



UNIVERSITY OF CALIFORNIA, IRVINE

SCHOOL OF MEDICINE

CENTER FOR DISASTER MEDICAL SCIENCES



ANNUAL REPORT 2011/2012

Saving lives at home and abroad
www.cdms.uci.edu

Message from the Director

In the wake of the January 12, 2010 Haitian Earthquake, the dean for University of California, Irvine's School of Medicine reached out to experts in the Department of Emergency Medicine to see what our university could do to help the victims of this horrific event. At that time, we already had a long history of scholarship and service in the field of Disaster Medical Sciences dating back to the early 1990s with the development of the concept of a local Medical Disaster Response (as published in the New England Journal of Medicine). This extended to our leadership roles in the 2009 H1N1 pandemic. However, there was no infrastructure to support our future vision. Therefore, we suggested the creation of a Center for Disaster Medical Sciences (CDMS) within the School of Medicine. We received formal approval for CDMS from the dean on July 9, 2010.

Shortly thereafter, we convened a CDMS strategic planning meeting. During this meeting, we created our future goals and developed our vision and mission statements and functional chart. We invited leaders both within the university and outside expert consultants. The outcome of the meeting was to align the CDMS around the university's mission of Discover/Teach/Heal. Concurrent with focusing on our start-up goal to build an efficient and functional Center, we have focused on Discover – Disaster Research; Teach – Disaster Education and Training; and Heal – Individuals through disaster deployments & Populations through development of disaster health policy.

Our accomplishments over this short period are innumerable and include:

Discover

Disaster research in surge capacity, crisis care, psychological first aid, disaster triage, disaster nomenclature, earthquakes and community resilience resulting in numerous peer-reviewed publications

Teach

*International faculty appointments in several countries including Italy, Belgium, & Australia
European Master of Disaster Medicine (EMDM) initiatives
Standardized Utstein disaster nomenclature project with EMDM Academy*

*Teaching project for Abu Dhabi's health authority
Disaster core competency development*

Simulation training and exercises in emergency medicine and disasters

Fellowships in Emergency Medical Services and Disaster Medical Sciences (U.S. & International)

Disaster textbook – definitive international reference being translated into Chinese and Arabic

Hosting national CDC Agents of Opportunity for Terrorism Course

International conference invited expert speakers and co-organizers including in: Taiwan, Australia, Singapore, Sweden, Turkey, Italy, Abu Dhabi, China, Malaysia, Greece, Hong Kong

Academic collaboration with King Saud University, Saudi Arabia

Heal

Individuals

Deployments to Haiti and Cambodia

Populations

Disaster health policy for management of volunteers

Public health disaster reportable diseases

IOM Crisis Standards of Care

World Association of Disaster Medicine Board of Directors/ Collaboration with WHO

*Outreach to Media including History Channel Megaquake and
Contagion Movie Panel*

Mental Health assistance to Japan earthquake/tsunami victims

Partnerships with the International Medical Corps

This document represents the first annual report for the Center for Disaster Medical Sciences. We embrace the diversity and various backgrounds, skill sets and expertise of our Center collaborators. We are proud of our mission, our people and our accomplishments and look forward to continuing our quest to save lives at home and abroad.

*Dr. Kristi L. Koenig,
Director, Center for Disaster Medical Sciences*

Our Mission and Vision

The Center for Disaster Medical Sciences embraces the UC Irvine Health mission

Discover . Teach . Heal

Discover: To perform Disaster Medical Sciences research

Teach: To deliver education and training in Disaster Medical Sciences

Heal: To heal *individuals* through disaster response team deployment, and *populations* via development of disaster public health policy



Vision

Internationally recognized premier institution advancing Disaster Medical Science to save lives and mitigate suffering at home and abroad

Mission

Advancing the art and science of disaster medicine through research, education, training, and public policy

Mantra

Saving lives at home and abroad

Our People - Diversity

Executive Leadership

Kristi L. Koenig, MD, FACEP, FIFEM
Director, Center for Disaster Medical Sciences
Director of Public Health Preparedness
Professor of Emergency Medicine
Director, International EMS & Disaster Medical Science Fellowship



Carl H. Schultz, MD, FACEP
Director of Research, Center for Disaster Medical Sciences
Director, EMS and Disaster Medical Sciences Fellowship
Medical Director and Chief of Clinical Services
Professor of Emergency Medicine
Director, Disaster Medical Services



Darlene Bradley, RN, PhDc, MSN
Director of Operations, Center for Disaster Medical Sciences
Director of Emergency and Trauma Services



Key Members



Merritt Schreiber, PhD
Director of Psychological Programs, Center for Disaster Medical Sciences
Associate Professor of Emergency Medicine



Eric McCoy, MD, MPH
Director of Education & Training, Center for Disaster Medical Sciences
Assistant Clinical Professor of Emergency Medicine
Director of Emergency Medicine Resident Simulation
Medical Director, EMS Base Hospital



Sherlene Stepp, RN
Director of Emergency Response, Center for
Disaster Medical Sciences
Clinical Nurse Supervisor III, Department of
Emergency Medicine



Ken Miller, MD, PhD, FACEP
Director of Operational Medicine, Center for
Disaster Medical Sciences
Clinical Professor of Emergency Medicine
Medical Director, Orange County Fire Authority
U.S. Department of Transportation's National Emergency
Medical Services Advisory Council (NEMSAC)



Samuel J. Stratton, MD, MPH, FACEP
Medical Director, Health Disaster Management-
Emergency Medical Services, Orange County, CA
Adjunct Professor, Community Health Sciences, UCLA
Clinical Professor of Medicine at Harbor, UCLA



John Murray
Public Information Officer
UC Irvine Health

Fellows



Robert Katzer, MD
Emergency Medical Services-
Disaster Medical Sciences Fellow

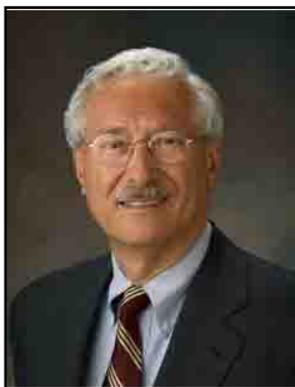


Mostafa Omaish, MD, MHI
International Emergency Medical Services-
Disaster Medical Sciences Fellow

Senior Policy Advisors



Major General (Retired) Donna F. Barbisch, DHA, MPH
 President, Global Deterrence Alternatives
 Member, Defense Threat Reduction Advisory Committee
 Distinguished Fellow, Center for Infrastructure Protection and
 Homeland Security, School of Law, George Mason University
 Fellow, Center for National Preparedness, University of Pittsburgh



Frederick "Skip" M. Burkle, Jr., MD, MPH, DTM, FAAP, FACEP
 Senior Fellow, Harvard Humanitarian Initiative
 Visiting Scientist, Harvard School of Public Health
 Senior Public Policy Scholar, Woodrow Wilson Center for
 International Scholars
 Professor, Department of Community Emergency Health,
 Monash University Medical School
 Senior Associate Faculty, Department of International Health,
 Center for Refugee & Disaster Response, Johns Hopkins University
 Adjunct Professor, Uniformed Services University of
 the Health Sciences

Alumni

Eric McCoy, MD, MPH

EMS/Disaster Fellow, Center for Disaster Medical Sciences
 Director of Education & Training, Center for Disaster Medical Sciences
 Assistant Clinical Professor of Emergency Medicine
 Director of Emergency Medicine Resident Simulation
 Medical Director, EMS Base Hospital



Christopher Kahn, MD, MPH

EMS/Disaster Fellow, Center for Disaster Medical Sciences
 Associate Medical Director, National College of Technical
 Instruction Paramedic Program, San Diego
 Assistant Professor of Emergency Medicine



