

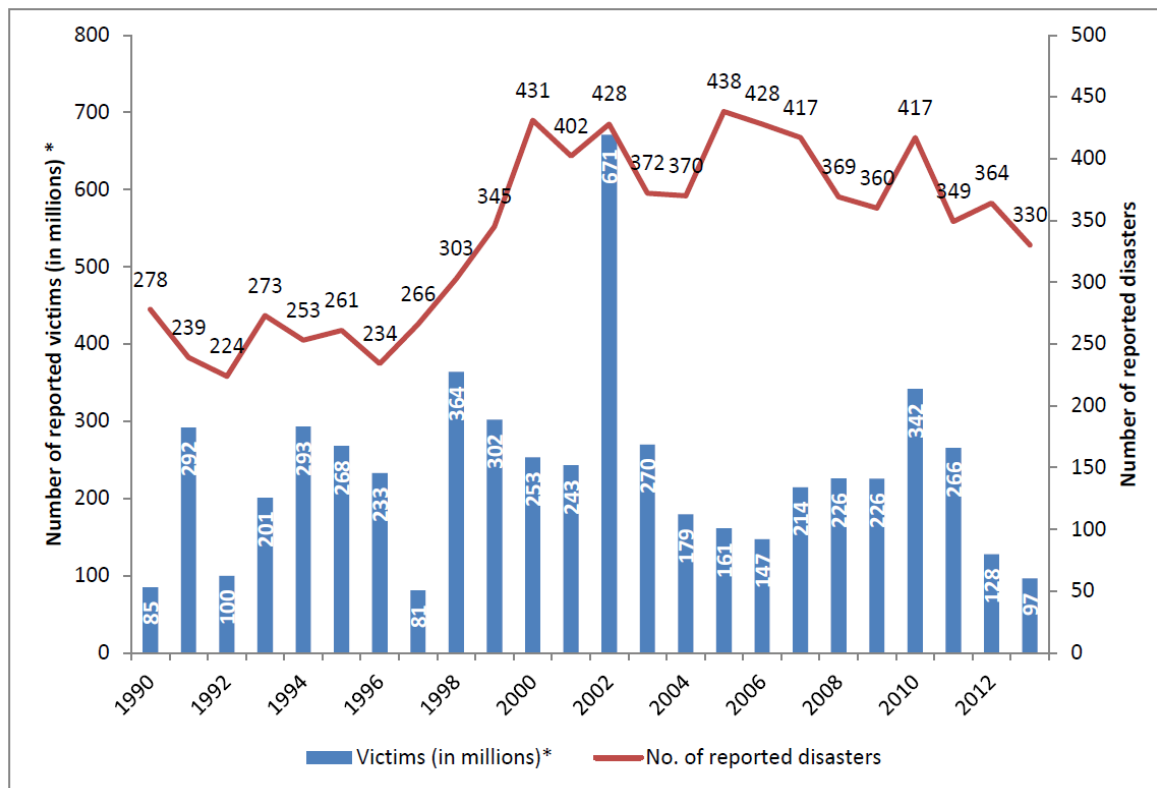


# Epidemiology and Migrations

Leonardo Palombi, Giuseppe Liotta

# The impact of disasters on health

In 2013 330 natural triggered disasters were registered. This was both less than the average annual disaster frequency observed from 2003 to 2012 (388), and represented a decrease in associated human impacts of disasters which were, in 2013, at their lowest level since 16 years .



# Assessing 6 functions

## *Assessment form*

The assessment form is sectioned according to the six functions (building blocks) of the WHO health-system framework (Table 2).

Table 2. The WHO health-system framework

<b>Functions</b>	<b>Overall goals/ outcomes</b>
Leadership and governance	Improved health (level and equity)
Health workforce	Responsiveness
Medical products, vaccines and technology	Social and financial risk protection
Health information	Improved efficiency
Health financing	
Service delivery	

# Assessing by key component and essential attributes

Service delivery

Response capacity and capability

Emergency-medical-services (EMS) system and mass-casualty management

Management of hospitals in mass-casualty incidents

Continuity of essential health programmes and services

Logistics and operational support functions in emergencies

# Indicator related questions

**Essential attribute 13** National health-sector plan for emergency response and recovery

## Indicator-related questions

- a. *Is the national emergency-response plan based on an all-hazards approach and risk assessment?*
- b. *Does the plan include contingency measures?*
- c. *Is it compatible with relevant intersectoral and subnational health plans?*
- d. *Does it define activation, coordination and incident-command mechanisms?*
- e. *Is it based on available resources?*
- f. *Is it disseminated to key stakeholders after each revision?*
- g. *Is it regularly tested through exercises, drills and simulations?*
- h. *Has it been disseminated to the public?*

In developing the national emergency-response plan, account should be taken of plans existing at lower administrative levels, other national-level plans and plans developed for specific



## Surveillance in Disasters

- Plays critical role during and after disaster to assess needs and identify disease and injury patterns
- Often requires data not normally obtained by routine surveillance systems in public health
- Predefines variables and data points of interest for a particular disaster before it occurs

