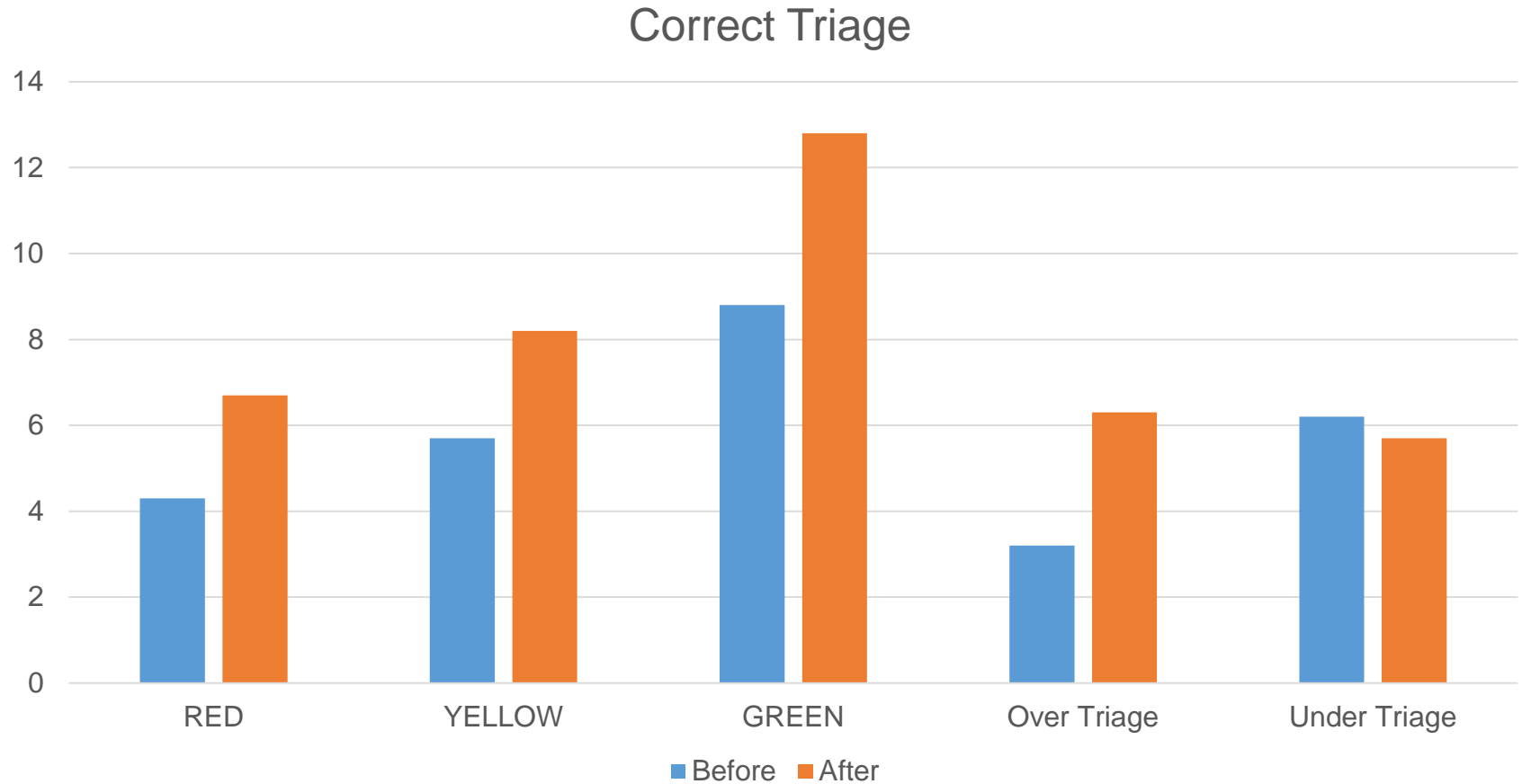Pre-assessment (baseline) using table-top