Solisis Deynes, MD, MPH

EMS/Disaster Fellow, Center for Disaster Medical Sciences
 Emergency Physician, Baylor Medical Center, Carrollton, TX
 Emergency Physician, Children's Medical Center at Legacy, Plano, TX
 Emergency Physician, Dallas Regional Medical Center, Mesquite, TX



International Alumni



Anwar AL-Awadhi, MD, MPH

International EMS/Disaster Fellow, Center for
Disaster Medical Sciences
Emergency Physician, Ministry of Health, Kuwait
Board Member of SAHA Institute, Kuwait



Steven Hoon Chin Lim, MD

International EMS/Disaster Fellow, Center for
Disaster Medical Sciences
Consultant Emergency Physician, Changi General Hospital,
Singapore

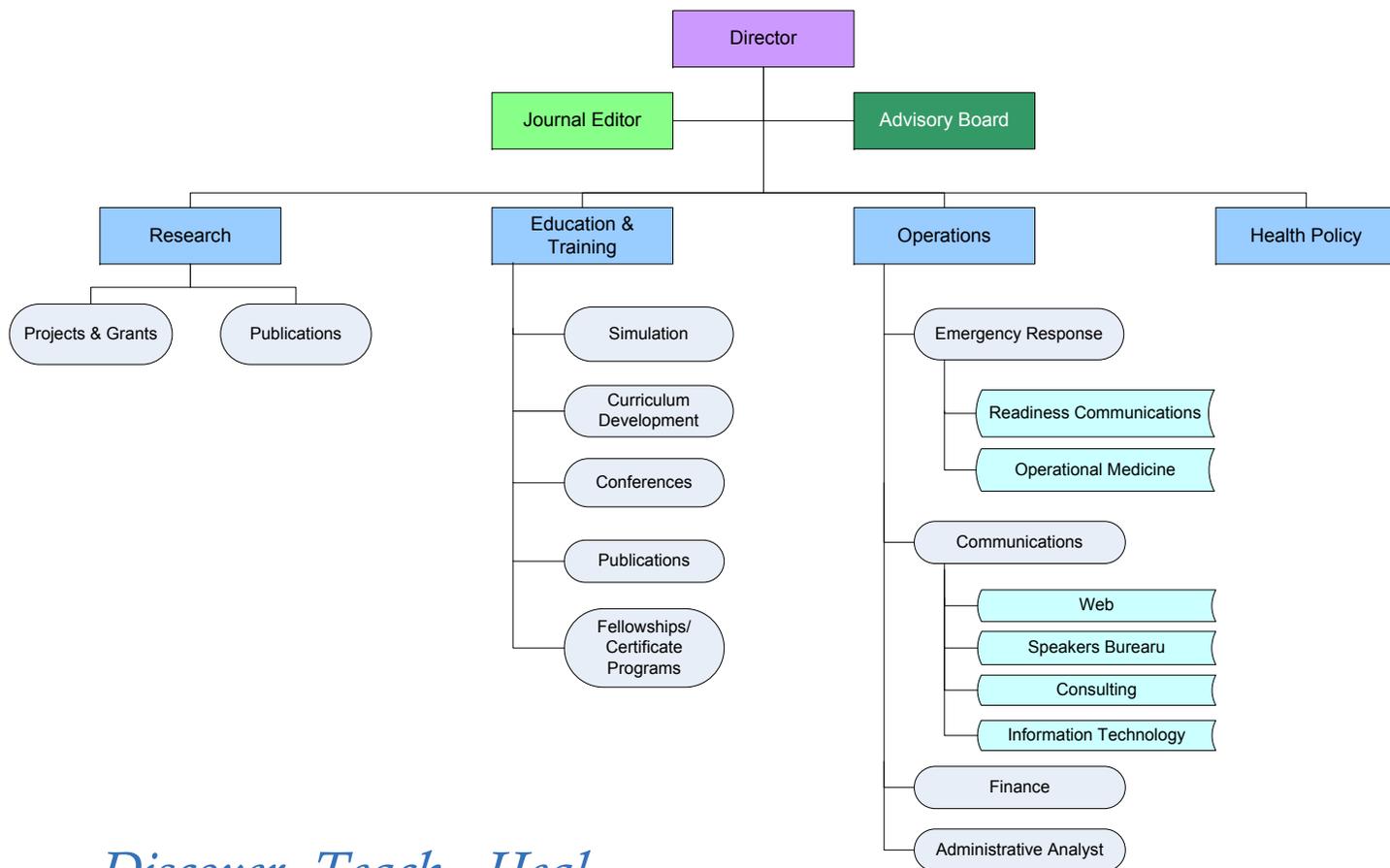


Rosidah Ibrahim, MD

International EMS/Disaster Fellow, Center for Disaster Medical Sciences
Consultant Emergency Physician & Head, Emergency and Trauma,
Hospital Serdang, Malaysia
Chairperson, Disaster Plan, Ministry of Health, Malaysia
Chairperson, Technical Committee, MERS 999 (Public Access System),
MOH, Malaysia
Chairperson, Dispatch Review Committee, MERS 999, MOH, Malaysia
Master Trainer, MERS 999, MOH, Malaysia
Medical Advisor, Development of Air Disaster Unit, New Low Cost
Carrier Terminal in KLIA

Functional Chart

Center for Disaster Medical Sciences



Discover. Teach . Heal

Saving lives at home and abroad

Discover *To perform Disaster Medical Sciences research*

With the increasing need to mitigate against, prepare for, respond to, and recover from disasters that occur locally and globally, research to inform policies that will improve patient outcomes in this emerging field of science is essential. The Center for Disaster Medical Sciences (CDMS) is at the forefront of this new academic field. CDMS disaster medicine researchers offer innovative approaches to optimize disaster management through research, education, training, and public policy. In addition to their daily practice as emergency physicians, CDMS faculty address critical situations and catastrophic scenarios derived from analysis of hazard threats coupled with real-life disasters that unfold in today's local and global news.

Current CDMS research focuses on surge capacity and crisis care, disaster triage, earthquakes, simulation training, and disaster nomenclature. The results of these scientific studies are illustrated in our numerous products, publications and books, fellowship programs, local and international seminars, workshops, and scientific presentations as described later in this report.



Maha Shirah Photography

PsySTART

Rapid Disaster Mental Health Triage and Incident Management System

PsySTART is a rapid mental health triage and incident management strategy for disaster and terrorism events. PsySTART (or Psychological Simple Triage and Rapid Treatment) is the first known, evidence-based, disaster mental health triage system used to rapidly assess and provide for the surge of acute and longer-term mental health impacts following disasters.

A number of organizations around the country use PsySTART including:

- American Red Cross (involving about 9000 disaster victims in 2011 including the Joplin and Alabama tornados, Hurricane Irene, and several others)
- 83 hospitals and 89 community clinics in Los Angeles County as part of the Los Angeles County Emergency Medical Services Agency Disaster Response Program for Hospitals
- District of Columbia Department of Mental Health Disaster Response
- Minnesota Department of Health, including Minneapolis and St. Paul, as part of a tiered, statewide implementation
- US Department of Health and Human Services (DHHS) and the Centers for Disease Control and Prevention (CDC) behavioral surveillance in the American Samoa Tsunami response
- A component of the Public Health of Seattle and King County Disaster Mental Health Concept of Operations (CONOPS) plan
- UC Irvine Medical Center disaster plan. (Exercised during the 2012 Golden Guardian disaster drill)

PsySTART is a key component of the only national model for the needs of children in disasters, known as the National Children's Disaster Mental Health Concept of Operations and the related Disaster Mental Health Concept of Operations developed for the County of Los Angeles and Seattle/King County. Previous iterations of this model approach for children were identified by the Federal Emergency Management Agency (FEMA) as "model emergency management practice" and included in the FEMA Compendium of Exemplary Emergency Management Practices.



