Engagement and Education

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

Asha V. Devereaux, MD, MPH, FCCP; Pritish K. Tosh, MD; John L. Hick, MD; Dan Hanfling, MD; James Geiling, MD, MPH, FCCP; Mary Jane Reed, MD, FCCP; Timothy M. Uyeki, MD, MPH, MPP; Umair A. Shah, MD, MPH; Daniel B. Fagbuyi, MD; Peter Skippen, MBBS; Jeff rey R. Dichter, MD; Niranjan Kissoon, MBBS, FRCPC; Michael D. Christian, MD, FRCPC, FCCP; and Jeff rey S. Upperman, MD; on behalf of the Task Force for Mass Critical Care

CHEST 2014;146(4_Suppl):e118S-e133S

e-Appendix 1.
Engagement: Methodology

This Engagement panel initially evaluated 1) the engagement of parties essential to the response to the management of critically ill during a disaster and 2) the communication between parties and with the public. Key groups to be considered were: hospitals, healthcare providers, government organizations, non-governmental organizations (NGOs), military, and the media. Based upon a conference call of panelists in April 2012, additional groups were added.
<table>
<thead>
<tr>
<th>Key Question (PICO)</th>
<th>Search terms</th>
<th>Total number of citations</th>
<th>Number of citations excluded after preliminary review of titles and abstracts</th>
<th>Number of citations excluded after review of complete articles</th>
<th>Final number of articles included</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Who is responsible for updating clinical evidence in real-time disaster? Who is the credible clinical information sharing, social media, HIPPA regulations during disaster</td>
<td>information sharing, social media, HIPPA regulations during disaster</td>
<td>320</td>
<td>271</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td>authority? How will the medical community disseminate information so that it reaches the ICUs and necessary leaders for MCC delivery? How should clinical information be disseminated to providers during a disaster?</td>
<td>regionalization, 322 291 31 45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can regionalized ICU systems promote engagement?</td>
<td>provider engagement, provider education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
At the face-to-face Task Force meeting in 2012, the expert panel used the literature and their extensive collective disaster experience to formulate patient, intervention, comparison, and outcomes (PICO) questions. It was the consensus opinion of the group that provider engagement needs to be based upon a sound foundation of communication, knowledge, collaboration, and community. Literature searches were then repeated with regard to these key questions and concepts and analyzed accordingly. The literature served to inform the development of key suggestions.

Initial literature searches of major databases were carried out using keywords related to the following Search Terms: information sharing, social media, HIPPA regulations during disaster, Educational modules for resource-poor settings, NDLS, FDM Strategy: (Delivery of Health Care, Integrated [Mesh] OR engagement [title] OR integrat* [title]) AND ("Disaster
Planning"[MAJR] OR mass casualty incidents [majr]) regionalization, provider engagement, provider education, Filters: published in the last 10 years; Searches were limited to English language. There was no exclusion based on sample size. The resultant reference lists were searched manually to exclude entries that were obviously irrelevant to the topics. Specific search strategies are described further below and were structured around the following PICO questions.

The following question was raised and was felt to be important but only applicable to the US, and was theoretical in nature. It is briefly addressed in the discussion section of the paper (ref), but it did not lend itself to consensus suggestion.

How will the US Affordable Care Act impact disaster medicine engagement and implementation for MCC?

*Remark: No literature found.*

After receiving the literature search results from the National Institutes of Health (NIH) librarian and inclusion of literature obtained from consensus conference and via email, one panelist screened all titles to eliminate citations that were clearly unrelated to the topic (such as topics related to cancer, bacteriology, etc). Next, titles and abstracts of each study were independently reviewed by two panelists for inclusion or exclusion according to pre-determined criteria: English language, date range, and association with disaster. If no abstract was available, the full text was reviewed if both of the reviewers felt the title suggested relevance to the topic. Reasons for study exclusion at the title/abstract phase included the following: (1) failure to address disaster topic (2) failure to address a critical care disaster context (e.g., studies involving influenza bench research); and (3) failure to address a Key Question. In cases of disagreement between the reviewers, an independent reviewer was assigned to review the abstract and reconcile the difference; however, no key question required a 3rd reviewer. In the next stage, two panelists independently reviewed full-text articles and excluded those that failed to address a Key Question.
Disagreement between the reviewers about whether a study should be included was resolved by consensus conversation via teleconference or email.