# Syndromic Surveillance

- Uses indicators of population and individual health that may appear before widespread disease is confirmed in clinical/lab diagnosis
- Can be based on existing clinical data systems
  - Electronic health records
- Can use data outside of health care settings
  - Monitoring sales patterns of cold medicines for outbreaks of respiratory illnesses
  - Analyzing origins of Internet searches for “causes of diarrhea and vomiting” for gastrointestinal illnesses

# Disaster-Surveillance System Design

## Desirable to:

- Predefine variables and data points that would be of interest
- Use existing data systems (instead of creating new ones)
- Not require lots of extra resources during a disaster event
- Use simple method for data collection
- Collect demographic data and outcome data
- Track impact of disaster and identify resources
- Collect data for both victims and responders
- Collect baseline health status if available




# Disaster-Surveillance System Design

## Considerations

- Limited access to population of interest during disaster
- Survey samples may not be representative of whole population.
- Cultural/language barriers in collecting data
- Skill/qualification of staff to collect epidemiologic data
- Surveys and interviews postdisaster subject to recall bias
- Difficulty in investigating the long-term needs of the population
- Burden data collection presents to an already stressed system

# Role of Government/NGOs

- Preparedness for disaster response requires coordinated effort from multiple agencies and organizations.
- Emergency management agencies in government focus on overall management of disaster response, coordination of recovery resources, and possibly reallocation of resources.
- Private sector and nongovernmental organizations (NGOs), such as the American Red Cross, provide services such as shelter, food, and clothing.



Disaster epidemiology and surveillance are critical components of a disaster response and can contribute to understanding the nature of an event as well as the implications for planning for future events. There are unique challenges presented in performing surveillance during disasters, but the efforts made at surveillance and epidemiology provide valuable contributions to our understanding of disasters and planning for future events.

# Epidemiology and migration



# Climate change

Climate change alone poses a daunting challenge. No matter what steps the global community takes to mitigate carbon emissions, a warmer climate is inevitable. The effects are already being felt today and will intensify as climate change worsens.

All of the world's regions and nations will experience some of the effects of this transformational challenge.

Here's just one case in point: African states are likely to be the most vulnerable to multiple stresses, with up to 250 million people projected to suffer from water and food insecurity and, in low-lying areas, a rising sea level. As little as 1 percent of Africa's land is located in low-lying coastal zones but this land supports 12 percent of its urban population.



Above-normal rainfall increases the risk of vector-borne diseases.

# Migrations and disasters

- Furthermore, a majority of people in Africa live in lower altitudes—including the Sahel, the area just south of the Sahara—where the worst effects of water scarcity, hotter temperatures, and longer dry seasons are expected to occur.
- These developments may well be exacerbated by the lack of state and regional capacity to manage the effects of climate change. These same dynamics haunt many nations in Asia and the Americas, too, and the implications for developed countries such as the United States and much of Europe will be profound.

# Migrations and disasters

- The 2009 report by the International Organization for Migration produced in cooperation with the United Nations University and the Climate Change, Environment and Migration Alliance also notes that “migration can result from different environmental factors, among them gradual environmental degradation (including desertification, soil and coastal erosion) and natural disasters (such as earthquakes, floods or tropical storms).
- Clearly, then, climate change is expected to aggravate many existing migratory pressures around the world. Indeed associated extreme weather events resulting in drought, floods, and disease are projected to increase the number of sudden humanitarian crises and disasters in areas least able to cope, such as those already mired in poverty or prone to conflict.

