CRIMEDIM is a university-wide academic center that conducts research, education and training in the field of disaster medicine and humanitarian health. The center is committed to promote innovative research projects and to foster learning and training programs using state of the art technologies to enhance the resilience of health systems in emergency, disaster and humanitarian crisis.

Vision

CRIMEDIM vision is to make health systems able to effectively protect people’s health from disasters and humanitarian crises, saving lives, minimizing deaths, injuries, disabilities and human suffering with competent and professional workforce.
CRIMEDIM works to enhance the resilience of health system in emergency, disaster and humanitarian crisis through increasing knowledge, skills and attitudes of health workers based on scientific evidence and field experience at local, national and international level.

**Mission**

**Objectives**

- promote and coordinate research projects in disaster education, disaster medicine and humanitarian health;
- foster disaster education and training using emerging simulation technologies;
- provide highly specialized researchers and professionals in disaster and humanitarian setting;
- cooperate with different institutions, universities, public and private agencies, governmental and non-governmental organizations to enhance the resilience of health systems.
MAIN AREAS OF EDUCATION

DISASTER MEDICINE EDUCATION AND TRAINING FOR DISASTER MANAGERS, LEADERS AND POLICY MAKERS

- European Master in Disaster Medicine (EMDM)
- Fellowship in Disaster Management
- Humanitarian Assistance and Global Health

DISASTER MEDICINE EDUCATION AND TRAINING FOR HEALTH PROFESSIONALS

- Humanitarian Medic
- Disaster Medic
- Hospital Disaster Preparedness
- Pre-decoration Training for Ebola Emergency Response

DISASTER MEDICINE EDUCATION AND TRAINING FOR MEDICAL AND NURSING STUDENTS

- TdmT - Training disaster medicine Trainers
- DisasterSISM
- Disaster Medicine module in the standard medical curriculum at the Università del Piemonte Orientale

AD HOC CURRICULUM AND SIMULATION BASED TRAINING DEVELOPMENT

- Basic and Advanced Modular Courses for Health Professionals
- Instructor Course and Faculty Development
- Scenario-Based Training
MAIN AREAS OF RESEARCH

PROFESSIONALIZATION OF HEALTH WORKERS IN DISASTER AND HUMANITARIAN ASSISTANCE

OPERATIONAL RESEARCH IN DISASTER AND HUMANITARIAN SETTINGS

SIMULATION AND EMERGING TECHNOLOGIES IN DISASTER EDUCATION

HOSPITAL DISASTER RESILIENCE
EMDM - European Master in Disaster Medicine

The EMDM, Master of Science in Disaster Medicine, is a level-two master program jointly organized by CRIMEDIM, the Research Center in Emergency and Disaster Medicine of the Università del Piemonte Orientale (UPO) and ReGEDiM, the Research Group on Emergency and Disaster Medicine of the Vrije Universiteit Brussel (VUB). The course is aimed at all health professionals involved in the medical disaster management and humanitarian health response at local, national and international level.

The EMDM is an inter-university and international course, which counts on a faculty of qualified professionals in disaster medicine and humanitarian health affiliated with worldwide renowned institutions and universities.

So far, the EMDM program has inspired and trained more than 500 professionals all over the world.

Visit the website www.dismedmaster.com
Humanitarian Medic - Humanitarian Health Response Training Program

Humanitarian Medic is an innovative training program, designed and coordinated by CRIMEDIM in collaboration with Médecins Sans Frontières (Doctor Without Borders, Italian section).

The program is restricted to medical doctors in their final years of training or residency program in Anesthesia, Critical Care, Emergency Medicine and Pediatrics, from any university all over the world. The aim of the training program is to provide residents with the necessary knowledge, skills and attitudes to proficiently participate to international disaster responses and humanitarian health programs and to contribute to the development of professional skills when working in emergency settings with limited resources.

Moreover, this experience demonstrates how academia can successfully partner with humanitarian aid organizations to promote the professionalization of future humanitarian health workers.
**MAIN EDUCATIONAL PROGRAMS**

**TdmT - Training Disaster Medicine Trainers**

Training Disaster Medicine Trainers (TdmT) is the first international program that teaches medical students basic knowledge about disaster medicine. The initiative is managed by CRIMEDIM together with the International Federation of Medical Students’ Associations (IFMSA) with the aim to empower medical students to take action on disaster medicine in their communities by equipping them with knowledge and skills on disaster and humanitarian health. The medical students are selected from an international pool of students and they have the chance to learn from experts of international organizations such as the World Health Organization (WHO), Medecins Sans Frontières (MSF), the Alumni of the European Master in Disaster Medicine (EMDM), and experienced CRIMEDIM professionals.
DisasterSISM

DisasterSISM is a national innovative multilevel educational program developed by CRIMEDIM in collaboration with the Italian Medical Students' Secretariat (SISM). It is designed for medical students and aims to provide young future physicians with the basic and advanced knowledge of Disaster Medicine.