Debriefing

Post-assessment using table top

Performance Assessment

- Technical Skills
    - Correct Triage
    - Correct Treatment

- Non-Technical Skills
    - Team Structure
    - Communication
    - Leadership
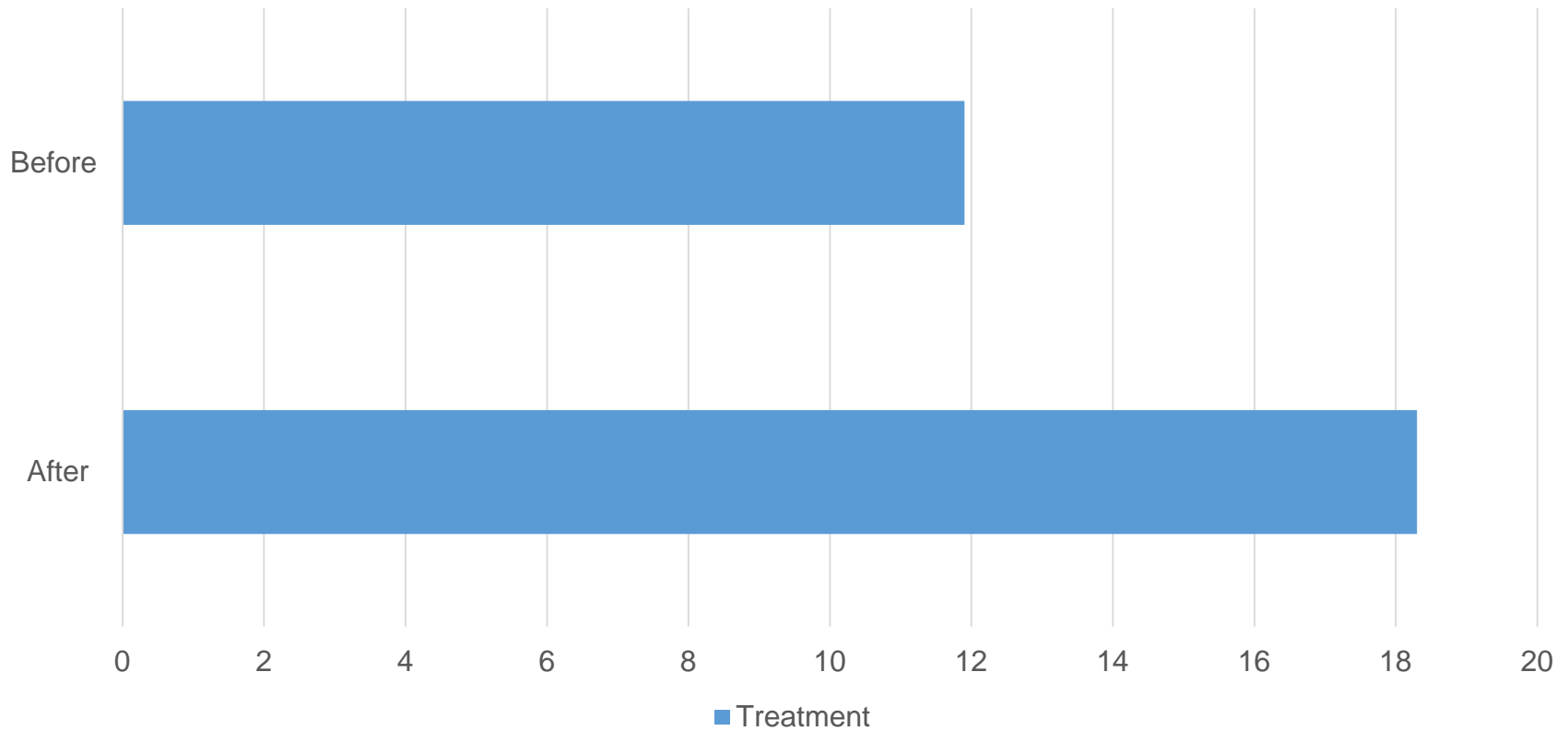   - Situation Monitoring
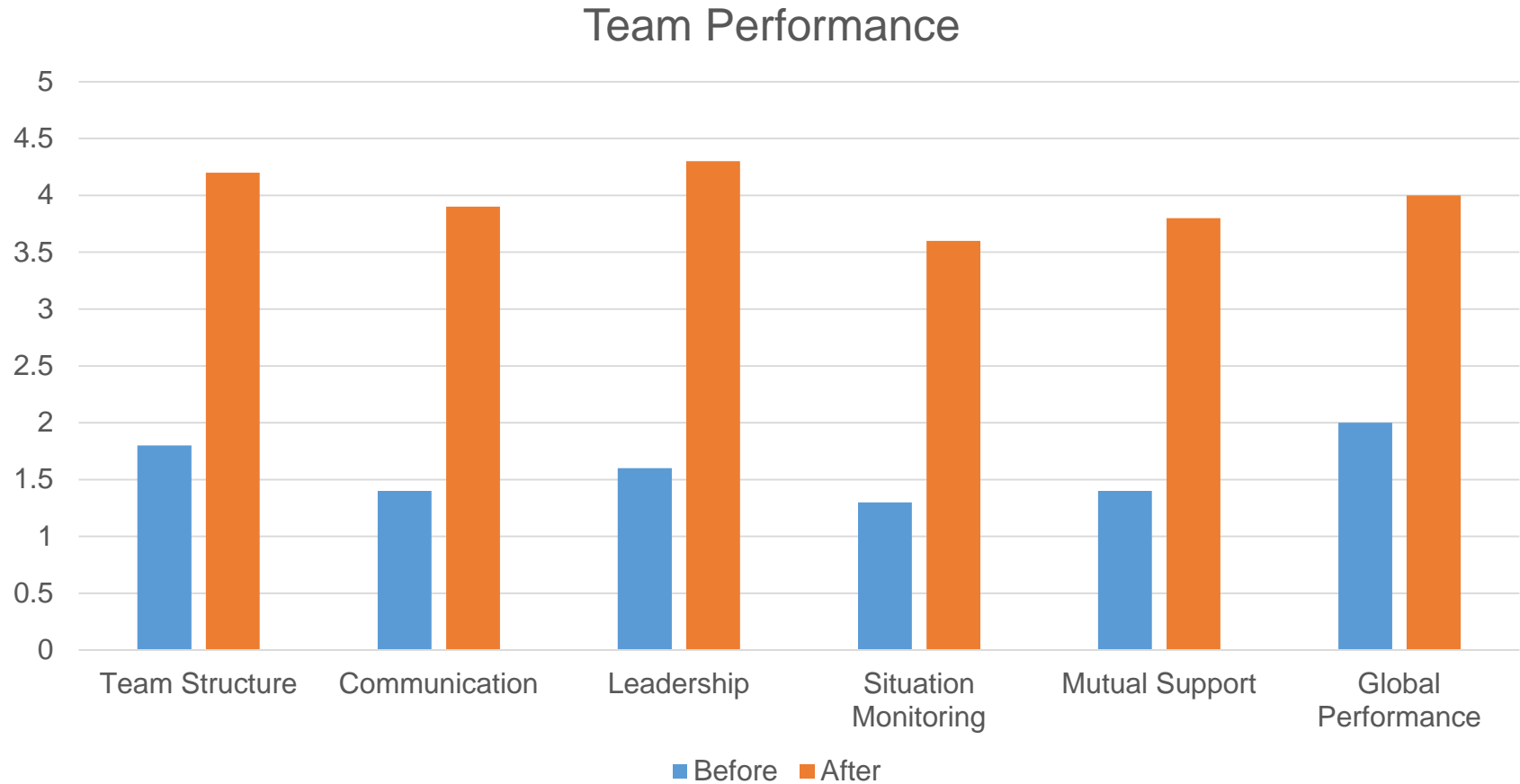   - Mutual Support