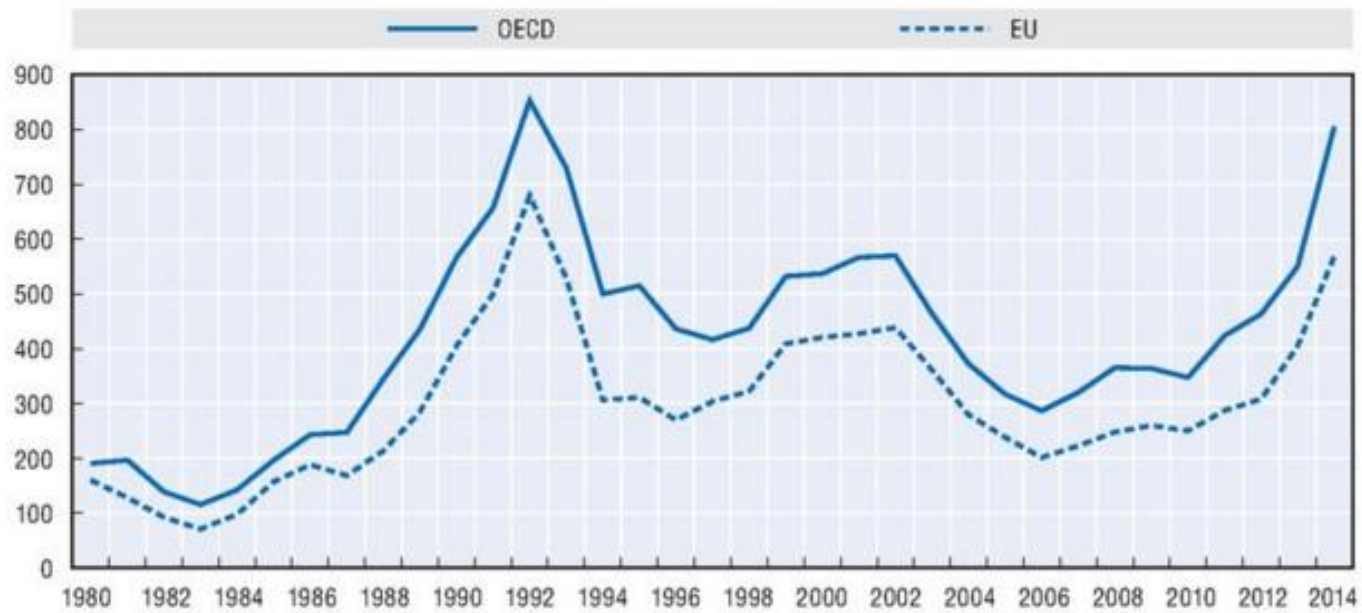
# Defining climate migrants

The temporal aspect of climate migration further complicates the categorization of climate migrants, resulting in at least three major types of climate migrants:


- Those temporarily dislocated due to disasters, whether natural or manmade
- Those permanently displaced due to drastic environmental changes, such as the construction of dams
- Those who migrate based on the gradual deterioration of environmental conditions



Figure 1.6. **New asylum applications since 1980 in the OECD**  
Thousands



Source: UNHCR.

StatLink  <http://dx.doi.org/10.1787/888933260776>

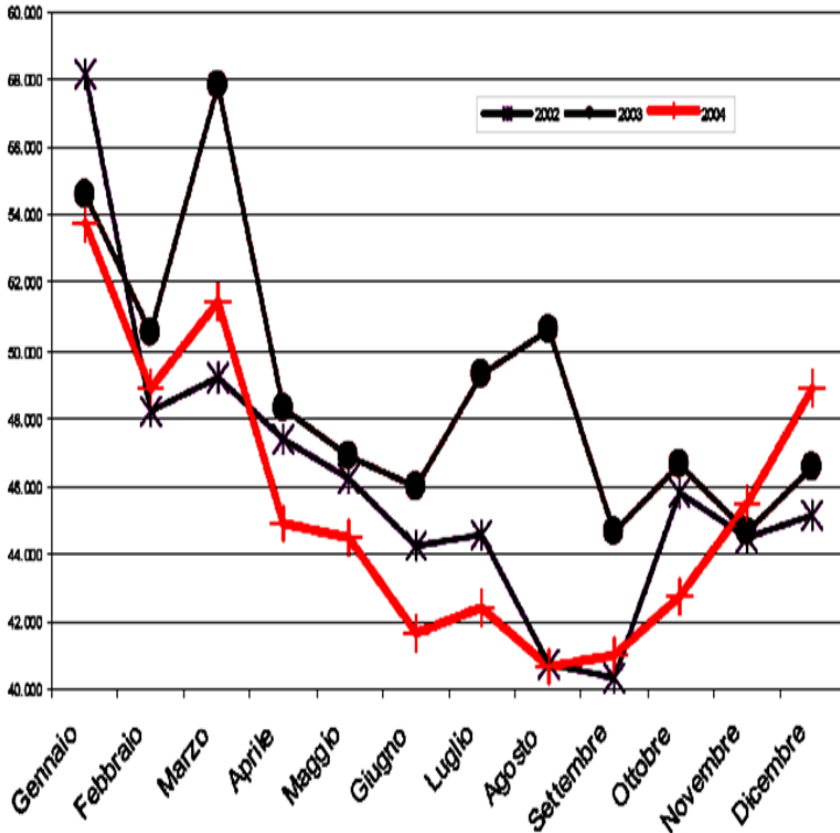
# Health security

“New diseases are global threats to health that also cause shocks to economies and societies. Defence against these threats enhances our collective security. Communities also need health security. This means provision of the fundamental prerequisites for health: enough food, safe water, shelter, and access to essential health care and medicines. These essential needs must also be met when emergencies or disasters occur.”

– Dr Margaret Chan  
WHO Director-General

# Mortality by month in Italy 2002-2004

Source: ISTAT 2005

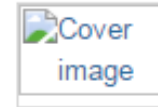


- The heat wave that hit Europe in summer 2003 provoked more than 20,000 unexpected death
- In Italy about 7,000 unexpected death were registered, of which 92 % were old people living alone.





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Feature Article

### The Threat of Communicable Diseases Following Natural Disasters: A Public Health Response

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A crucial initial step for a public health emergency response is to establish adequate disease surveillance systems that take into account the inherent disruption of the public health infrastructure. Outbreaks are prevented when public health can detect increases in diarrheal, respiratory, and other communicable diseases early and rapidly. Therefore, responders will need to use pre-impact epidemiologic information, such as baseline (expected) frequencies and distributions of disease (ie, incidence, prevalence, and mortality), known risks, immunization coverage for vaccine preventable diseases, and awareness (education) among the community to plan and implement the response.