Disaster Bioethics: Normative Issues when Nothing is Normal, 4-5 April 2011

Setting disaster research priorities

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Setting disaster research priorities

Outline

Extreme Events and Health Protection, CRCE/Health Protection Agency

Introduction

Health based guidance on research priorities

Organisations that have set disaster research priorities

An example of a disaster research priority

My personal conclusions
• Reducing key infections
• Minimising the health impact of environmental hazards including radiation, chemicals, poisonings and extreme events such as flooding
• Supporting safe and effective biological medicines
- Coordinate investigations and outbreak control
- Laboratory services
- Advise government
- Respond to international health alerts
Extreme Events and Health Protection Section (EEHPS)

The Health Protection Agency's new Extreme Events and Health Protection Section (EEHPS) based in central London, provides a focal point for the Agency's Centre for Radiation, Chemical and Environmental Hazards (CRCE) local national and international, environmental health protection work - carried out as part of nationwide planning, response and recovery to extreme weather events and natural disasters. The EEHPS section collates relevant information from within the HPA and from national and international partners, and provides relevant up-to-date evidence based information to support the development of planning for extreme events.

For this purpose an extreme event can be defined as any extreme weather event or other natural hazard including flooding, drought, cold, heat, earthquakes and volcanic ash with the potential to cause adverse impacts on human health. This also includes some aspects of climate change.

Objectives of the Extreme Events and Health Protection Section include:
The Health Protection Agency

Earthquakes  Radon  PVL

Earthquakes
Information from the Health Protection Agency about earthquakes

» Read more about earthquakes

What's New

News  Recent Publications  Events & Training

» HPA statement on fish spa pedicures
News | 10 March 2011

» Radon data published
News | 8 March 2011

» Improved reporting shows wider prevalence
News | 17 February 2011

» Weekly influenza media statement, 10 February 2011
News | 10 February 2011

» Weekly influenza statement, 3 February 2011
News | 3 February 2011

Key topics: HPA statement on fish spa pedicures
Tsunamis are caused by underwater earthquakes, landslides (above and below water) and volcanic eruptions. They can cause devastation in low-lying areas when they reach the shore. Major tsunamis are most commonly produced by large (greater than 7 on the Richter scale), shallow-focus (less than 30 km depth) earthquakes associated with rupturing at the boundaries of the Earth's tectonic plates. Occasionally, there are so-called tsunami earthquakes that generate a tsunami greater than expected from standard analysis of their seismic waves [1].

Tsunami waves can travel large distances causing destruction thousands of miles away from their initiation point. They carry enormous energy as they involve movement of the entire water column from the ocean surface to the seafloor. Tsunami waves travel at speeds of 800-1000 km per hour in the deep ocean and have wavelengths of 100-500 km. The wave height in the deep ocean may be around only 10 cm but as it
Figure 1 – Precipitation Levels for England and Wales during 24–25 June and 19–20 July 2007.

24-25 June 2007 Precipitation (mm)

- >125
- 100 to 125
- 75 to 100
- 50 to 75
- 25 to 50
- 5 to 25
- 0 to 5

FOR ENGLAND

HEALTH AND WELFARE HARM FROM EXTREME HEAT AND HEATWAVES
Introduction

Disaster research priorities are complex and difficult to set but vital for rapid advancement of scientific evidence base. Processes to identify these research priorities will depend on systems within countries, regions and international organisations.

Are there ways to assess how to take this forward?

• Evidence from health priorities domain helpful for disaster risk management and research priority setting principles?

• Setting of disaster research priorities and principles could be further addressed and what might be an effective and ethical way forward?
Health based guidance on research priorities
Principles around priority setting that have been developed in relation to healthcare resources

Extensive literature over past two decades on priority setting within healthcare, as issues around health care services or health technologies of ‘rationing’ or ‘resource allocation’ have become more prominent.