Key suggestions were then formulated following a series of teleconferences and electronic postings via website sharing, BASECAMP, by the entire Engagement Panel. These suggestions were then shared with the larger Task Force via a series of Webinars preceding the Delphi consensus voting process. Further details of methods can be found in (REF Methodology paper).

**Search strategies used for Question #1**

**Search conducted:** 12/14/12  
**Search conducted by:** Alicia Livinski, NIH Library

**Database searched:** MEDLINE/PubMed & Scopus  
**Search limits used:** No limits used.  
**Search strategy used:** *Search terms used were primarily suggested by Topic Team POC. These can be changed and search re-run in PubMed with duplicates removed.*

**MEDLINE/PubMed**

Online Supplement

care"[tiab] OR "intensive care units"[mesh] OR ICU OR “critical care”[tw]) AND ("information dissemination"[tiab] OR "information sharing"[tiab] OR communication[tw]) = 92


**Scopus**

({Geological Processes} OR hurricane OR tornado OR earthquake OR flood OR tsunami OR wildfire OR Terrorism OR disaster* OR {Weapons of Mass Destruction} OR {Power Plants} OR {disease outbreak} OR epidemic OR catastrophe OR catastrophic OR catastrophes OR hazard OR {public health emergency} OR {Mass Casualty} OR {Mass Casualties} OR {Mass Casualty Incidents}) AND ({intensive care} OR {intensive care units} OR ICU OR {critical care}) AND ({information dissemination} OR {information sharing} OR {information systems} OR communication) AND (HIPAA OR {Health Insurance Portability and Accountability Act} OR {patient privacy})) = 1

({Geological Processes} OR hurricane OR tornado OR earthquake OR flood OR tsunami OR wildfire OR Terrorism OR disaster* OR {Weapons of Mass Destruction} OR {Power Plants} OR {disease outbreak} OR epidemic OR catastrophe OR catastrophic OR catastrophes OR hazard OR {public health emergency} OR {Mass Casualty} OR {Mass Casualties} OR {Mass Casualty Incidents}) AND ({intensive care} OR {intensive care units} OR ICU OR {critical care}) AND ({information dissemination} OR {information sharing} OR {information systems} OR communication) = 160

({Geological Processes} OR hurricane OR tornado OR earthquake OR flood OR tsunami OR wildfire OR Terrorism OR disaster* OR {Weapons of Mass Destruction} OR {Power Plants} OR {disease outbreak} OR epidemic OR catastrophe OR catastrophic OR catastrophes OR {public health emergency} OR {Mass Casualty} OR {Mass Casualties} OR {Mass Casualty Incidents}) AND (HIPAA OR {Health Insurance Portability and Accountability Act} OR {patient privacy}) = 70

**Note:** Results were exported to EndNote from MEDLINE/PubMed and Scopus, and duplicate references removed. This resulted

*Online supplements are not copyedited prior to posting.*

© 2014 AMERICAN COLLEGE OF CHEST PHYSICIANS. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details. **DOI:** 10.1378/chest.14-0740
in a final set of 301 search results, which are listed below. 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.

The literature search yielded 320 publications of which 49 were found to be potentially pertinent to the key question. Of these, 29 were relevant to situational awareness infrastructure and engagement in MCC settings in one of four general categories: nine were related to communications, three to surveillance, four to regional disaster coordination, and one to telemedicine. The rest of the articles provided information to support the suggestions.

Question #2: Search Terms: regionalization, provider engagement, provider education

Search conducted: 11/28/12
Search conducted by: Alicia Livinski, NIH Library

Database searched: MEDLINE/PubMed
Search limits used: Published since 2007
Search strategy used: Search terms used were primarily suggested by Topic Team POC. These can be changed and search re-run in PubMed with duplicates removed.