*Merritt Schreiber, PhD
CDMS Director of Psychological Programs,
PsySTART Program Developer*

PsySTART includes three components:

- Community resilience via linkages between communities “disaster systems of care”
- An evidence-based rapid triage “tag” designed for field use by non-mental health responders
- An information technology platform that manages the collection and analysis of triage needs for real time situational awareness and a common operating picture of response.

When aggregated across multiple service sites in a jurisdiction, it can be used for prioritization of services and provides a “common operating picture” permitting real time situational awareness of unmet needs and resources. This awareness allows for the development of local mental health incident action plans (IAPs) and requests for mutual aid, and helps local communities integrate mental health response across “disaster systems of care.” Rapid mental health triage is critical because, just as in emergency medicine where there is the “golden hour” to get care, in disaster mental health, there is increasing evidence of a “golden month” for the high-risk subset of patients to be matched to brief, evidence-based care. PsySTART provides for situational awareness of “at risk” individuals and linkage to follow on care. In a surge environment of many “at risk” individuals, the PsySTART system uses a “floating triage algorithm” for prioritization of individuals to determine who needs to be seen first, who needs to be seen next, and who can be referred later for further assessment beyond the initial surge setting. This allows for coordination of disaster mental health needs across



organizations to better manage an incident, allocate limited acute phase psychological resources and prioritize mutual aid needs based on a common evidence-based metric.

May 8, 2012: The PsySTART program, developed by Dr. Merritt Schreiber, CDMS Director of Psychological Programs, is tested during the Golden Guardian Disaster Exercise at UC Irvine Medical Center.

Listen, Protect and Connect (LPC) Family of Psychological First Aid Tools

Listen, Protect and Connect:

Family to Family, Neighbor to Neighbor



Psychological First Aid (PFA)
for The Community Helping Each Other

Helping Those Around You
in Times of Disaster

Dr. Merritt Schreiber, Director of Psychological Programs in the Center for Disaster Medical Sciences has developed three psychological first aid guides entitled "Listen Protect and Connect." One guide is for parents, one is for teachers and schools, and one is for all ages - a family-to-family, neighbor-to-neighbor guide. A web version is under development. The guides are listed on the US Department of Homeland Security's "www.ready.gov" website and numerous other federal and state agency websites.

These guides provide ways to support resilience before, during and after emergencies. They build on ideas, strengths and practices parents, teachers and schools naturally use with children and provide additional ideas and tools they can call upon in times of disaster or terrorism.

The Listen, Protect and Connect: Neighbor to Neighbor PFA is in use by the Los Angeles County Department of Public

Health as part of a comprehensive community resilience system and for Medical Reserve Corps personnel training. Training in LPC Neighbor-to-Neighbor was also provided to the US Public Health Service and National Disaster Medical System in 2011 and 2012.

- Listen Protect and Connect - Psychological First Aid for Children and Parents
www.ready.gov/sites/default/files/documents/files/PFA_Parents.pdf
- Listen Protect and Connect, Model and Teach - Psychological First Aid for Teachers and Schools
www.ready.gov/sites/default/files/documents/files/PFA_School_Crisis.pdf
- Helpful Hints For School Emergency Management - Psychological First Aid for Children and Parents – For using Listen, Protect and Connect Model and Teach in schools and developed by the US Department of Education
www.ready.gov/sites/default/files/documents/files/HH_Vol3Issue3.pdf
- Listen Protect and Connect - Family to Family, Neighbor to Neighbor - Helping those around you in times of disaster
www.ready.gov/sites/default/files/documents/files/LPC_Booklet.pdf

All are also available at CDMS website: www.cdms.uci.edu/disaster_mental_health.asp

The LPC materials have been used by the World Health Organization, and requested for earthquakes in China & Japan with translations into Spanish, Japanese, Chinese & French (Haiti)

Anticipate, Plan and Deter Responder Resilience Program

The Anticipate, Plan and Deter program is aimed at enhancing the resilience of responders, including healthcare workers and other responders, during disasters.

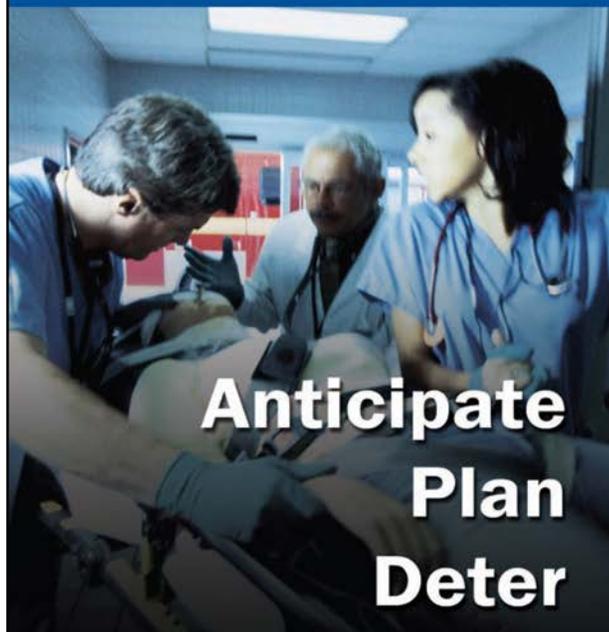
The program currently is being used as part of the Los Angeles County Emergency Medical Services Agency Disaster Program; it is also being used by US Public Health Service response teams and is included in training for National Disaster Medical System personnel that respond to the earthquake in Haiti. In addition, the program is part of a new report, "Community Health Resilience" from the US Department of Homeland Security, Office of Health Affairs.

June 24, 2012: *Dr. Merritt Schreiber, CDMS Director of Psychological Programs, presents his "anticipate, plan and deter" responder resilience model to the US Interagency Advisory Board in Baton Rouge,*

June 14, 2012: *Dr. Merritt Schreiber, CDMS Director of Psychological Programs, publishes key articles in Disaster Medicine and Public Health Preparedness: "Evaluating Mental Health After the 2010 Haitian Earthquake", a collaboration between Marc Safran MD, MPA; Terence Chorba, MD, MPA; Merritt Schreiber, PhD; W. Roodly Archer, PhD; Susan T. Cookson, MD, MPH.*

And another article: "A Brief Report of Surveillance of Traumatic Experiences and Exposures After the Earthquake-Tsunami in American Samoa, 2009" a collaboration between Michael E. King, MSW, PhD; Merritt D. Schreiber, PhD; Stephen E. Formanski, PhD; Sinclair Fleming; Tesfaye M. Bayleyegn, MD; Siitia S. Lemusu, MO.