Academic health literature has also tended to focus on theoretical aspects of priority setting – there is relatively little in terms of practical guides or decision making tools, especially for public health organisations or public health policy makers.
Priority setting principles / process

**Principles** for priority setting has not good agreement

• not been possible to gain consensus on exact principles (or criteria) that should determine the setting of priorities

**Process** for priority setting has good agreement

• good degree of agreement on nature of process - ‘accountability for reasonableness’

• need for a fair, deliberative process to establish legitimacy and fairness of priority setting decisions
Importance of holding decision makers accountable

- **Transparency** - the process must be public (fully transparent) about the grounds for its decisions;
- **Relevance** - decisions must rest on reasons that stakeholders can agree are relevant;
- **Revisability** - decisions should be revisable in light of new evidence and arguments; and
- **Assurance** - there should be assurance through enforcement that these conditions (publicity, relevance, and revisability) are met.

Daniels N: Accountability for reasonableness: Establishing a fair process for priority setting is easier than agreeing on principles. *BMJ* 321:1300-1301, 2000
SOCIAL VALUE JUDGEMENTS

Principles of bioethics

Moral principles

- respect for autonomy
- non-maleficence
- beneficence
- distributive justice

Distributive justice

- utilitarian approach
- egalitarian approach

Procedural justice (‘accountability for reasonableness’)

- Publicity
- Relevance
- Challenge and revision
- Regulation

National Institute for Health and Clinical Excellence SOCIAL VALUE JUDGEMENTS
http://www.nice.org.uk/media/C18/30/SVJ2PUBLICATION2008.pdf
SOCIAL VALUE JUDGEMENTS

Fundamental operating principles

Legal obligations

Procedural principles

• scientific rigour
• inclusiveness
• transparency
• independence
• challenge
• review
• support for implementation
• timeliness

National Institute for Health and Clinical Excellence SOCIAL VALUE JUDGEMENTS
http://www.nice.org.uk/media/C18/30/SVJ2PUBLICATION2008.pdf
SOCIAL VALUE JUDGEMENTS
Evidence-based decision-making

Clinical and public health effectiveness

Cost effectiveness

• Assessing cost effectiveness
• Comparing the cost effectiveness of different interventions
  • Individual choice
  • Rare conditions
  • ‘Rule of rescue’

National Institute for Health and Clinical Excellence SOCIAL VALUE JUDGEMENTS
http://www.nice.org.uk/media/C18/30/SVJ2PUBLICATION2008.pdf
SOCIAL VALUE JUDGEMENTS
other issues

Avoiding discrimination and promoting equality

• race
• disability
• age
• sex/gender
• sexual orientation
• religion
• beliefs
• socioeconomic status

Reducing health inequalities

National Institute for Health and Clinical Excellence
http://www.nice.org.uk/media/C18/30/SVJ2PUBLICATION2008.pdf
Organisations that have set disaster research priorities
Which organisations have set disaster research priorities?

MSF Medecins Sans Frontieres
EHLRA – Enhanced Learning and Research for Humanitarian Assistance
ICSU International Council for Science / IRDR Integrated Research on Disaster Risk
IPPC Intergovernmental Panel on Climate Change
UN ISDR
MSF has produced an ethics framework for

- operational research
- ethics case studies for field staff
- training modules for managers and medics on medical ethics

Ethical issues include:

- MSF seeks to bring health goods to communities
- Scientific knowledge impact on traditional cultures.

Sheather J, Shah T. Ethical dilemmas in medical humanitarian practice: cases for reflection from Médecins Sans Frontières J Med Ethics 2011 37: 162-165
http://jme.bmj.com/content/37/3/162.full.pdf
EHLRA – Enhanced Learning and Research for Humanitarian Assistance

Vision: ELRHA aims to see a global humanitarian community where humanitarian actors actively collaborate with higher education institutes to that noticeably reduces risk and ensures that those suffering from the impact of disasters receive more timely, relevant and sustainable assistance to develop

• highly professional responders
• share expertise
• carry out research

that noticeably reduces risk and ensures that those suffering from the impact of disasters receive more timely, relevant and sustainable assistance

http://www.elrha.org/about
ELRHA - Specific funding opportunities of relevance to the humanitarian sector

Research Councils in the UK invest around £2.8 Billion each year in research - the Seven Research Councils:

[Links to Research Councils]

The UK Government's Department for International Development (DFID) provides funding for humanitarian issues

The European Union's main instrument for research funding is provided through the Seventh Framework Programme

The Leverhulme Trust
The Wellcome Trust
The Bill and Melinda Gates Foundation
Strengthening international science for the benefit of society

International Research Collaboration

ICSU works with strategic partners to plan and coordinate international research programs to address major issues of relevance to both science and society. To this end, a number of...
International Council for Science – what it is and its mission - 1931

a non-governmental organisation with a global membership of national scientific bodies (121 Members, representing 141 countries) and International Scientific Unions (30 Members).

