

**Improving Information Exchange In Disaster Healthcare:  
Is A Minimum Dataset A Viable Approach?**

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## Introduction

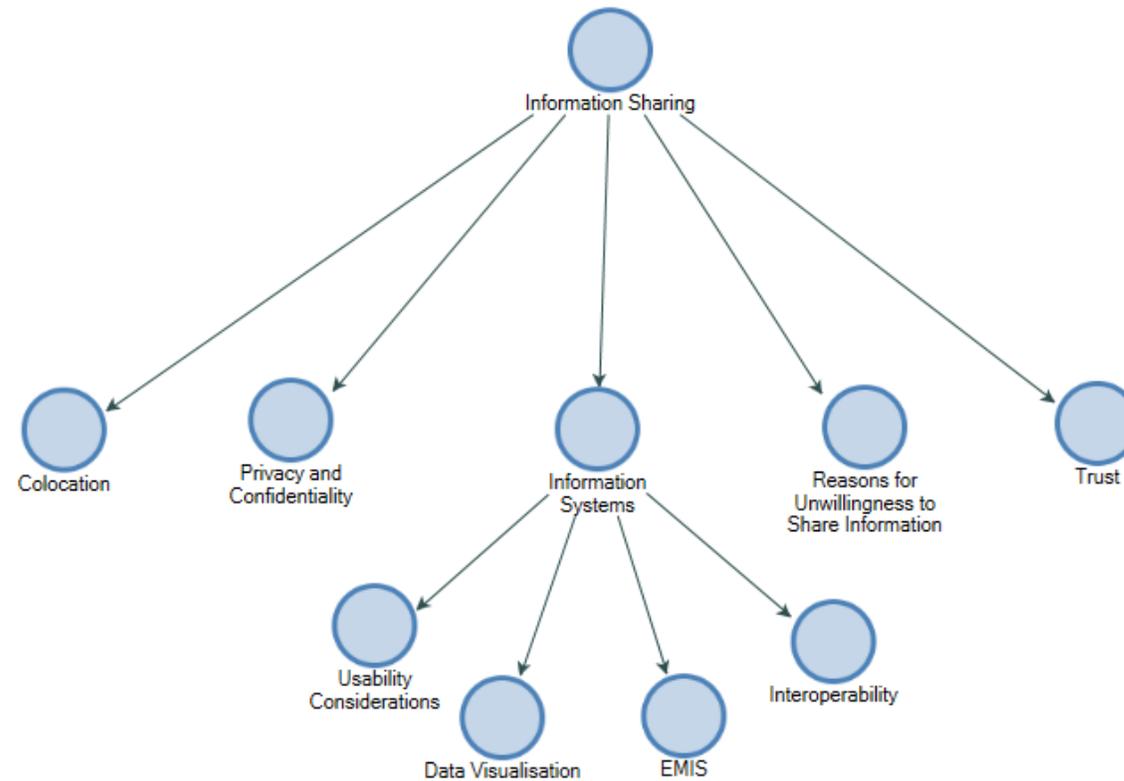
- 335 natural disasters, over 95.6 million people affected, 9,697 deaths and US \$335 billion cost.
- Over the next 50 years, there is a:
  - 30% chance of a magnitude 8 earthquake on the Alpine fault
  - 50% chance of an earthquake sequence
  - Almost a 100% chance of a central North Island volcanic eruption
  - 1-in-20 chance of a volcanic eruption in Auckland
- A collaborative approach towards disaster response will:
  - Decrease cost
  - Improve the quality of healthcare services in disasters
  - Upskill capabilities as agencies share expertise, tools and research findings

## Problem Context

- Poor communication between disaster response agencies could be attributed to:
  - Rapidly changing scenarios
  - Incomplete data
  - Limited time to make decisions
  - High stress levels
- Information sharing is vital for situation awareness upon which disaster managers and clinical personnel can make well-informed decisions.
- Too much information creates network overload, wastes time and is often ignored.
- Incomplete or inaccurate information results in unfavourable decisions.
- There is a need for receiving relevant, accurate and timely information.