Virtual Reality Simulation Training for Ebola Deployment

The Ebola outbreak in West Africa was one of the worst natural disaster of the last decades. The international medical community was very sensitive to the development of effective pre-deployment training programs to ensure the adequate safety of humanitarian workers. CRIMEDIM and Save the Children International (SCI) collaborated to develop and implement a specific training using virtual reality (VR) and hybrid simulation to improve the safety of humanitarian workers against the possible infection with Ebola virus, and an evaluation tool to assess the improvement of humanitarian workers’ technical and non-technical skills.
TEAMS - Training for Emergency Medical Teams and European Medical Corps

Concerns regarding the standard of medical care provided in disasters and the lack of preparedness of health workers has been raised. Health practitioners have been observed to work outside their scope of practice and license, and teams have lacked basic capacities and logistic means to operate self-sufficiently. Additional concerns have been highlighted regarding the lack of cultural awareness and coordination with local authorities as well as international agencies.

TEAMS is a EU funded project aimed at developing a standardized, validated and cost-effective training package, focused on operational team training for Emergency Medical Teams (EMTs).

The consortium is led by CRIMEDIM and composed of HCRI (UK), Karolinska Institutes (Sweden), Tel Aviv University (Israel), Istanbul Medeniyet University (Turkey), Humedica (Germany) and Novareckon (Italy).

The final result will be an open online training package consisting of innovative blended learning teaching materials and simulation-based exercises focused on operational team training, adaptable to different types of EMTs, and sustainable for low-income countries and resource-poor settings.

Along with all the EMT organizations, universities, professional bodies and training agencies involved in EMT training are expecting to benefit from the outcomes of this project.

www.teams-project.eu
THREATS - Terrorist attacks on Hospitals: Risk and Emergency Assessment, Tools & Systems

The three-year EU funded project THREATS is aimed at increasing the resilience of EU hospitals as critical infrastructure by improving their protection capability and security awareness against terrorist attacks.

The consortium was led by Hanover Associate Ldt (UK), and included the Institut National des Sciences Appliquées (France), and San Raffaele Hospital (Italy).

Since July 2014, CRIMEDIM cooperated with the consortium partners to deliver a series of models and toolkits to help EU medical facilities to recognize possible weaknesses, risks and threats and subsequently enhance their preparedness against terrorist attacks targeting hospitals and healthcare infrastructures.

www.threatsproject.eu

TIER - Integrated strategy for CBRN Threat Identification and Emergency Response

TIER is a EU funded project with the primary objective to develop a comprehensive and integrated strategy, based on threat identification and risk assessment, for hospital emergency response in case of use of chemical, biological, radiological, nuclear materials and explosives by terrorists.

CRIMEDIM, in collaboration with the Department of Economics and Business Studies of the Università del Piemonte Orientale, led a consortium composed of public universities, research institutes, private companies and hospitals.

With the support of international experts, the Consortium delivered a risk assessment and calculator model, designed two training courses subsequently developed in France and Italy and an assessment tool, with regard to hospital preparedness and response performance in case of CBRN emergencies.

www.tierproject.eu
Simulation is extensively used for educational purposes. Through participatory simulation, students take an active role within an immersive environment, that can replace and amplify real experiences with guided ones. Students’ involvement in the “virtually real” activities allow them to learn directly from their experience and also to retrain and practice to correct mistakes, perfect steps and fine-tune skills. Teamwork training conducted in the simulated environment offers an additive benefit to the traditional didactic instruction, enhance performance, and possibly also help reduce errors.

High Fidelity Simulation

High fidelity allows mastering practical skills in a simulated environment reproducing real situations, including resource-constrained environments. Through the use of high fidelity simulation, students develop the ability to proficiently delivering healthcare in simulated disaster and humanitarian settings. This kind of simulation fosters active participation instead of passive learning in a standardized and consistent environment, while also steepening the learning curve.
Virtual Simulation

Virtual simulation represents a valid innovative method for education and training in disaster medicine. For its courses CRIMEDIM uses a series of tools and solutions that recreate realistic training scenarios where students are trained, individually or in team, to manage different emergency situations in a setting where good practice can be identified and shared but where mistakes have no operational consequences. Among the available solutions, virtual reality simulation is largely used, thanks to the flexibility and realism it offers. It has been also used for practicing the logistic aspects of contingency planning across the entire emergency services chain reproducing different scenarios with realistic configurations of countries, regions, emergency service facilities and hospitals. Virtual simulation gives the possibility to engage students online by distance to enhance the ability to work in teams to coordinate the response to natural and man-made disasters.

