Resource-Poor Settings: Infrastructure and Capacity Building

Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement

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e-Appendix 1.

CONSENSUS STATEMENT ON CARE OF THE CRITICALLY ILL AND INJURED DURING DISASTERS AND PANDEMICS: RESOURCE POOR SETTINGS PAPER 1 AND 2

LITERATURE SEARCH

Search conducted: 12/19/12 & 1/3/13
Database searched: MEDLINE/PubMed & Scopus
Search limits used: No limits used.
Search strategy used: Search terms used were primarily suggested by Topic Team POC, the Dunser articles and from review of key articles.

NOTE: the sections highlighted in this search strategy comprised the initial planned divisions for the paper on Resource Poor Settings. Based upon literature findings, the paper was further divided into two, roughly aligned with disaster phases of mitigation, preparation, response and recovery. The search strategy listed below was used for Definition, Infrastructure and Capacity Building, Resources Necessary to Enhance Capacity, and Reconstitution/Recovery/Disengagement from Host Nation. A refined search strategy was used for the response section and highlighted below.

MEDLINE/PubMed

General


*this was a good strategy. Still irrelevant results, but pretty good at retrieving relevant articles to a developing country setting

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*better strategy w/these variations

Recovery/reconstitution/rebuilding


*use this search strategy as it is specific to critical care and very good with retrieval


*use this search strategy as it is specific to critical care and very good with retrieval
units"[majr] OR "intensive care unit"[tiab] OR ICU[tiab] OR trauma[tiab] OR Trauma[majr] OR "major surgery" OR "mass critical care"[tiab]) AND (recovery OR reconstitution OR rebuilding OR rebuild OR post-disaster) = 11

*includes disaster and low income and critical care and recovery

**Surge Capacity**

(“low income country” OR “middle income country” OR “developing country” OR “Developing Countries”[mesh] OR “resource poor” OR “resource limited” OR Africa[tw] OR “south America”[tw] OR Asia[tw] OR “developing world” OR “least developed countries” OR “less developed countries” OR “third world” OR austere[tiab] OR “resource poor”[tiab] OR (resource[tiab] AND poor[tiab]) OR (resource[tiab] AND limit[tiab])) AND (“capacity building” OR mitigation OR mitigate OR “system strengthen” OR preparedness) AND (“surge capacity”[tiab] OR “Surge Capacity”[mesh]) = 8

**Capacity Building/Mitigation/Preparedness**


*this is a good strategy, but a lot of the results are related to pandemic or epidemics, but because this needs to address all types of disasters and many of the SARS articles are pandemic/disease outbreaks, use this search strategy

**SCOPUS**

**General**

**({low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND (disaster OR disasters OR {disaster planning} OR {rescue work} OR {relief work} OR tornado OR hurricane OR flood OR earthquake OR {mass casualty incident} OR {mass casualties} OR bombing OR {disease outbreak}) AND ({severe illness} OR {critical care} OR {intensive care} OR {intensive care unit} OR trauma* OR {major surgery} OR {mass critical care}) = 278

*use this search strategy; pretty good and many relevant articles – developing countries, disasters and critical care; omits pandemic/epidemic

**({low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND (disaster OR disasters OR {disaster planning} OR {rescue work} OR {relief work} OR tornado OR hurricane OR flood OR earthquake OR {mass casualty incident} OR {mass casualties} OR {mass critical care}) = 178

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bom**b**ing OR {disease outbreak}) AND ({severe illness} OR {critical care} OR {intensive care} OR {intensive care unit} OR trauma* OR {major surgery} OR {mass critical care}) AND ({Health Care Facilities} OR {health care facility} OR {healthcare facilities} OR hospital* OR {health personnel}) = 81

*use this search strategy; includes some unique articles – developing countries, disasters, critical care and healthcare facilities

Recovery/reconstitution/rebuilding

**{low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND (disaster OR disasters OR {disaster planning} OR {rescue work} OR {relief work} OR tornado OR hurricane OR flood OR earthquake OR {mass casualty incident} OR {mass casualties} OR bombing OR {disease outbreak}) AND ((severe illness) OR {critical care} OR {intensive care} OR {intensive care unit} OR trauma* OR {major surgery} OR {mass critical care}) AND (recovery OR reconstitution OR rebuilding OR rebuild OR post-disaster) = 39

