Enhancing collaboration and education for MCI response: the experience of the Regional Public Company in Lombardy (AREU, Italy)
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Background:
Lombardy is a northern region in Italy and AREU is the pre-hospital emergency public company, born on 2009, that coordinates the EMS response for MCI events and for the disaster response.

The region is one of the most populated in Italy, and the risk analysis showed an high risk related to natural risks, human factor risks, technological and chemical risks.

In the last 9 years, AREU was often involved inside the national disaster response 'cause of the recent earthquakes in Italy (L'Aquila 2009, Carpi 2012, Amatrice and Norcia 2016, Rigopiano 2017); by the way, on 2015 AREU coordinated the emergency plan for EXPO in Milan, and many times was involved in MCI management for railways events, chemical accidents and support to mass gathering events.

- Milan (capital)
- 12 provinces
- 9.642.406 inhabitants

- NUE 112 (emergency number)
- 4 Dispatch Centers
- 281 Ambulance Teams
- 34 Ambulance Teams with nurses
- 63 Fast cars with emergency physician
- 5 HEMS Civilian Helycopters
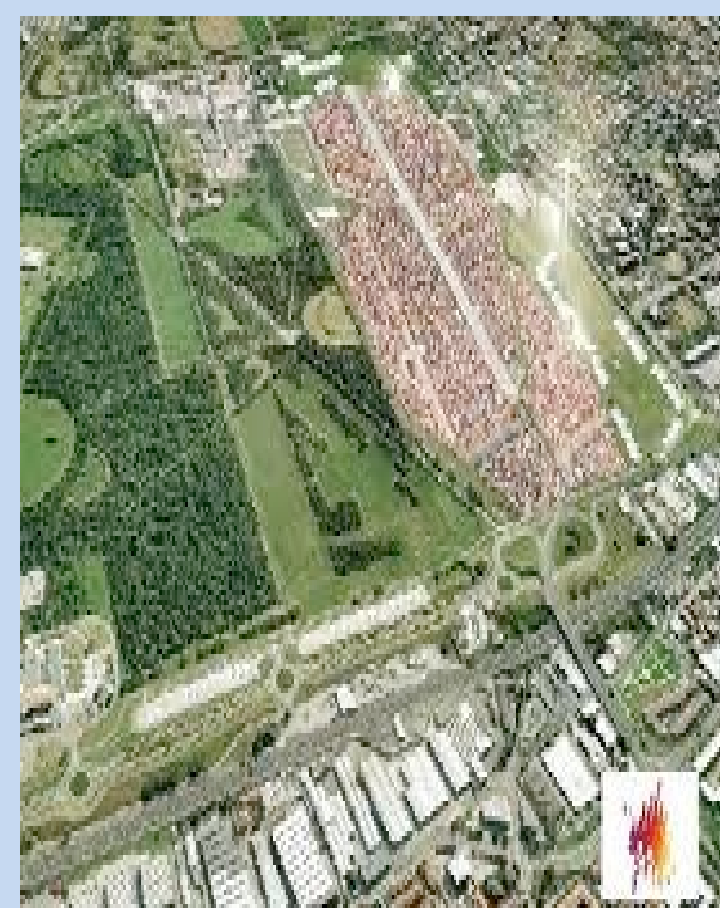
Methods :
Since 2014, AREU started a cooperation together with CRIMEDIM, a national simulation centre located in Novara (Eastern Piedmont University), one of the excellent simulation center in Italy, and started using a virtual training program tailored for the medical resources of the pre-hospital emergency system in Lombardy.

During the virtual and the residential phases the medical resources are tested in scenarios checking: the approach of the rescuers to the MCI scene, the command and control coordination on site, the triage performed, the identification of needs and evacuation priorities of the casualties involved.

During the training courses the participants are tutored by AREU's Faculty, and trained to use the ISEE (*I-SEE®* (Interactive Simulation Exercise for Emergencies) a software developped by Crimedim. In the virtual simulations, few indicators and individual skills are measured.

During 2017, the software XVR (a 3D simulator) was adopted and introduced inside the residential course, to better verify the approach to scene with a tridimensional tool.

Conclusion & perspectives :
After 4 years of training, more than 800 doctors and nurses were trained with ISEE.

In real MCI events the evidence showed that the indicators measured in the theorical training are similar of the real management.

The main topics and indicators measured are:

- logistic skills,
- command and control chain skills,
- effective triage,
- reports management and communication flows
- evacuation criterias
- Integration together with the hospital network

The educational and clinical relevance of the case is that the main skills of an MCI management can be measured in a virtual reality and found in real events as well.

The field experience becomes the feedback to modify training programs in the pre-hospital response.

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