Live Simulation

Live simulation represents the milestone of disaster and humanitarian education and training. They are unique opportunities to evaluate policies, guidelines, and the command and control chain; to increase the training of personnel in emergency and crisis roles; to improve interagency coordination and communications; and to test plan and procedures and eventually implement them. Functional and full-scale simulations are operation-based exercises that allow to exercise both procedures and facilities’ functionality. This include all levels of participating health organizations, including the mobilization of personnel and resources, activation of operation centers and actual movement of equipment.

CRIMEDIM field activities include actors, appropriately trained for the exercise to perform as smart victims, simulating clinical conditions and tracing medical actions.
CRIMEDIM has been designated World Health Organization (WHO) Collaborating Centre for Training and Research in Emergency and Disaster Medicine in August 2016.

By definition, a WHO Collaborating Centre is an institution designated by the Director-General of WHO to form part of an international collaborative network set up by WHO in support of its program at the country, regional, and global levels.

In line with the WHO policy and strategy of technical cooperation, a WHO Collaborating Centre also participates in the strengthening of country resources, in terms of information, services, research and training, in support of national health development.

In this framework, CRIMEDIM works to provide strategic support to the WHO in what specifically concerns training and research in emergency and disaster medicine.
CRIMEDIM is supporting European Commission - Humanitarian Aid & Civil Protection (DG ECHO) in the design, planning and organization of training courses for personnel active in the international disaster response field, in the framework of the Union Civil Protection Mechanism.

Emergency Medical Team Coordination Cell (EMTCC) Training Course
In 2016 and 2017 CRIMEDIM hosted two editions of the WHO EMT Coordination Cell Training, organized by the EMT Secretariat with the support of DG ECHO and partner organizations, Novarseti Viaggi, the Italian Civil Protection Department and the Belgian Federal Public Service of Health. During a week-long intensive training, the participants were trained and challenged to assess, establish, operate, and deactivate an Emergency Medical Team Coordination Cell during a simulated disaster.

United Nations Disaster Assessment and Coordination (UNDAC) Induction Course
CRIMEDIM hosted the UNDAC Induction Course from Sunday 20th November to Friday 2nd December 2016, organized by OCHA’s Field Coordination Support Section (FCSS) with the support of DG ECHO in conjunction with Novarseti Viaggi, the Italian Civil Protection Department and the Belgian Federal Public Service of Health.

More than 30 participants from 20 different countries, selected among humanitarian and disaster managers from international organizations and national emergency management institutions, were inducted in the UNDAC system to establish and facilitate humanitarian coordination following sudden onset disasters.
NATIONAL AND INTERNATIONAL COLLABORATIONS

Universities

Free University of Brussels, Belgium
University of Alberta, Canada
University of California Irvine, USA
Harvard Umanitarian Initiative, USA
University of Geneva, Switzerland
Karolinska Institute, Sweden
Linköping University, Sweden
Jazan University, Saudi Arabia
Makerere University, Uganda
University of Manchester, UK
Hacettepe University, Turkey
University of Cluj, Romania
Università Cattolica del Sacro Cuore, Italy
Tel Aviv University, Israel
Istanbul Medeniyet University, Turkey

United Nations Organizations

World Health Organization (WHO) – official WHO Collaborating Centre
United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
United Nations Office for Disaster Risk Reduction (UNISDR)
United Nations Development Programme (UNDP)

Worldwide Experiences

- Iraq, Analysis of the Trauma Care Plan implemented by WHO to guarantee access to care to the population of Mosul (2017)
- Gaza, Activity of humanitarian health assistance with MSF (2017)
- Italy, Central Italy earthquakes Emergency Aid Response with the Italian Civil Protection (2016)
- Sierra Leone, Assessment to create and implement the National Emergency Medical System (EMS), prehospital emergency care, ambulance service and disaster response for Sierra Leone (2016)
- Yemen, Activity of humanitarian health assistance with MSF during the conflict (2015 - 2016)
- Nepal, Activity of Capacity Building within the project of rehabilitation after the earthquake with MSF (2015)
- Afghanistan, Maternal health program with MSF (2015)
- Sierra Leone, Virtual Reality training program for Ebola response in collaboration with Save the Children International (2014)
- Uganda, Research project of postoperative pain management after major surgery in a low-resource
Governmental and Non-Governmental Organizations