Building Your Responder Personal Resilience Plan™



**Anticipate
Plan
Deter**

**Maximizing Resilience For
Healthcare Workers**



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This project was completed with funds from the Hospital Preparedness Program, Office of the Assistant Secretary for Preparedness and Response, Office of Preparedness and Emergency Operations, Division of National Healthcare Preparedness Programs
(Grant number: U3REP090253)

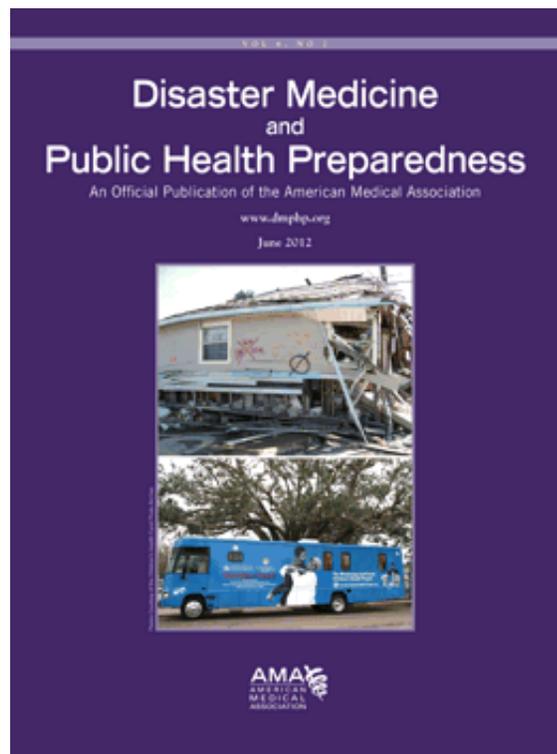
The National Children's Disaster Mental Health Concept of Operations (NCDMH CONOPS)

The National Children's Disaster Mental Health Concept of Operations (NCDMH CONOPS, CONOPS) is the first product to comprehensively detail the essential elements needed for an interoperable, coordinated response for the mental health needs of children by local communities, counties, regions, and states. This initiative will result in better meeting the needs of children affected by disasters and terrorism incidents. It proposes the use of an evidence-based, rapid triage system to provide a common data metric to incident response and recovery action and to rationally align limited resources to those at greater need in a population-based approach.

This NCDMH CONOPS is implemented via specification of discrete operational activities along the continuum of preparedness, response, and recovery, while accounting for the continuum of risk and resilience in the child population. The NCDMH CONOPS leverages existing national best practices by matching the continuum of risk to a corresponding continuum of timely, evidence-based care through the use of a rapid disaster mental health triage system that includes key local children's disaster systems of care.

To date, the most comprehensive field use of training of the CONOPS has been the US Public Health Service (USPHS) Mental Health Team's response to the 2009 tsunami in America Samoa.

The USPHS Mental Health Team and the Centers for Disease Control and Prevention community assessment teams used PsySTART triage system data to identify survivors who were at risk of needing further assessment and to estimate the epidemiology of mental health risks.



June 12, 2012: Dr. Merritt Schreiber, CDMS Director of Psychological Programs, publishes in Disaster Medicine and Public Health Preparedness:

“Toward the Way Forward: The National Children's Disaster Mental Health Concept of Operations, a collaboration between Merritt D. Schreiber, PhD; Betty Pfefferbaum, MD, JD; Lisa Sayegh, PhD.

Sustainability Research

UC Irvine's Center for Disaster Medical Sciences is contributing to the Sustainability Research Inventory, which the University of California, Irvine identifies as "any research or creative activity that addresses the equitable endurance of natural and human systems in the present and in the future." As societies become more complex and interconnected, the potential for disasters increases, requiring an adaptive management that responds to disasters and medical and public health needs. CDMS is adapting to these new challenges so that the human and natural environments can be maintained in ways that correspond with a response methodology that makes resilience and continued sustainability possible.

Sustainability Research



UNIVERSITY of CALIFORNIA • IRVINE

In 2010 and again in 2011, the University of California, Irvine ranked sixth in Sierra magazine's annual ranking of the greenest and most sustainable colleges and universities in the United States. The campus has overall strength in this area – a strength that spans its tripartite mission of teaching, research, and public service, as well as campus operations.

Source: UCI Sustainability Research Inventory – May 2012

Selected Publications

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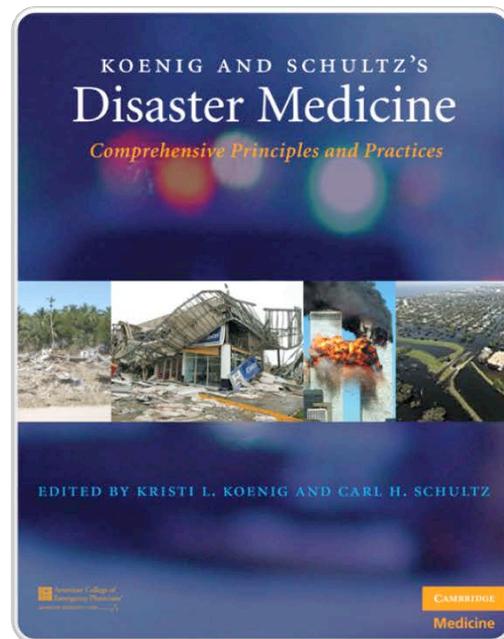
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Koenig and Schultz's Disaster Medicine

Comprehensive Principles
and Practices

*Edited by: Kristi L. Koenig,
University of California, Irvine*

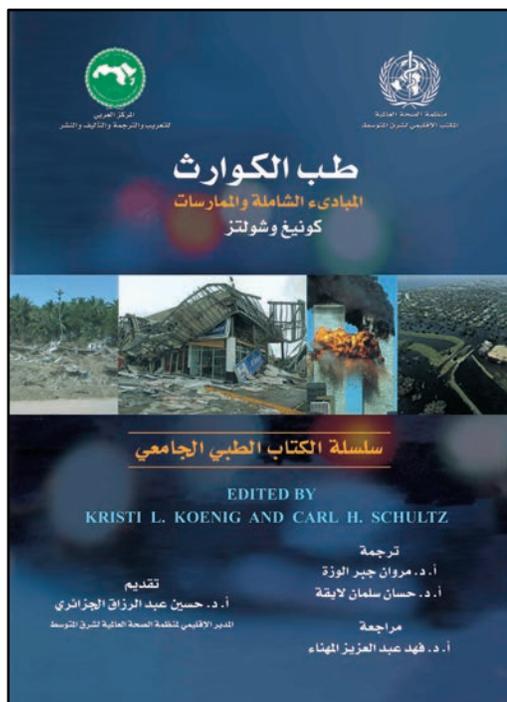
*Edited by: Carl H. Schultz,
University of California, Irvine*

ISBN: 9780521873673

Publication date:
September 2009

Cambridge University Press

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An agreement has been signed for translating “Koenig and Schultz's Disaster Medicine Comprehensive Principles and Practices” book into multiple languages, including Chinese (Mandarin) and Arabic.





Maha Shirah Photography

Teach *To deliver education and training in Disaster Medical Sciences*

CDMS is committed to offering quality, comprehensive, scientific, evidence-based training and education through courses (online & onsite), simulation training, fellowship training, organizational & individual disaster drills, consulting, disaster textbooks, publication (journals), and workshops & conferences. This education and training will help develop well-trained disaster experts and teams who can help save individuals in times of crisis, as well as developing disaster public health policies that can improve outcomes for populations affected by disasters.

CDMS provides programs for those who seek efficient, cost-effective, evidence-based training. By working with experts in various subject matters, CDMS is able to produce the right course, with the right content; our courses are geared to excellent learning outcomes.



European Master in Disaster Medicine (EMDM)

CDMS leaders have been affiliated with the European Master in Disaster Medicine (EMDM) since its origin more than 10 years ago. The EMDM is a level - two Master, 60 credit unit program that lasts one academic year.

The Master is based on:

- Distance learning through a self-directed study via a standardized Internet-based e-learning platform
- Annual two-week live-in “residential” course
- Writing and defense of a dissertation or research project paper (thesis)
- Final on line examination

In 2009, the dean of the UC Irvine School of Medicine signed an agreement to become an “organizing university” of the EMDM. The dean appointed a CDMS faculty member to represent the university on the EMDM Executive Committee.