ISCU’s mission: strengthen international science for benefit of society by mobilizing knowledge and resources of international science community to:

- Identify and address major issues of importance to science and society.
- Facilitate interaction amongst scientists across all disciplines and from all countries.
- Promote participation of all scientists—regardless of race, citizenship, language, political stance, or gender—in the international scientific endeavour.
- Provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.
Committee on Scientific Planning and Review stated that

Natural disasters pose a serious threat to populations around the world, each year causing thousands of lives lost, millions of people injured or displaced, and billions of dollars in damage.

ICSU considered that there are numerous ways in which the scientific community may contribute to reducing society’s vulnerability to such events, which can help prevent hazards from turning into disasters.

ICSU Foresight Analysis 2004
Examples of critical scientific and technical challenges

Improving ability to **predict events** such as droughts, floods, hurricanes, and landslides;

Strengthening understanding of basic physics underlying **earthquake** generation through integration of new observational tools, and developing engineering responses to reduce the impacts of seismic activity;

Assessing potential for increased **vulnerability** of particular regions to natural disasters as a result of anthropogenically-driven changes in climate and land use.

ICSU’s Integrated Research on Disaster Risk (IRDR) research goals

**Characterisation of hazards and vulnerabilities and risk**
- Identifying hazards, vulnerabilities and risks
- Forecasting hazards and assessing risks
- Dynamic modelling of risk

**Understanding decision-making in complex and changing risk contexts**
- Identifying relevant decision-making systems and their interactions
- Understanding decision-making in the context of environmental hazards
- Improving the quality of decision-making practice

**Reducing risk and curbing losses through knowledge-based actions**
- Vulnerability assessments
- Effective approaches to risk reduction
IRDR Work groups

**Forensic Investigations** has proposed an approach to studying natural disasters that aims to uncover the root causes of the disasters through in-depth investigations that go beyond the typical reports and case studies conducted after disasters.

**Risk Interpretation and Action** focuses on the question of how people – both decision-makers and ordinary citizens – make decisions, individually and collectively, in the face of risk.

**Disaster Loss Data** is meant to study issues related to the collection, storage, and dissemination of disaster loss data.
Climate change
disaster risk, exposure, vulnerability, and resilience
human systems and ecosystems

Managing risks from climate extremes at
local level
national level
international level

Toward a sustainable and resilient future

Case studies
Building the Resilience of Nations and Communities to Disasters


Priorities for Action

• Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
• Identify, assess and monitor disaster risks and enhance early warning
• Use knowledge, innovation and education to build a culture of safety and resilience at all levels
• Reduce underlying risk factors
• Strengthen disaster preparedness for effective response at all levels
Reducing Disaster Risks through Science

Issues and Actions

The Full Report of the ISDR Scientific and Technical Committee 2009
Topics selected

Climate change

Changing institutional and public behaviour to early warnings

Improving resilience to disasters through social and economic understanding

Knowledge of the wide health impacts of disasters
HYOGO FRAMEWORK FOR ACTION 2005-2015
Building the Resilience of Nations and Communities to Disasters

assess disaster impact and losses in a comparable way. As noted in the study commissioned for the Mid-Term Review Report on the use of databases for disaster risk reduction: “much of the existing operational research related to emergencies and disasters lacks consistency, is of poor reliability and validity and is of limited use for establishing baselines, defining standards, making comparisons or tracking trends.”

An example of a disaster research priority
Evidence for Disaster Risk Management –
Information and knowledge needs for policy makers and field practitioners

TASK for HFA Mid Term Review:

Case study on how data/information relating to all risks, hazards and disaster management is collected, held and analyzed, in order to facilitate the use of high quality information by decision makers at all levels.