Search strategies used for Question #2:
Online Supplement


Limited to 2007-2012 = 185

Cooperative Behavior AND Disaster Planning Limited to 2007-2012 = 133


**Note:** Results were exported to EndNote from MEDLINE/PubMed, and duplicate references removed. This resulted in a final set of 322 search results, which are listed below. The records include the Citation and Abstract (if abstract was available in MEDLINE/PubMed). Records below include the URL to the citation in MEDLINE/PubMed if you opt to then go and download the article via your institution’s subscriptions and licenses. Titles in square brackets (e.g., [title]) are articles where the title was translated into English. The article is most likely not in English

Search Terms: Educational modules for resource-poor settings, NDLS, FDM, Search conducted: 12/19/12

**Search conducted by:** Alicia Livinski, NIH Library

Online supplements are not copyedited prior to posting.
Database searched: MEDLINE/PubMed & Scopus
Search limits used: No limits used.
Search strategy used: Search terms used were primarily suggested by Topic Team POC. These can be changed and search re-run in PubMed with duplicates removed.

A total of 322 titles were reviewed for this key question. 76 articles were selected for further evaluation of which ultimately 45 were included. The literature review yielded 2 separate and distinct topics, either regionalization or provider engagement. Only 4 articles specifically addressed ICU regionalization in a disaster context, but did not yield an answer to the key question.\(^{19,24,38,42}\) 10 articles addressed provider engagement in some format, but only 2 specifically addressed the ICU provider community.\(^{36,42}\) The remaining articles served to inform the suggestions.\(^{1-3,17,18,20-23,25-35,37,39-41,43-49,52,53,109-115}\)

Search strategies used for Question #3

MEDLINE/PubMed

Disasters AND competences AND ICU/critical care
Disaster medicine AND competencies


Disasters AND competences AND international/developing countries

Disaster Medicine AND competences AND international/developing country

SCOPUS

Disasters AND competences AND ICU/critical care
(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 pandemic OR {disease outbreak})AND ({professional competence} OR {professional competency} OR {professional competencies} OR competency OR competencies OR benchmark* OR standard* OR {code of practice} OR {Standard of Care} OR {professional standards}) AND ({intensive care} OR {intensive care units} OR ICU OR {critical care} OR {mass critical care}) = 157

Disaster medicine AND competencies
(116 OR {mass critical care} OR {mass casualty incident} OR {mass casualties})
AND ({professional competence} OR {professional competency} OR {professional competencies} OR competency OR competencies OR benchmark* OR standard* OR {code of practice} OR {Standard of Care} OR {professional standards}) = 273

Without standard* or {code of practice} = 65

({116}) AND ({professional competence} OR {professional competency} OR {professional competencies} OR competency OR competencies OR benchmark* OR standard* OR {code of practice} OR {Standard of Care} OR {professional standards}) = 190

({disaster medical team} OR {medical mission team} OR {disaster medical assistance team}) AND ({professional competence} OR {professional competency} OR {professional competencies} OR competency OR competencies OR benchmark* OR standard* OR {code of practice} OR {Standard of Care} OR {professional standards}) 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 pandemic OR {disease outbreak}) = 3

Disasters AND competences AND international/developing countries

(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 pandemic OR {disease outbreak}) AND ({professional competence} OR {professional competency} OR {professional competencies} OR competency OR competencies OR benchmark* OR {Standard of Care} OR {professional standards}) AND ({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 OR {resource poor}) = 72
Note: Results were exported to EndNote from MEDLINE/PubMed and Scopus, and duplicate references removed. This resulted in a final set of 955 search results, which are listed below. 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.

Strategy: (Delivery of Health Care, Integrated [Mesh] OR engagement [title] OR integrat* [title]) AND ("Disaster Planning"[MAJR] OR mass casualty incidents [majr]) Filters: published in the last 10 years; English

Question #4

Search Terms: community/provider engagement in disaster

Strategy: (Delivery of Health Care, Integrated [Mesh] OR engagement [title] OR integrat* [title]) AND ("Disaster Planning"[MAJR] OR mass casualty incidents [majr]) Filters: published in the last 10 years; English

Search terms: community engagement and mass critical care outcomes

0 results
Of the 52 articles extracted from multiple sources, 20 articles were selected for inclusion, but only 2 showed any correlation with mass critical care\textsuperscript{90,91}. 10 additional sources were included from letter reports and experts on the panel (US). This grey literature describes extensive public health system efforts towards community engagement and forms the foundation from which the suggestions were formulated for consensus opinion.\textsuperscript{\{Health, September 10`, 2009 #561;Medicine), 2009 #560;Medicine), 2013 #558;Timbie JW, 2012 #134;, #385;Medicine), 2012 #559;Medicine), 2012 #366;, #200;, #371;, #370\}}