## Key issues related to information sharing in disasters

- Datasets essential to be exchanged in disaster settings have been investigated.
- 10 Participants, semi-structured interviews, and thematic analysis.



## Participants data requirements

Module	Data Element
<b>Healthcare Module</b>	
Clinical Dataset	Patient tracking #
	Age
	Sex
	Triage
	What they presented
	Care delivered in the immediate hours
	Drugs administered
	Location where the victims was found
	Discharge disposition
	Which hospitals the patient has been sent to Previous, current, and next location of the victim
Non-clinical Dataset	# casualties
	# of deceased
	# of victims treated at the hospitals
	# of victims treated by Ambulance
Medical Facilities Dataset	Available facilities: # of available bed, # of ICUs (Including HDU, PICU)
	Shortage in medical supplies and/or healthcare personnel
<b>Baseline Module</b>	
Accreditation Dataset (Health)	Name, training completed, assessments, previous roles, # of responses
All-government Contacts Dataset	Names and contacts of must-be-contacted persons, might-be-contacted persons
Capabilities, Roles and Responsibilities Dataset	of response agencies during both business as usual and disasters
Lessons Learnt Dataset	Key lessons learnt from previous disaster events
<b>Humanitarian Module</b>	
Coordination Dataset	Who the lead agency is
	Agencies involved in the response, their geographical response area, and their tasks, authority boundaries (Who has the authority to do what - Clear boundaries)
	Immanent issues
	Most impacted populations
Risks Dataset	Short-term Likely risks (from similar events)
Response Resources Dataset	Resource shortage, requesting agency, date by which resource is required
Impacted Response Agencies Dataset	



## The concept of a “Minimum Dataset” (MDS)

- “An MDS is a set of data elements with uniform definitions that is minimally sufficient to define the information requirements for a specific task”. (The Free Dictionary, 2018)
- “A set of data that is collected for a specific purpose. In order to ensure that the meaning of data in the data set is clearly understood and data can be consistently collected and used, data are defined using metadata”.

~ The Australian National Data Development and Standards Unit

## Why define a disaster healthcare MDS?

- Much frustration is experienced by disaster responders due to:
  - Receiving too much, and sometimes irrelevant information
  - Missing out on important data items
  - Receiving out-dated data
- The goal is to strike a balance between adequate situation awareness and information overload.
- A 'Minimum Dataset' (MDS) for disaster healthcare may facilitate the communication, and the subsequent collaboration and coordination needed to deliver quality healthcare services in disasters.
- 'Minimum' indicates that the MDS will include the minimum amount of datasets sufficient for achieving the minimum standard of acceptable disaster healthcare provision.