The EMDM is one of the most well recognized academic educational programs in Disaster Medicine worldwide. EMDM connects people, cultures and ideas from around the world to improve scientific knowledge, abilities and practical attitudes in the management of health aspects in disasters.

This worldly perspective and cultural diversity are reflected in all aspects of EMDM research and teaching. Over ten years activity, across this comprehensive program, renowned Faculty members from 32 countries have inspired more than 300 participants, drawn from more than 70 countries, representing all the continents. The CDMS is proud to be a member of the EMDM family.



The EMDM also has extensive and well-established links with international agencies, professional bodies and research organizations, as well as courses that are directly relevant to humanitarian and disaster medicine.

Emergency Management and Disaster Medicine Academy



The **EMDM Academy** is an international community of research, educational, operational, and international organizations, both public and private, involved in disaster and/or humanitarian medicine.

The EMDM Academy's mission is to:

- Support the development of Disaster Medicine as an academic discipline, with specific interest to Humanitarian Medicine
- Improve the quality of health prevention/mitigation, preparedness, response and recovery in emergency and disaster situations, basing skills and knowledge of health providers on scientific evidence, acquired from research and field experience

In June 2011, UC Irvine, CDMS was invited to become a member of the EMDM Academy. The Academy works closely together with the European Master in Disaster Medicine and



An EMDM Academy and Executive Committee member, Prof. Kristi L. Koenig, CDMS Director, UC Irvine develops distance learning modules and mentors EMDM Master students.



Dr. Kristi L. Koenig, Director of the Center for Disaster Medical Sciences at the University of California, Irvine, consulted with key leaders in Australia, lectured, met with students and reviewed disaster plans while serving as a visiting fellow this spring in the School of Public Health, Faculty of Health at Queensland University of Technology.

Dr. Kristi L. Koenig, CDMS Director, received a Fulbright Specialist grant award from the Council for International Exchange of Scholars. As a Fulbright scholar, Dr. Koenig lectured on Disaster Medicine from May 18th to June 1st within the European Master in Disaster Medicine organized by the University of Eastern Piedmont.”



Fellowships

UC Irvine School of Medicine CDMS coordinates two types of Disaster Medical Sciences fellowships. Applicants are either:

- US emergency medicine residency program graduates
- International physicians seeking training in the US

The EMS and Disaster Medical Sciences fellowship has been in existence for more than five years and offers a unique training experience combining EMS and disaster medicine.

Under the direction of Drs. Carl H. Schultz and Kristi L. Koenig, with assistance from other CDMS expert faculty, fellows receive exposure to the fields of EMS and Disaster Medicine. The program offers a one- or two- year track, with the option of obtaining an MPH in the two-year track.

Clinical duties are scheduled at UC Irvine Medical Center, the only university teaching hospital and level 1 trauma center in Orange County, California. The medical center serves as a base station for surrounding paramedic-receiving centers and is located two miles from Disneyland. The medical director and assistant medical director for Orange County EMS and medical director for the Orange County Fire Authority are members of the fellowship faculty. The emergency department sees approximately 45,000 patients a year and is both a stroke and STEMI receiving center.

Curriculum

The curriculum emphasizes topics in both EMS and Disaster Medicine. Applicants have the option to tailor much of this material to their specific needs and interests: EMS management and finance, EMS ground and aero-medical systems, state regulations, paramedic scope of practice, NAEMSP medical directors course, blast injuries, earthquakes, bioterrorism, international emergency medicine, European Master of Disaster Medicine, surge capacity and public health preparedness.





Maha Shirah Photography



March 30 , 2012: *"Wilderness Medicine Simulation," a five-hour training lab prepared by CDMS fellow **Robert Katzer**, is held at Peter's Canyon Regional Park, Tustin.*

Simulations and Innovations

Simulations are a form of hands-on experiential learning, where instructional scenarios are constructed and trainees are placed in a "world" defined by a trainer. The participants interact, experience the reality of these scenarios, develop individual cognitive expertise, enhance procedural skills, and improve teamwork and communication within the healthcare team. The use of this learning modality is paramount in improving medical education, patient care, patient safety and patient satisfaction.

Wilderness Medicine Simulation

"Wilderness Medicine Simulation" is a five-hour simulation using the principles of team-based problem solving training that focuses on preparing and testing resident physicians for semi-realistic situations and emergency scenarios in the wilderness. It allows health providers to approach patients with common problems and address them entirely outside their standard work environment. This is similar to austere care that must be provided under disaster conditions.



Maha Shirah Photography

California Golden Guardian Exercise Series

The 2012 “Golden Guardian” Exercise Series, a plan developed and approved by FEMA Region IX and Cal EMA, tested the Southern California Catastrophic Earthquake Response Plan. The discussion based exercise series included participation from eight Operational Areas in the southern region, tribes, state and federal agencies, non-governmental organizations and private sector partners. Golden Guardian 2012 has allowed the State of California, FEMA Region IX, and the Operational Areas an opportunity to evaluate the new California Catastrophic Incident Plan: Concept of Operations that was a result of Golden Guardian 2008.



Maha Shirah Photography

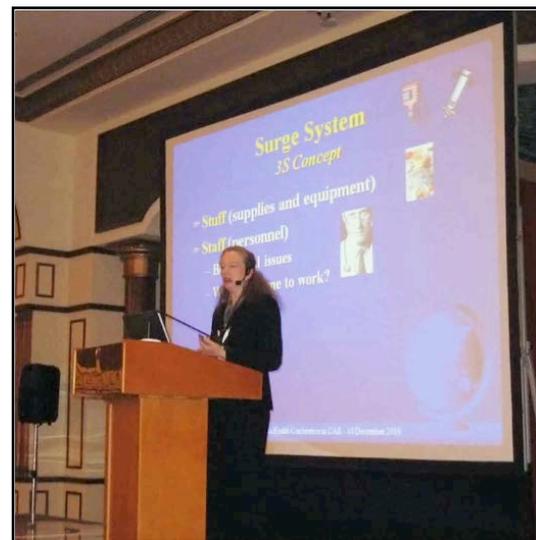
May 15, 2012: CDMS experts participate in the statewide Golden Guardian exercise, designed to improve readiness for a catastrophic earthquake. UC Irvine Medical Center is a site for the exercise.

Online Learning & Web-based Education

CDMS promotes cost-effective and efficient virtual organizations and virtual learning. These techniques are revolutionizing disaster medicine education and training.

Abu Dhabi SEHA Project

CDMS, as a member of the EMDM Academy, contributed to the development and implementation of a comprehensive training program that provided the participants with basic and essential knowledge, skills and attitudes to immediately deliver life saving care to patients in need of urgent or emergent care and to maximize the use of resources in mass casualty incidents and disaster situations. The project goal is to contribute to strengthening emergency medical services in Abu Dhabi by increasing the quality, efficiency, and effectiveness of response, preparedness, and delivered care. In addition to on-site teaching and interactive training, CDMS participated in the creation of a novel and robust web e-learning platform for standardized lessons in basic and advanced disaster life support.



The online Basic Disaster Medical Course was completed by over 800 participants from all police, fire, medical and civil defense organizations in Abu Dhabi. Students can access the online course via a link on the EMDM Academy website.

April 8, 2012: *CDMS created its own YouTube channel and began posting conferences and workshops for on-demand viewing.*

www.youtube.com/user/CDMSUCI

National & International Conferences & Workshops

Since the establishment of CDMS in 2010, faculty has participated in numerous conferences locally, nationally, and internationally in the field of Disaster Medicine & Emergency Preparedness.