 Undertaken by: Professor Virginia Murray, with advice from colleagues in UNISDR Science and Technical Committee Sub Committee, and Health Protection Agency colleagues Dr Ishani Kar-Purkayastha, Dr Delphine Grynspan, Jonathan Abrahams, Health Action in Crises, World Health Organisation and Dr Altaf Musani, World Health Organisation Mediterranean Center for Health Risk Reduction.

This study is intended to highlight the importance of making evidence-based multi-hazard impact assessments. It identifies tools that can be borrowed from the scientific community to achieve a

Work undertaken highlighting disparities in evidence based measures for risk reduction, response and recovery

• Value of case studies
• Disaster databases – use of systematic reviews
• Developing of tools and guidelines
Value of case studies

- Case studies capture the complexity of disaster risk and disaster situations
- Case studies appeal to a broad audience
- Disaster reduction needs to make the most of each single case

Accepted for publication Pre hospital and Disaster Medicine, due out 2011
Hierarchy of research evidence for assessing effects of healthcare interventions
Disaster databases – use of systematic reviews - 1

Professor Mike Clarke, Director of the UK Cochrane Centre

Two health-related questions posed as 'case studies' in order to focus the interrogation of various databases. Full outcomes from this work are currently being written up for publication.

None of databases interrogated were able to meet needs of healthcare professionals for answers to questions on health impacts of disasters

But note many databases interrogated not set up with health-related objectives in mind, but lack of detailed health data on natural disasters and lack of adequate health-specific databases is a gap
Disaster databases – use of systematic reviews - 2

• fundamental limitation of quality and relevance of primary data being collected - difficulties of collection of primary data including
  • lack of standardised case definitions
  • difficulty defining population denominators
  • attributing causality
  • lack of comparability between sources
• post-disaster period many agencies intervening and collecting data but too stretched coordinate and share it
• ethical imperative to ensure that all data collected is of good quality, useful and relevant to as many users as possible
Guidelines for Reports on Health Crises and Critical Health Events

Per Kulling, MD; Marvin Birnbaum MD, PhD; Virginia Murray, FRCP; Gerald Rockenschaub, MD, MPH

Introduction
The proposed guidelines for a common structure for reports on health crises and critical health events are an attempt of capturing the experiences gained and a further step for promoting a standardized methodology for sharing results and experiences. Such a common and standardized approach will facilitate the analysis and comparison of findings in order to improve preparedness planning and response and advance international collaboration and learning. If future reporting follows common standards, then the documented findings would be comparable and could be used to learn and apply lessons within an individual field of activity and to apply those lessons learned also to other related preparedness activities. It could also facilitate the implementation of joint activities and joint reports involving different sectors.

1. Emerit Seconded National Expert, Health and Consumers Directorate General, European Commission
2. Editor-in Chief, Prehospital and Disaster Medicine
3. Professor, Consultant Medical Toxicologist and Environmental Public Health, Centre for Radiation, Chemicals and Environmental Hazards, London, Health Protection Agency, UK
4. Regional Adviser, Disaster Preparedness & Response WHO Regional Office for Europe

Globally applied tools, such as the Initial Rapid Assessment tool (IRA) developed by the UN Interagency Standing Committee’s (IASC)—Global
Developing of tools and guidelines

**Standardised reporting will need international agreement** as a priority

As well as establishing standards for data collection, analysis and reporting, it will be crucial to ensure that these **standards are widely disseminated** within disaster scientific community and **achieve credence** as benchmarks to work to

As part of next phase of work HFA MTR may wish to consider identifying and implementing measures including developing an **international consensus**
Much of the existing operational research related to emergencies and disasters lacks consistency, is of poor reliability and validity and is of limited use for establishing baselines, defining standards, making comparisons or tracking trends.
My personal conclusions are

Setting disaster research priorities is complex

Health based guidance on research priorities might provide useful guidance?

Organisations that have set disaster research priorities as individual organisations, research groups, ICSU, IPCC and ISDR – but are they following similar approaches?

An example of a disaster research priority shows that evidence is imperative for strengthening all aspects of disaster risk management

Data, information and knowledge management are critical measures for saving lives and reducing suffering of people at risk of or affected by emergencies disasters