## Why keep it “minimal”?

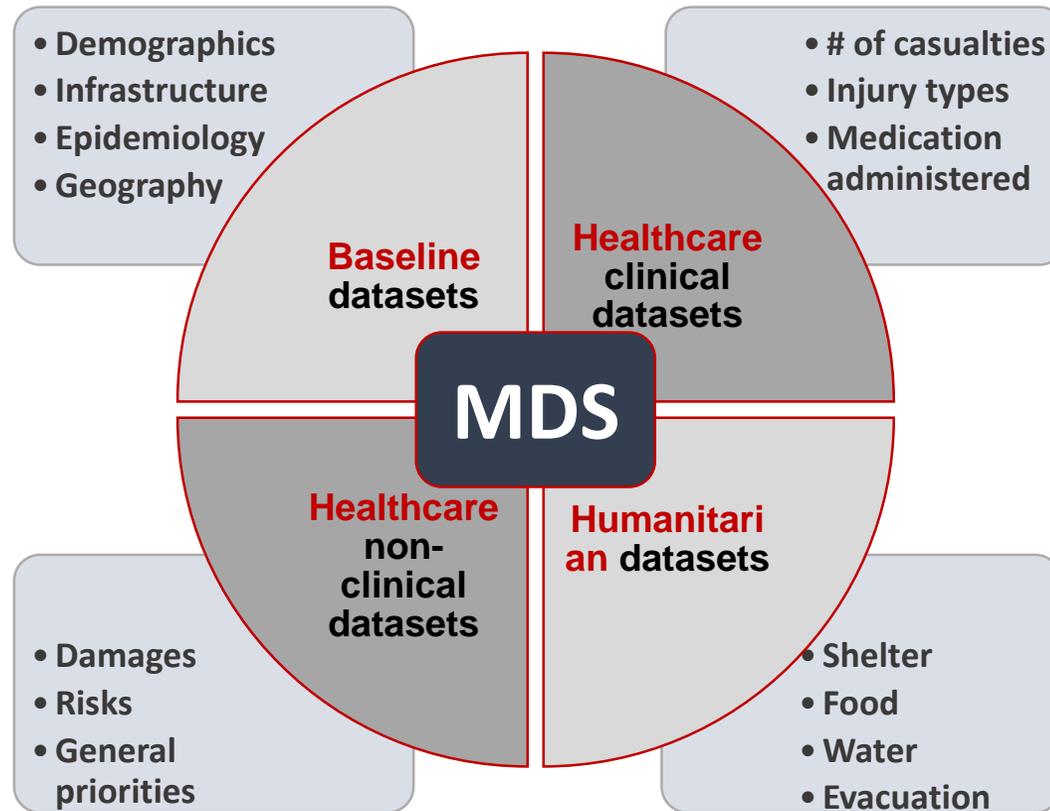
- Datasets related to specific types of disasters will be excluded.
- Disasters are dynamic, thus, the minimal aspect of the MDS is pragmatic.
- Data elements are to be reused depending on the recipient agency’s role.
- MDS usability implies removing any item in a dataset that may make the set difficult to use. E.g. sheer size, complexity, or ambiguity.
- An MDS is supported by a data dictionary that explains associated meanings, usage and format.



## Which datasets contribute to the disaster healthcare MDS?

- Priori datasets about the geography, infrastructure, and demographics
- Relevant health and epidemiological datasets
- Datasets relating to the health status of the disaster victims and the health sector at the time of the disaster. E.g. # of casualties, types of injury, triage statistics, resource availability and requirements, etc.
- Datasets about the current status of the disaster. E.g. damage, prognosis, risks, and general priorities.
- Humanitarian datasets concerning fundamental needs such as shelter, food, water, evacuation priorities

## Modules of the MDS



A single set of relevant, regularly updated data items that is made available throughout the disaster lifecycle.



## Delphi for evaluating the MDS

- A Delphi study will be conducted to seek experts' opinions on the datasets of the MDS.
- An iterative process used to collect and distil the judgments of experts using a series of questionnaires interspersed with feedback.
- Each subsequent questionnaire is developed based on the results of the previous questionnaire.
- The process stops when the research question is answered. E.g. consensus reached, theoretical saturation achieved, or sufficient information has been exchanged.
- The MDS Delphi study will involve international authorities with expertise across the target areas.



## The MDS approach: Problems, solutions, opportunities, or forecasts

- How practical is the MDS idea?
- Do we need specialised sets (as in mainstream healthcare) or a single disaster MDS would suffice?
- Is having disaster-specific MDS a better approach?
- Who manages the MDS and updates information?
- What other datasets are important for the MDS?
- How do we “minimise” user requirements to make them fit for the MDS (e.g. lessons learnt)?
- Would implementing the MDS approach via an international open source platform be worthwhile?
- What are the strengths and weaknesses of the MDS?
- Would joint training on MDS for disaster managers and clinicians be useful?



Interested in evaluating the minimum dataset?

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Thank you