CDMS recognizes the importance of conferences and research workshops as means of furthering the science of disaster medicine.

The goals of these activities are to provide professional evidence-based research results, as well as to promote and strengthen the presence of CDMS in the academic world at large.

National Conferences & Workshops:

- **June 24, 2012:** **Dr. Merritt Schreiber**, CDMS Director of Psychological Programs, presents his "Anticipate, Plan and Deter" responder resilience model to the US Interagency Advisory Board in Baton Rouge, LA.
- **June 14, 2012:** **Dr. Merritt Schreiber**, CDMS Director of Psychological Programs, is participates in the "Operation Independence Health Care Provider Emergency Preparedness Training Drill" in Oakland-Alameda County Coliseum, CA.
- **May 21- 25, 2012:** **Dr. Merritt Schreiber**, CDMS Director of Psychological Programs, is a featured speaker at the Integrated Medical, Public Health, Preparedness and Response Training Summit in Nashville, Tenn.
- **May 7, 2012:** **Darlene Bradley**, CDMS Director of Operations, contributes her expertise to the CDC Patient Surge Capacity Project that is being led by the American College of Emergency Physicians.
- **March 22, 2012:** Two mental health resilience strategies created by CDMS faculty member **Merritt Schreiber**, PhD, are featured in a Homeland Security workshop in Washington, DC.
- **March 21, 2012:** IOM committee releases report "Crisis Standards of Care: A System Framework for Catastrophic Disaster Response"; CDMS member **Merritt Schreiber**, PhD, serves on the committee.
- **March 9, 2012:** **Kristi L Koenig**, MD presents "Global Public Health Preparedness: Case Studies of Bioterrorism, a Pandemic and a Radiologic Event" at the Hollywood Presbyterian Medical Center.
- **February 21-24, 2012:** CDMS member **Merritt Schreiber**, PhD, delivers a plenary lecture at the Public Health Preparedness Summit 2012: "Sustaining Preparedness in an Economic Crisis."



- **November 11, 2011:** CDMS member Dr. **Merritt Schreiber** speaks at the International World Health Organization (WHO) Conference on Global Initiatives for Emergency and Essential Surgical Care (GIEESC) at the University of California, San Diego.
- **November 25, 2011:** CDMS hosts the CDC course "Agents of Opportunity for Terrorism" for both University of California, Irvine participants and community partners at the CARE ambulance site.
- **November 8, 2011:** **Eric McCoy**, CDMS Director of Education & Training, is giving a lecture on "Prehospital & Emergency Department management of STEMI" in San Diego, CA
- **November 1, 2011:** **Kristi L. Koenig**, MD and **Carl H. Schultz**, MD speak at a Beckman Center seminar, "Preparing for the Security Challenges of the 21st Century."
- **October 16, 2011:** CDMS Research Director **Carl H. Schultz**, MD, moderates Research Forum presentations during the American College of Emergency Physicians Scientific Assembly in San Francisco, CA.
- **October 11, 2011:** CDMS expert **Ken Miller**, MD, PhD speaks on disaster medicine at a meeting of the Medicines Sans Frontiers (Doctors Without Borders) Club at University Hill School in Irvine, CA.
- **September 23, 2011:** **Dr. Carl Schultz**, Research Director of the Center for Disaster Medical Sciences, presents a lecture on disaster triage to the medical staff at Tarzana Regional Medical Center.

International Conferences & Workshops:

- **June 11-16, 2012:** CDMS Director **Kristi L. Koenig**, MD, is an invited international expert to Karolinska Institute in Stockholm, Sweden where she serves as a PhD thesis opponent and delivers a lecture on Surge Capacity.
- **May 1, 2012:** **Ken Miller**, MD, PhD, CDMS Director of Operational Medicine, is a video keynote speaker on triage at the Emergency Medical Response in Disasters Conference in Karachi, Pakistan.
- **March 24- 28, 2012:** CDMS Director **Kristi L. Koenig**, MD provides training at the SEHA Disaster Management Conference in Abu Dhabi, UAE.
- **November 25, 2011:** CDMS Director **Kristi L. Koenig**, MD speaks on Disaster Medicine at the National Women's Health Conference in Abu Dhabi, UAE.
- **October 25-27, 2011:** CDMS Director **Kristi L. Koenig**, MD addresses the International Conference on Global Health and Public Health Education in Hong Kong.

- **October 24, 2011:** Bioterrorism and other disasters is discussed by CDMS Director **Kristi L. Koenig**, MD during a public seminar series at Prince of Wales Hospital, Hong Kong.
- **September 10-14, 2011:** CDMS Director **Kristi L. Koenig**, MD speaks at the Sixth Mediterranean Emergency Medicine Congress in Kos, Greece.
- **June 25, 2011:** CDMS Director **Kristi L. Koenig**, MD speaks at the 2011 Annual Conference of the Taiwan Society of Emergency Medicine. Koenig is ACEP's Ambassador to Taiwan.
- **June 6, 2011:** "A Session with a Master: Surge Capacity - Conceptual Framework" is the topic of a lecture by CDMS Director **Kristi L. Koenig**, MD at Malaysia's Kuala Lumpur Hospital.
- **May 31, 2011:** CDMS Director **Kristi L. Koenig**, MD chairs a discussion on triage at the 17th World Congress on Disaster and Emergency Medicine in Beijing, China.
- **May 4, 2011:** A disaster medicine lecture by CDMS Director **Kristi L. Koenig**, MD is posted online with other disaster medicine talks from the Mediterranean Emergency Medicine Congress held in Valencia, Spain.
- **March 29, 2011:** CDMS Director **Kristi L. Koenig**, MD participates in a roundtable discussion, 'Disaster Health Management: A Summer's Tale of Woe,' held by the Australasian College of Health Service Management in Brisbane, Australia.
- **October 28, 2010:** **Kristi L. Koenig**, MD addresses the Eurasian Congress on

Emergency Medicine held in Antalya, Turkey.

- **October 11, 2010:** **Kristi L. Koenig**, MD and Carl H. Schultz, MD address the 6th annual European Congress on Emergency Medicine held in Stockholm, Sweden.





Maha Shirah Photography

Heal *To heal individuals through disaster response teams, and populations via development of disaster public health policy*

CDMS embraces the mission to heal – both at home and abroad. Our team is well-prepared to offer guiding principles and training to enable response teams to be ready to manage victims of various disasters and emergencies locally, nationally and internationally. In addition, CDMS had expertise in developing disaster public health policy, which will help save lives on a population basis.

Individuals

HEMS Program with Miyazaki University, Japan

The Helicopter Emergency Medical Service (HEMS) project is a specialized program designed for dispatching aircraft in emergency medical situations when a traditional ambulance cannot reach the scene easily or quickly enough.

