The Best Disaster Medicine Literature of 2016

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INTRODUCTION

The Society for Academic Emergency Medicine (SAEM) Disaster Medicine Interest Group partnered with HHS/ASPR TRACIE and the NIH Office of Research Services on a disaster medicine literature review similar to the global emergency medicine literature review (GEMLR) published annually in *Academic Emergency Medicine*.

Objective: Identify, review, and disseminate the most important new research in the field of disaster medicine to academics and practitioners.

Project Team: SAEM Disaster Medicine Interest Group Co-Chairs (EG, RS) and Representatives (PB, JB, GC, SG, AM, IN), NIH Medical Librarian (AL), and HHS/ASPR TRACIE (JH, SB) and HHS/ASPR TRACIE/ICF staff (AH, AM, JN, MT).

METHODS

Disaster medicine was defined to provide boundaries to the scope of the review: **The area of medical specialization serving the dual purposes of providing health care to disaster survivors and providing medically related disaster preparation, planning, response, and recovery support and leadership regardless of the causative hazard.**

A protocol was developed outlining the methodology and participant roles.

LITERATURE SEARCH

Peer Reviewed Literature

Medical librarian searched PubMed/MEDLINE and Scopus databases for peer-reviewed literature with at least 1 disaster medicine term and at least 1 healthcare system term. The following criteria was applied to the literature search:

- Published January 1, 2016 to December 31, 2016
- English-language only
- Human studies only
- Original research, reviews, commentary, concept papers, case reports

All citations were exported to EndNote X8 to remove duplicates.

Additionally, each issue published in 2016 by 9 peer-reviewed journals was hand searched to identify additional articles of relevance.

Academic Emergency Medicine	Journal of Emergency Medical Services
Annals of Emergency Medicine	PLoS Currents: Disasters
Disaster Medicine and Public Health Preparedness	Prehospital and Disaster Medicine
European Journal of Emergency Medicine	Prehospital Emergency Care
Journal of Emergency Management	

Grey Literature

21 non-profit, governmental, academic, and association websites were searched using the same criteria as the peer-reviewed literature search.

American Burn Association	FEMA
American College of Chest Physicians	Mediterranean Emergency Medicine Congress
ACEP	NACCHO
American Red Cross	NCDMPH
ASPR	PAHO
ASPR TRACIE	SAEM
ASTHO	Society for Critical Care Medicine
Center for Health Security	WADEM
CDC	WHO
DisasterLit	Yale New Haven CEPDR
European Society for Emergency Medicine	

SCREENING AND SCORING

Level 1 Screening: 5 project team members (AH, AL, AM, JN, MT) completed a Level 1A review of titles and abstracts to identify:

- Disaster medicine concept AND
- Healthcare systems/hospitals AND
- Disasters/natural disasters/terrorism/infectious disease outbreak

Each article was reviewed by 2 project team members. Disagreements were resolved by a third reviewer (JH, RS). All articles remaining after Level 1A were further screened (EG, JH, RS) using the same criteria to ensure relevance (Level 1B). Articles assessed as meeting all 3 inclusion criteria proceeded to Level 2 scoring.

Level 2 Scoring: 2 project team members (AL, JN) classified included articles as: Original Research; Case Reports/Commentary/Concept Papers; or Reviews/Meta-Analysis. An Excel scoring sheet piloted by 2 team members (JH, RS) assessed each article on clarity, design, ethics, importance, impact, and overall impression, with a maximum overall score of 20. Each article was independently scored by 2 Level 2A reviewers (AM, GC, IN, JB, JH, PB, RS, SG). For Level 2B, to account for scoring outliers, a third reviewer (EG, JH, RS) independently scored articles that 1 Level 2A reviewer scored above a threshold and the other Level 2A reviewer scored 4 or more points lower.

SELECTION

Articles with an average Level 2A score of at least 16.5 proceeded to final review. Level 2B articles with the 2 highest Level 2A and 2B scores averaging 16.5 or higher were also selected. 9 team members (AM, EG, GC, IN, JB, JH, PB, RS, SG) summarized the selected articles.

