Sensors-based behavioral analytics for simulation-based interprofessional team training (SITT)

D. Glowinski, PhD
04.28.2021

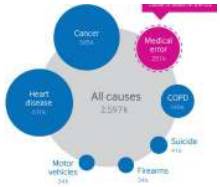
donald.glowinski@unige.ch

Director, Program "Emotional skills for Professionals" (link)
Swiss Center for Affective Sciences (SCAS/CISA) - Campus Biotech
University of Geneva

Objective

Discuss about the potential of behavioral analytics as a support for debriefing in simulation-based interprofessional team training (SITT)

Patient Safety



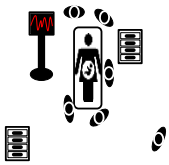
Medical error & Human Factors
> Team Coordination

Makary et al. 2016
Rosen et al. 2018

Patient Safety

Human Factors
> Team Coordination
> Behavioral Analytics

Patient Safety



Human Factors
> Team Coordination
> Behavioral Analytics
Set of individual and group behavioral features accounting for team coordination & performance

Analisi automatica della prestazione del gruppo in simulazione

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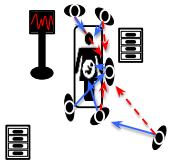

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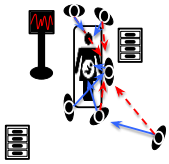

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Caution :
no reductionism > context matters!

An unmet need for healthcare training?

Standard method for training : debriefing based on videos

Successful? Savoldelli et al. 2007

Sensors-based method?

Focus on high-level simulated mannequin.

Sensors-based method?

A few technological systems have been proposed to improve safety management using behavioral indicators : rfid, eye-tracking, etc.

Gupta et al. 2017
Henneman et al. 2017

Our sensor-based approach

Develop a **Crisis Resource Management (CRM)-** based indicators of team performance immediately, enhancing real time data analysis and behavior-based feedback.

Glowinski et al. 2016

Our sensor-based approach

Develop a **Crisis Resource Management (CRM)-** based indicators of team performance immediately, enhancing real time data analysis and behavior-based feedback.

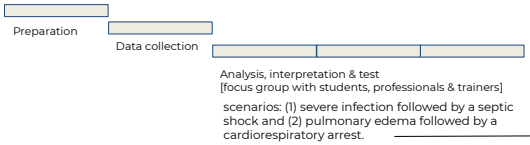
TeamSTEPPS 2.0

Our sensor-based approach

FNS Spark project (12m)

Assessing:
> Acceptability
> Feasibility
> Relevance

Timeline (12m)



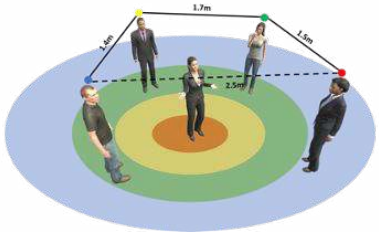
Assessment

Assessing:
> Acceptability : Experience UX tests (UEQ) & AIM Schrepp et al. 2016
> Feasibility : Seamless integration & reliability Carayon et al. 2010
> Relevance : Group and post-hoc questionnaires Bracco et al. 2018

1. Big Five - Short
2. CRM Observational tool
3. TeamSTEPPS 2.0 Team Performance Observation Tool
4. Interaction Observation Tool (version française)

Feasibility

- Setup

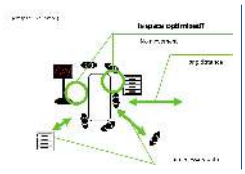


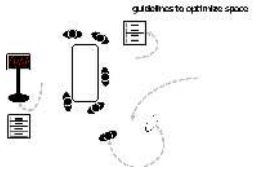
Feasibility

- Visualisation (demo)

TeamTracker for Healthcare ©

Behavioral analytics : features



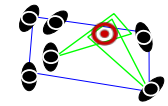


Individual features (selection)

space occupation

Conclusion : foreseen achievements?

Providing caregivers and trainers with a new analytic support, using behavioral insights to train teams in patient safety.



Reducing by 90% the amount of time required for video manual annotation

Identifying critical moments in the interaction

Mitigating human factors-based errors

Fast improvement of safety-based behaviors

Next?

Seamless integration in Simulation training and real-life settings

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