The University of California, Irvine CDMS hosted an international team: Dr. Akira Sawaguchi, MD, PhD, Dr. Katsuhiko Kanemaru MD, Dr. Hiroshi Sameshima MD, from the University of Miyazaki, Japan, to explore a partnership for implementation and training for their novel Helicopter EMS

July 16, 2012: *EMS Fellow, Robert Katzer, MD, will travel to Miyazaki, Japan, to collaborate with University of Miyazaki faculty on the implementation of a new helicopter emergency rescue service.*



April 16, 2012: *Emergency Medicine Resident, Pamela Swan, MD, travels to Miyazaki, Japan, as CDMS ambassador, to attend the official ceremony of the launching of the new Helicopter Emergency Service at University of Miyazaki, School of Medicine, Japan.*

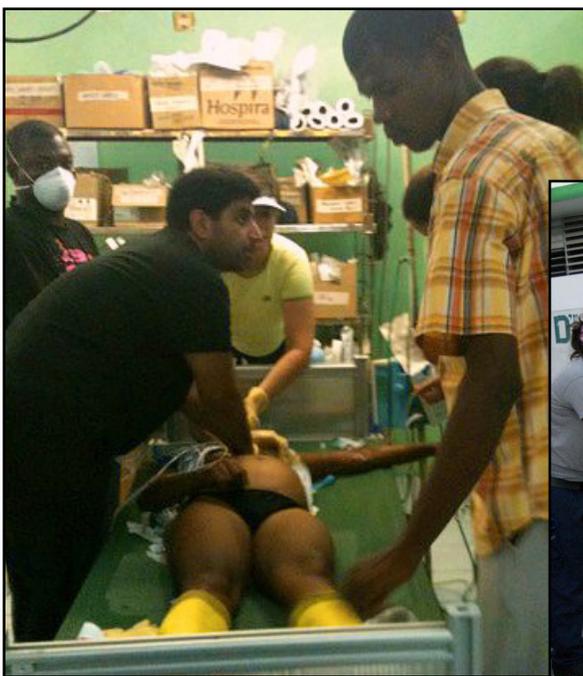
Haiti Earthquake



Photo Source: CNN/Haiti

On Tuesday, January 12th, 2010, Haiti was crushed by a destructive 7.0 earthquake. The earthquake caused massive destruction, affecting millions of people and killing thousands.

As part of the partnership program between CDMS and the International Medical Corps (IMC), CDMS member and International Fellow, **Dr. Anwar Al-Awadhi**, was among many who volunteered and was deployed to Haiti after the devastating earthquake.



Dr. Ken Miller, CDMS Director of Operational Medicine, deployed to Haiti as Chief Medical Officer for the ESF-8 Incident Response Coordination Team to transition US federal resources in acute medical care to the local community and non-governmental organizations.

Populations

International Medical Corps Trauma and Surgical Deployment Unit (TSDU)



CDMS has partnered with International Medical Corps in their Trauma and Surgical Deployment Unit (TSDU) program. A non-governmental organization, IMC has been in the forefront of nearly every disaster over the past 25 years. IMC developed and honed its immediate response and longer-term emergency medical care development protocols to address the increasing demand for trauma and surgical treatment. IMC experience demonstrates a need for more specialized services including trauma and emergency surgery when responding to complex emergencies. This partnership with CDMS is critical for the success of the TSDU program. Under the leadership of **Sherlene Stepp, RN**, CMDS Director of Emergency Response, CDMS is currently developing a roster of University of California, Irvine physician and nurse volunteers who will be trained and ready to deploy to future international disasters as part of the TSDU program.





Hurricane Irene

“Hurricane Irene is a good reminder that we need to be prepared for all types of disasters in California,” says CDMS Director Kristi L. Koenig, MD. “Being ready to care for yourself and your family for at least 72 hours is imperative—whether it’s for a hurricane or for an earthquake.”

As Eastern seaboard states from the Carolinas to Maine prepared for the onslaught of the hurricane-force storm Irene, members of the Center for Disaster Medical Sciences geared up for the crisis.

The UC Irvine-based organization closely monitored the storm, which affected millions of Americans and strained public health response resources.

CDMS members, many of whom are engaged in national preparedness, were ready to deploy if assistance was needed. Among them:

- **Dr. Ken Miller** serves as medical officer for the FEMA Urban Search and Rescue Incident Support Team. In addition, he is the National Disaster Medical System (NDMS) Assistant Deputy Chief Medical Officer for Region IX and medical advisor to the Orange County Chapter of the American Red Cross.
- **Dr. Merritt Schreiber** developed the PsySTART Rapid Mental Health Triage and Incident Management System, which is in use by the American Red Cross. He is ready to deploy with the US Public Health Service.

In addition, several other CDMS leaders are also members of the CA-1 Disaster Medical Assistance Team (Orange County DMAT), including **Darlene Bradley** (operations chief and chief nursing officer) and **Sherlene Stepp** (supervisory nurse).

Japan Earthquake & Tsunami

March 11, 2011, a massive earthquake (reported at 8.9 magnitude) at 05:46 UTC (14:46 local time) followed by a tsunami (with waves up to 10 meters/33 ft) struck Japan inflicting large numbers of deaths and injuries and creating mass destruction, including possible exposure to radiation from the region's damaged Fukushima Daiichi nuclear plant.

Japan has well-organized civil defense teams that helped victims immediately until outside help was available, as well as significant emergency management capacity — one of the best in the world. These factors likely mitigated the injuries and deaths from the earthquake in Japan. Nevertheless, such devastating disasters warrant assistance from the international community.

The Center for Disaster Medical Sciences (CDMS) geared up operations to be ready to assist the victims in Japan. CDMS has developed partnerships with many organizations, including the International Medical Corps (IMC) which coordinates international response teams, to provide opportunities for University of California, Irvine volunteer professionals to provide assistance to those in need.



Photo Source: Reuters

"This is a very complex disaster, and it's an evolving, ongoing situation," Kristi L. Koenig, MD, director of the Center for Disaster Medical Sciences at the University of California-Irvine, told Medscape Medical News.

Survivors and responders face potential psychological issues after coping with such a large-scale disaster. Public health issues such as providing sanitation, food, and shelter; preventing outbreaks of endemic diseases; and providing medical care for chronic conditions also need to be addressed.

One of the CDMS initiatives to assist Japan in the healing process is Emergency Medicine Resident Pam Swan's rapid translation of the PsySTART Triage Form into Japanese for sharing with the local response teams in Japan.

1. 自身や他人への殺傷願望があるか？
2. 甚大なパニックを経験したか？
3. 自身や家族が実際に死に直面したと思っているか？
4. 人の死や大怪我を見聞きしたか？
5. 家族、友人、同僚に死亡者が多数いるか？
6. 近親者の中に死亡者がいるか？
7. 友人や同僚の中に死亡者がいるか？
8. ペットを亡くしているか？
9. 自身や家族の中に災害を起因とした重篤な疾病の罹患者や怪我人があるか？
10. 閉じ込めや救出遅延を経験したか？
11. 災害で家が住めない状態になっているか？
12. 家族の中に、現在、行方不明者がいるか？
13. 子どもの中に、家族と離ればなれになっている者がいるか？
14. 災害時に離ればなれになったり、居場所や生死が不明だった家族がいるか？
15. これまでに精神科にかかったり治療を受けたことがあるか？
16. 放射能や化学薬品による汚染が確認されているか？
17. 汚染の洗浄がなされたか？
18. 汚染後治療を受けたか？
19. 汚染による健康不安があるか？
20. 以上なし。

Media

LA STAMPA.it NOVARA

NOVARA
22.05.2012 - AL MASTER DELL'UNIVERSITÀ DEL PIEMONTE ORIENTALE

"Ogni piccola comunità deve essere pronta ad affrontare un disastro"

Kristi Koenig, esperta di medicina d'emergenza, spiega il perché

ERICA ASSELLE

«E' importante lavorare in una città "piccola" come Novara perché i disastri interessano le comunità locali». Così Kristi Koenig, tra i massimi esperti al mondo in medicina d'emergenza e «dei disastri» spiega il suo entusiasmo nell'insegnare al master in corso nella sede novarese dell'Università del Piemonte Orientale.