RESULTS

- 1,175 unique articles screened
- 347 articles reviewed and scored
- 18 selected for summarization
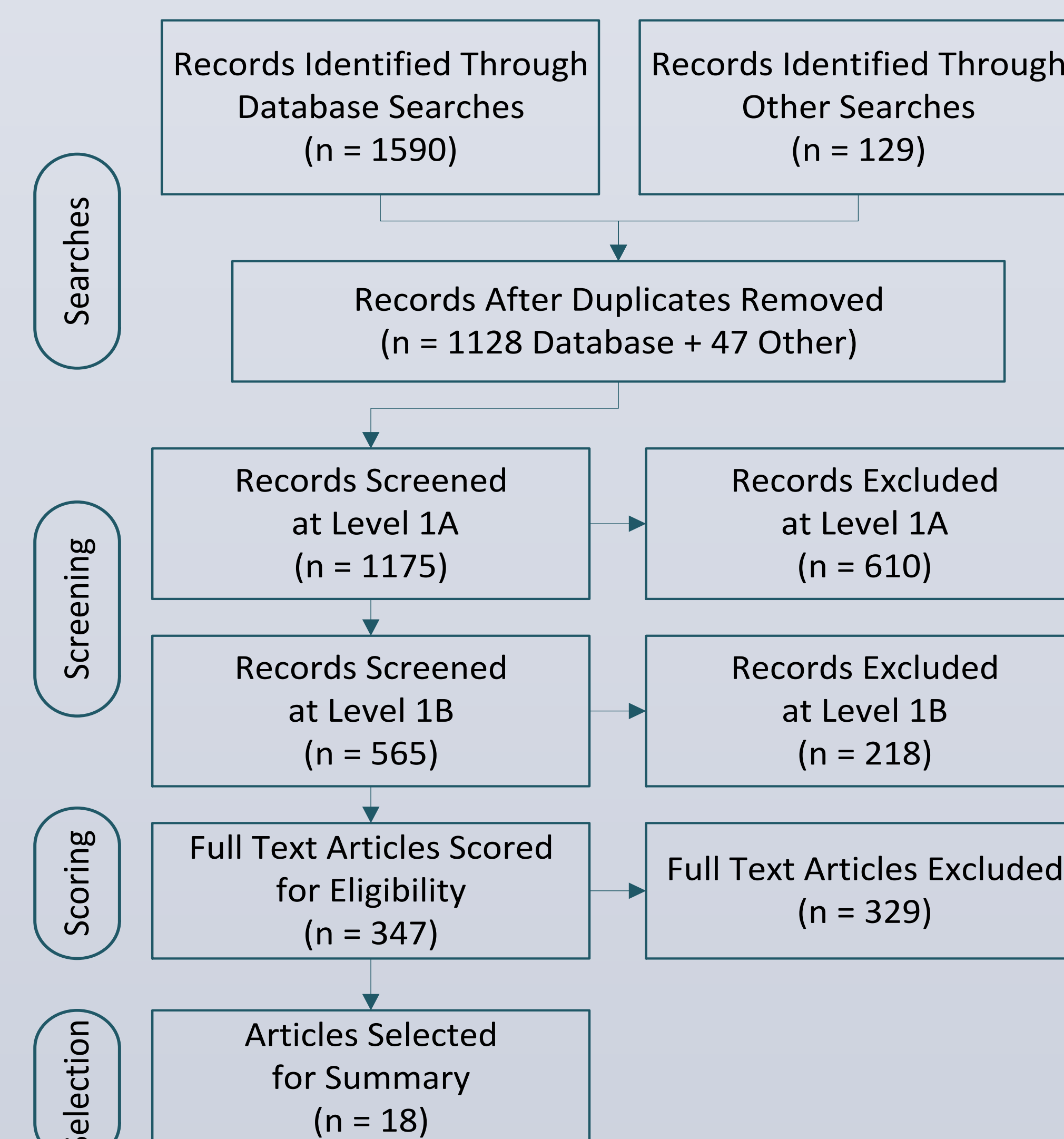
DISCUSSION

Characteristics of 18 highest scored articles:

- 9 (50%) Case Reports, 7 (39%) Original Research, 2 (11%) Reviews
- 11 (61%) identified by database searches, 5 (28%) by grey literature search, 2 (11%) by hand search

The 18 highest scoring articles included:

- 4 reviews of recommended best practices
- 3 focused on manmade, intentional incidents
- 3 retrospective reviews of earthquakes
- 2 frameworks to address gaps in structured reproducible research
- 2 focused on the 2013-16 West Africa Ebola virus disease epidemic
- 2 dealt with mental health effects of disasters
- 1 each: creation of emergency department observational unit and new regulatory requirements for healthcare providers and suppliers

Key Findings:

- Most literature was anecdotal, potentially limiting applicability to broader applications
- Disaster medicine is a broad, poorly defined term
- Mathematical models were often based on inappropriate clinical assumptions
- Many articles drew overly broad conclusions from available information, leading to recommendations that are not supported by data
- Many articles did not consider substantial previous contributions in the same area, limiting the impact of their conclusions
- Defining specific data sets and comparative metrics would help in disaster data collection and measuring preparedness interventions
- Balancing scoring to reward clinical value versus academic rigor needs further refinement

ADDITIONAL INFORMATION

To request more information, contact:

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