Results - Triage

Correct Triage

Before · After

Results - Treatment

Appropriate Treatment

Results – Team Performance

Team Performance

Virtual Simulation

Hospital Disaster Preparedness

Triage

Incident command

Procedures (life-saving)

Surge capacity

Special hazards

TIPSS!

Virtual Simulation

- Able to train students various, rare, and repetitive scenarios without the risk of exposure to vulnerable places

- Time saving and cost effective

- Sustainability – able to creating complex and repeatable events of any scale

Mannequin Simulation

Hospital Disaster Preparedness

Triage

Incident command

Procedures (life-saving)

Surge capacity

Special hazards

Mannequin Simulation

- Fidelity of the setting is able to stress the participants to think of the situation as real

- Actual actors have the perfect fidelity of the physiologic responses but impossible to perform any emergency procedures

DIsaster medical Skills COmpetency (DISCO) Training Course

Didactic lecture

- Blast injury
- Crush injury

Skill station

- Airway management
- Contaminated wound management
- Extremity injuries stabilization
- Ulatrasound

Simulation

- Decontamination
- Blast injury
- Crush injury

Scenario Development

For better immersion

- Dimmed Light
- Smoke – fog generator
- Noisy sound and siren
- Building debris
- Wall screen with a photo of building collapse scene
- Multiple simulators
- Moulage for wound
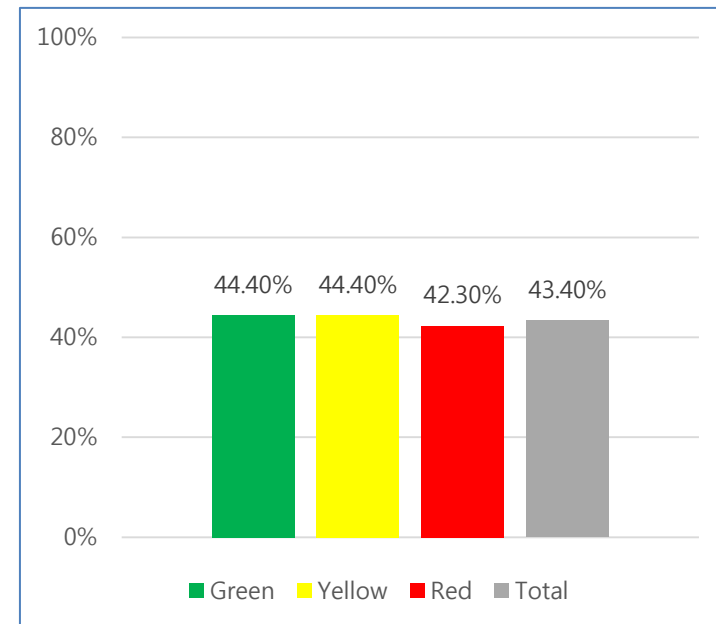- Limited equipment (DMAT bag)