*includes disaster and low income and critical care and recovery; use this search strategy although many PTSD and post recovery articles are not really relevant; omitted pandemic

**low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND (capacity building OR mitigation OR mitigate OR {system strengthen} OR preparedness) AND {surge capacity} = 6

*use this strategy even though it didn’t retrieve any new results

Surge Capacity

**{low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND ({capacity building} OR mitigation OR mitigate OR {system strengthen} OR preparedness) AND {surge capacity} = 6

*use this strategy even though it didn’t retrieve any new results

Capacity Building/Mitigation/Preparedness

**{low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND ({capacity building} OR mitigation OR mitigate OR {system strengthen} OR preparedness)
AND ({severe illness} OR {critical care} OR {intensive care} OR trauma* OR {major surgery} OR {mass critical care}) = 41

*this one is pretty good. Retrieves results not already retrieved from PubMed; however, there are still plenty of irrelevant results. Include because of the useful ones. Only focuses on capacity building, developing countries and critical care – not specific to disasters.

**Note:** Results were exported to EndNote from MEDLINE/PubMed and Scopus, and duplicate references removed. This resulted in a final set of 487 unfiltered search results.

**ARTICLE REVIEW STRATEGY**

Paper sections were divided among authors into teams, each team having a primary and secondary author. The above papers and abstracts were reviewed by each primary and then confirmed by secondary; the papers were initially divided into GREEN (likely applicable to their section) and YELLOW (possibly applicable to their section). Depending on the outcome, section authors then further modified the search, reviewed papers’ references for additional sources, and conducted other similar search strategies in order to maximize the information available for their sections. The following papers highlight those from each section using the initial search described above.

**DEFINITION**

See papers chosen for Infrastructure and Capacity Building and Resources Necessary to Enhance Capacity.

**INFRASTRUCTURE AND CAPACITY BUILDING**

This review comes primarily from articles gleaned from the initial ‘resource poor’ search, a second one that added ‘developing countries’ as a search term and a third individual search on ‘new and innovative technologies applied to resource poor countries’. It is important for us to recognize that the Resource allocation in poor settings is much different than those found in the Resource Allocation paper where there are empirical studies to review. Many of the publications reviewed are similar to what was published in the developed world back in the 60s and 70s. Also, and most critical, is that critical care defined in these countries is more like care in emergency departments in the developing world. In fact, in Africa only 3 countries have urban hospital based critical care units (South Africa, Egypt and Morocco) and are rare in South East Asia. Thus even the simplest of triage papers, for example, represent an advancement that can be shared among these developing countries. In these primarily descriptive papers one idea or two from each paper can build a consensus base for building a simple triage system in a developing country...a major advancement. – Skip Burkle

**Green PAPERS**


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Yellow PAPERS


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RESOURCES NECESSARY TO ENHANCE CAPACITY

GREEN PAPERS


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**YELLOW PAPERS**


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RESPONSE

NOTE: With limited papers defined using the above strategy, this section’s search was refined as follows:

Search conducted: 3/19/13 (had run earlier but updated 3/19/13)
Database searched: MEDLINE/PubMed & Scopus
Search limits used: No limits used.
Search strategy used: Search terms used were primarily suggested by Topic Team POC, the Dunser articles and from review of key articles. These can be changed and the searches re-run in PubMed with duplicates removed.

MEDLINE/PubMed

Disasters & Developing Countries & Medical Missions/Foreign Medical teams:
("low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa[tw] OR "south America"[tw] OR Asia[tw] OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world" OR austere[tiab] OR "resource poor"[tiab] OR (resource[tiab] AND poor[tiab])) OR (resource[tiab] AND limit[tiab]))
AND ("Relief Work"[Mesh] OR "relief work" OR humanitarian OR "international aid" OR "foreign medical team" OR "Medical Missions, Official"[Mesh] OR "medical missions")
AND ("low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa[tw] OR "south America"[tw] OR Asia[tw] OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world" OR austere[tiab] OR "resource poor"[tiab] OR (resource[tiab] AND poor[tiab]))
AND ("low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa[tw] OR "south America"[tw] OR Asia[tw] OR "developing world" OR "least developed countries" OR "less developed countries")

*specific to medical missions including military missions; very specific and targeted search