«E' un'occasione per riunire persone provenienti da tutto il mondo per lavorare su questi temi e confrontarsi» aggiunge. Tanto più attuali dopo il terremoto delle ore scorse in Emilia. La professoressa Koenig, direttrice del «Center for disaster medical sciences» dell'Università californiana di Irvine era il direttore del ufficio per la gestione delle emergenze nel dipartimento federale che si occupa dei veterani negli Stati Uniti. Con le sue competenze, ha avuto un ruolo importante nella gestione di quell'emergenza, in coordinamento con gli altri dipartimenti federali, ma la maggior parte del lavoro era stato fatto prima, in preparazione ad un evento catastrofico come fu il crollo delle torri gemelle di New York.



La professoressa Kristi Koenig è arrivata dalla California

«E' fondatare di catastrofi e di confronto con i disastri, immaginare questo insieme»

Il difficile è allo stadio di competenza

sistemi di verifica di quanto appreso durante i corsi utilizzando schemi che provengono dalle scienze sociali. Le capacità da sviluppare sono molte e non sono solo strettamente mediche: c'è la gestione del personale, delle attrezzature e degli strumenti a disposizione (come i medicinali) e delle strutture. Ma soprattutto bisogna pensare al coordinamento. Una delle principali "nozioni" che insegno è quella di elaborare una strategia nell'affrontare una situazione di emergenza, farsi delle domande, pensare a com'è meglio agire».

La professoressa Koenig, che già in passato ha portato la sua esperienza al Master, quest'anno insegnerà, grazie al Fulbright specialist program (il più prestigioso programma di scambi per studenti e docenti universitari degli Stati Uniti), anche nozioni di etica e diritti umani applicate al campo della «medicina dei disastri»: «E' un tema molto stimolante considerando che ci sono persone provenienti da culture diverse e distanti tra loro».

May 22, 2012: While in Italy on a Fulbright grant, CDMS Director Kristi L. Koenig, MD, was interviewed by the newspaper La Stampa, the second largest newspaper in Italy, about the importance of emergency preparedness.





How does 'Contagion' play for O.C. experts?

September 30th, 2011, 4:00 pm · posted by **Pat Brennan**, science editor

The verdict is in on the bio-scare movie, Contagion, from Orange County health and disease experts:

It's accurate. Very accurate.

A group of infectious disease and emergency specialists from UC Irvine and the Orange County Health Care Agency attended a special screening of the film at an AMC Theater in Tustin Friday, then held a panel discussion afterward. If you haven't seen it, consider this your spoiler alert. The movie traces the chilling and grisly effects of a virulent, global pandemic that kills millions before a vaccine is found.

The progress of the disease, the depiction of the science used to try to contain it and the responses of public health agencies all got high marks from the group — with a few small exceptions. “I think the movie was flawed in that one respect where they had the CDC (Centers for Disease Control) coming in and doing everything, and the locals not knowing anything,” said Dr. Michele Cheung, deputy director of epidemiology at the Orange County Health Care Agency, getting a few laughs. “We would definitely be the ones starting the investigation, finding out where the patient traveled, who they might have had contact with. “The virus in the movie appeared to be loosely based on the SARS, avian flu and Nipa virus, which is carried by fruit bats, said Alan Barbour, a UC Irvine professor in microbiology, medicine and evolutionary biology. “Of all the movies of this genre, this was very accurate in terms of the microbiology, the infectious diseases and the epidemic nature of it,” Barbour told the group.

North America had a bit of a trial run for such an outbreak with SARS in Toronto in 2003, said **Dr. Kenneth Miller** of the county Health Care Agency and the Orange County Fire Authority, and health experts learned some important lessons. “Things like wearing respirators while on duty continuously, things like social distancing among crews, of EMS (emergency medical services), of fire service, to prevent transmission while on duty, while not engaging in patient care,” he said.

Drs. Kristi Koenig and Carl Schultz, UC Irvine disaster medicine specialists who attended a screening of "Contagion" in Tustin Friday. Providing as much information as early as possible, and offering protection both for emergency workers and their families also was important, he said. During a SARS outbreak in Taiwan, “a number of the health care workers got sick and died,” said Dr. Kristi Koenig, director of UC Irvine's Center for Disaster Medical Sciences. A similar episode is shown in the film. “So imagine your colleagues, that you're working with, dying, and you have to continue to care for patients in that environment,” she said. “That can be very difficult.”

Conveying such information is a science, she said, and it has a name: crisis and emergency risk communication.

The question of bio-terrorism comes up in the film, and the experts said that was a realistic concern as well.



“I thought one of the lines in the movie was very telling, where the CDC expert said, ‘We don't need to have terrorists manufacture this virus. Basically, nature is doing it for us,’” Koenig said. “On the other hand, there will be involvement from law enforcement, and from the Department of Homeland Security at the federal level, because it will not necessarily be known in the beginning of an outbreak whether this was something naturally occurring, or whether there was terrorist involvement.” The timing of the screening was appropriate. Flu season begins Saturday, UCI biosafety officer Sheila Hedayati reminded the group, and wondered if they had heard reports of a mutant strain of H1N1, or bird flu. Cheung said there was not a new strain of H1N1, but several varieties of the virus are still affecting poultry in some

OCWEEKLY

UCI Scientists Shake Up History Channel's *Megaquake 10.0*,

But Is 'Big One' Threat Real? By Matt Coker Wed., Jan. 12 2011 at 8:49 AM

Two UC Irvine scientists are among the experts featured in tonight's world-premiere showing of *Megaquake 10.0* on the History Channel. The two-hour special is set to shake up your flat-screen at 9 p.m., but, as Fritz and Fred always say, check local listings to confirm the time. The UCI academics offering insight into how and where a 10.0 megaquake could strike and what its impacts might be are public-health professor **Lisa Grant Ludwig** and emergency-medicine clinical professor **Kristi L. Koenig**.

The largest shaker ever recorded was a 9.5 earthquake off Chile in 1960, but research shows quakes close to 10.0 might be possible. And here's an even more sobering notion: More than 3 billion people on our blue planet are supposedly in immediate danger from the next "Big One." Not exactly comforting here in Earthquake Alley, is it?

Ludwig, who is UCI's seismologist, was the principal investigator of a study that concluded earthquakes have rocked the powerful San Andreas fault that splits California far more often than previously thought--and that a major quake could happen on the fault sooner rather than later.

Koenig's expertise lies in the aftermath of disasters. Co-director of Emergency Medical Services and the Disaster Medical Sciences Fellowship at the UCI School of Medicine, Koenig was traveling the world, providing crisis medical training and lectures long before 9/11.

But are megaquakes megacrap? I located the ripping broken Earth illustration that began this post on a U.S. Geological Survey (USGS)

<http://earthquake.usgs.gov/learn/topics/megaquakes.php> seeks to contextualize the "Big One" threat depicted in disaster movies and the news media.

"The idea of a 'Mega-Quake'--an earthquake of magnitude 10 or larger--while theoretically possible--is very highly unlikely," the USGS informs. "Earthquake magnitude is based in part on the length of faults--the longer the fault, the larger the earthquake. **The simple truth is that there are no known faults capable of generating a magnitude 10 or larger 'mega-quake.'**"

The bold emphasis is theirs, not mine. It's also how the USGS shakes up another long-standing myth.

"Then there's this business of California falling off into the ocean. NOT TRUE! The ocean is not a great hole into which California can fall, but it is itself land at a somewhat lower elevation with water above it. It's absolutely impossible that California will be swept out to sea. Instead, southwestern California is moving ever so slowly (2 inches per year) toward Alaska as it slides past central and eastern California. 15 million years (and many earthquakes) from now, Los Angeles and San Francisco will be next-door neighbors."

That's no doubt scarier than a megaquake to many Orange Countians.



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World Association of Disaster and Emergency Medicine

Contagion Panel and Media Interviews

Beckman Center Panel: Post 9/11: Science, Policy Law

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