Face and Content Validation

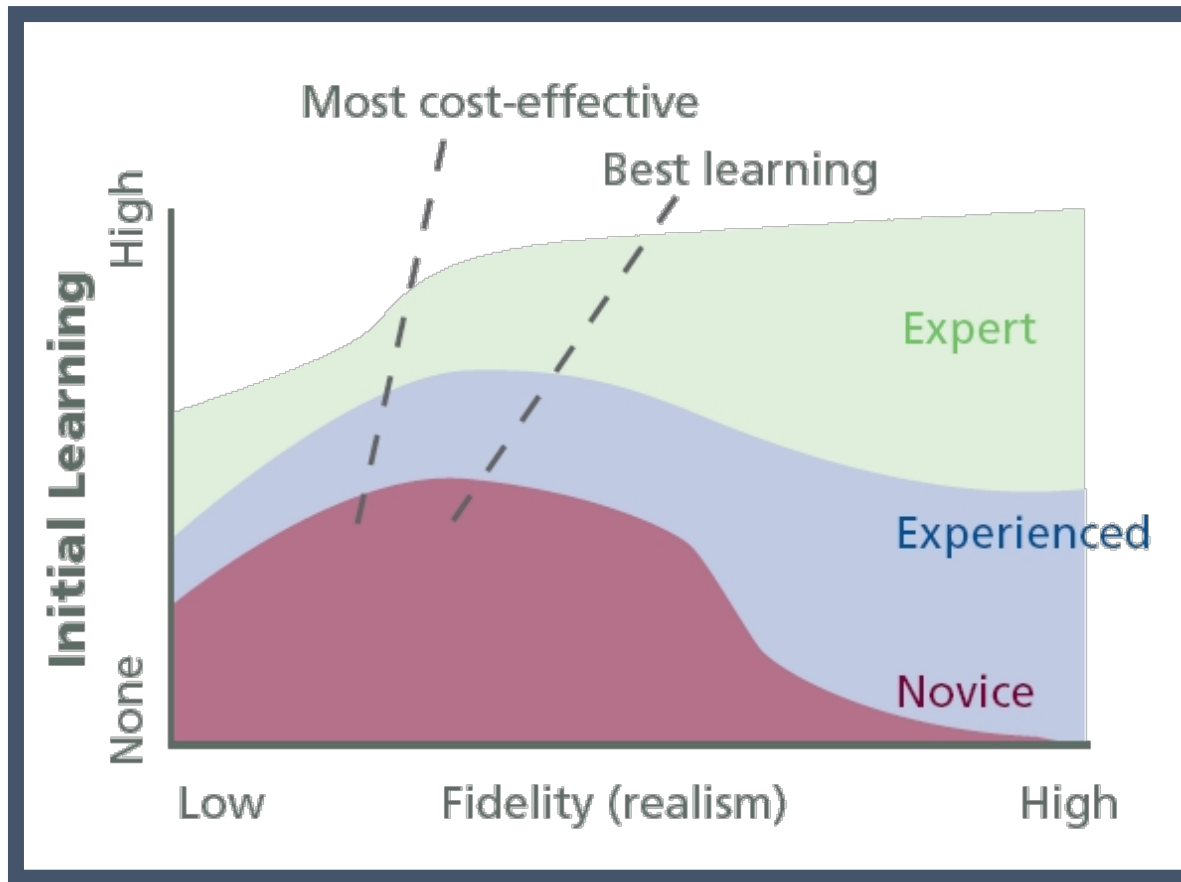| Face & Content Validity Questionnaire	Out of 10
I was fully immersed in the simulation	9.3
I behaved in the same way that I do in the real world	8.7
The scenario allows me to adequately demonstrate my technical skills	9.0
The scenario allows me to adequately demonstrate my clinical knowledge	9.1
The scenario allows me to adequately demonstrate my decision-making	9.2
The scenario allows me to adequately demonstrate my teamwork skills	9.3
The scenario allows me to adequately demonstrate situation awareness	9.3

Performance Assessment

- Technical Skills
  - Total triage time for 42 SP: 15 minutes
  - Correctness of triage
    - 92.9%
    - Under triage: 1 SP (Red -> Yellow)
    - Over triage: 2 SP (Yellow -> Red)

Performance of treatments

100%			
80%			
60%			
44.40%	44.40%	42.30%	43.40%
40%			
20%			
0%			

Green Yellow Red Total

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Prior learning and experience *vs.* Fidelity

Alessi S. Design of Instructional Simulations. *J Computer-based Instruction*. **1988. 40-7.**

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Obstacles to Overcome

Too many obstacles!

Technical support

Rigorous Scenario Development

Training

Environment Set-Up

Continuum of Exercises

- More Experience
- Greater Complexity
- More Preparation Time
- Increased Cost

Table top

Large scale

Center for Disaster Relief, Training, and Research

전문성을 갖춘 의료인력을 중심으로 대한민국 재난의료의 허브 역할을 수행

재난의료 전문인력 양성, 재난대응팀 파견, 유관기관과의 협력 네트워크 구축

과학적 연구와 교육을 통한 재난전문가 양성에 기여

교육과정 등록

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