*limited to developing countries;
Disaster & Developing Countries & Disaster/Emergency Response:
("low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa[tw] OR "south America"[tw] OR Asia[tw] OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world" OR austere[tiab] OR "resource poor"[tiab] OR (resource[tiab] AND poor[tiab]) OR (resource[tiab] AND limit[tiab])) AND ("Relief Work"[Mesh] OR "relief work" OR humanitarian OR "international aid" OR "foreign medical team" OR "Medical Missions, Official"[Mesh] OR "medical missions" OR "Foreign Professional Personnel"[Mesh]) = 278

Disaster & Developing Countries & Critical care & Hospitals/Facilities:

*same # results with adding "emergency response";

Disaster & Developing Countries & Critical care & Hospitals/Facilities:
("low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa[tw] OR "south America"[tw] OR Asia[tw] OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world" OR austere[tiab] OR "resource poor"[tiab] OR (resource[tiab] AND poor[tiab]) OR (resource[tiab] AND limit[tiab])) AND ("Disaster Planning"[Mesh] OR tornado OR hurricane OR flood OR earthquake OR tsunami OR "Mass Casualty Incident"[mesh] OR "mass critical care" OR "mass casualties" OR "mass casualties"[mesh]) = 102

*good, not bad – disasters AND resource poor AND hospitals AND critical care

**SCOPUS**

TITLE-ABS-KEY({"low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa OR "south America" OR Asia OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world" OR austere} AND (disaster OR disasters OR "disaster planning" OR tornado OR hurricane OR flood OR earthquake OR tsunami OR "mass casualty incident" OR "mass casualties" OR "mass casualty incidents" OR bombing OR "disease outbreak" OR "public health emergency") AND ("foreign medical team" OR "Medical Missions" OR "foreign medical mission" OR "foreign professional personnel")) = 45

*limit to medical missions – excluded humanitarian; international aid/relief, rescue work, relief work;

Disaster & Developing Countries & Critical care & Hospitals/Facilities:

TITLE-ABS-KEY({"low income country" OR "middle income country" OR "developing country" OR "Developing Countries"[mesh] OR "resource poor" OR "resource limited" OR Africa OR "south America" OR Asia OR "developing world" OR "least developed countries" OR "less developed countries" OR "third world"})

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OR austere) AND (disaster OR disasters OR {disaster planning} OR tornado OR hurricane OR flood OR earthquake OR tsunami OR {mass casualty incident} OR {mass casualities} OR {mass casualty incidents} OR bombing OR {disease outbreak} OR {public health emergency}) AND ({severe illness} OR {critical care} OR {intensive care} OR {intensive care unit} OR trauma* OR {major surgery} OR {mass critical care}) AND {{Health Care Facilities} OR {health care facility} OR {healthcare facilities} OR hospital* OR {health personnel}} = 84

Disaster & Developing Countries & Disaster/Emergency Response:
{low income country} OR {middle income country} OR {developing country} OR {developing countries} OR {resource poor} OR {resource limited} OR Africa OR {south America} OR Asia OR {developing world} OR {least developed countries} OR {less developed countries} OR {third world} OR austere) AND (disaster or disasters OR {disaster planning} OR tornado OR hurricane OR flood OR earthquake OR tsunami OR {mass casualty incident} OR {mass casualities} OR {mass casualty incidents} OR bombing OR {disease outbreak} OR {public health emergency}) AND {{disaster response} OR {emergency response}} = 192

*removed "response" and limited retrieval down;

Note: Results were exported to EndNote from MEDLINE/PubMed and Scopus, and duplicate references removed. This resulted in a final set of 509 unfiltered search results, which are listed below. These are the raw search results from the searches used above; no additional filtering or limits were applied to the searches. The records include the citation and abstract (if available). Records below include the URL to the citation in MEDLINE/PubMed or Scopus. Click on the link to go to the database and download the article via your institution’s subscriptions. Titles in square brackets (e.g., [title]) are articles where the title was translated into English. The article is most likely not in English

GREEN PAPERS


7. de Ville de Goyet, C. (2007). "Health lessons learned from the recent earthquakes and Tsunami in


YELLOW PAPERS


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RECONSTITUTION/RECOVERY/DISENGAGEMENT FROM HOST NATION

GREEN PAPERS

None Identified.

YELLOW PAPERS


**RESEARCH**

This section was developed as the initial paper was divided into two, with those topics relevant to Research, Quality Improvement, and Innovation placed into this section. No separate literature search occurred for this section.