Italian Civil Protection Department
Italian Ministry of Foreign Affairs and International Cooperation
Médecins Sans Frontières (MSF)
European Society for Emergency Medicine (EUSEM)
European Civil Protection and Humanitarian Aid Operations (DG ECHO)
Disaster Medicine Service - Piedmont Region
Save the Children International (SCI)
Belgian First Aid and Support (B-FAST)
International Federation of Medical Students’ Associations (IFMSA)
Segretariato Italiano Studenti in Medicina (SISM)
Mobile Emergency Service for Resuscitation and Extrication (SMURD)
Ares Marche
Humedica e.V.
Doctors with Africa CUAMM
Red Cross Novara

environment in collaboration with the Makerere University (2014)

• Philippines, Typhoon Haiyan Emergency Aid Response with the Italian Civil Protection (2014)

• Burkina Faso, Combining Dedicated Online Training and Apprenticeships in the Field to Assist in Professionalization of Humanitarian Aid Workers (2011 - 2013)

• Abu Dhabi, SEHA (Disaster Management and Emergency preparedness System - building capacity and assuring integration, 2011-12)

• Haiti, Activity of Capacity Building within the project of rehabilitation after the earthquake (2010)

• Albania, World Health Organization, Country Office (Medical Management of Climate Change-related Health Emergencies, 2009)

• Italy, Aquila Earthquake Emergency Aid Response with the Italian Civil Protection (2009)

• Italy, United Nation Medical Emergency Response Team (UNMERT Mass Casualty Course, 2008) Algarve Health Authority,

• Sri Lanka, United Nation Development Program in Galle District (Emergency and disaster management, 2008)
Since the foundation in 2007, CRIMEDIM’S main goals have focused on the improvement of the health care system response in emergency, disaster and crisis through increasing knowledge, skills and attitudes of health care providers.

Our strategy is based on scientific evidence and on field experience at regional, national and international level.

Our action aims to establish a common scientific program in education including scientifically based and validated models, often based on exercises using innovative technologies with specific attributes to different figures sharable worldwide; to foster collaboration among disaster medicine centers of education and training, institutions and scientific societies to implement effective evidence-based research; to enlarge our area of interest from emergency response to preparedness, planning, mitigation and prevention.

Our activities are based on the use of simulation to teach medical students as well as health providers how to develop new education tools and networking with national and international centers sharing the same strategies.

The words we prefer are innovation, perspective and lateral thinking, enthusiasm, collaboration, networking, solidarity.

If you share the same perspective and vision, we will be eager to collaborate.

Francesco Della Corte
Director

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**Professionalization of health workers in disaster and humanitarian assistance:**
Luca Ragazzoni

**Operational research in disaster and humanitarian settings:**
Alba Ripoll Gallardo

**Simulation and emerging technologies:**
Pier Luigi Ingrassia

**Hospital disaster resilience:**
Davide Colombo

**Disaster Medicine Education and Training:**
Marta Caviglia
Maria Grazia Fiori - Italy  *(Humanitarian Medic)*

“Humanitarian Medic is an innovative training course, peculiar in its structure and organization because it provides all the basic knowledge to face and deal with particular situations in the area of disaster medicine. This knowledge is transferred also by exposing students to professional, technical and emotional challenges during simulation exercises and real life scenarios, presented during the Master course.”

**Annet Alenyo Ngabirano - Uganda  *(EMDM)*

“As a national health advisor in disaster medicine, I had the huge responsibility of advising on the management of disasters and I quickly realized that my fundamental medical training had not prepared me to face disaster situations.

EMDM was simply eye opener for me and gave me a family of disaster medicine specialists willing to support me.”

**Marco Antonio Becerril Ruiz - Mexico  *(TdmT)*

“I was at the hospital at the very time the earthquake struck. The hospital got damaged and we had to evacuate. Many buildings were destroyed, people are trapped and we have patients coming in. I’m impressed but happy we had a quick and efficient response. However, we’re running out of material and staff are doing extra shifts... We’re getting tired. The civil population is helping with the search of trapped people and many have brought us food and supplies. The TdmT course at CRIMEDIM did a lot! I helped in the evacuation during the earthquake and the immediate logistics of setting up the hospital areas in the parking lot.”
LATEST PUBLICATIONS


- Lo studio degli effetti sulla salute a medio e lungo termine del terremoto dell’Aquila e di altri terremoti in Paesi ad alta reddita: una revisione sistematica.


- Preparedness of European hospitals to counter the terrorist attacks. Ahmadreza Djalali, Marta Caviglia, Carl Dakin, Chris Arculeo, Mick Massey, Carol Morey, Roberto Faccincani, Michele Carlucci, Sauro Vicini, Alain Guinnet, Francesco Della Corte, Pier Luigi Inggrassia, in behalf of THREATS project Studies in conflicts and terrorism. [in press].

- Virtual disaster simulation: Lesson learned from an international collaboration that can be leveraged for disaster education in Iran. PLoS Curr. 2015 [in press].


