


Common Domains of Core Competencies for Hospital Health Care Providers in Armed Conflict Zones: A Systematic Scoping Review

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Conflicts of interest: none

Keywords: armed conflicts; competence; competency; health care providers; hospitals

Abbreviations:

CBRNe: chemical, biological, radiological, nuclear, and explosion
 HCP: health care provider
 ICN: International Council of Nurses
 PCC: Population, Concept, and Context
 PPE: personal protective equipment
 WHO: World Health Organization

Received: November 19, 2019

Accepted: January 2, 2020

doi:[10.1017/S1049023X20000503](https://doi.org/10.1017/S1049023X20000503)

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Abstract

Introduction: High rates of mortality and morbidity result from disasters of all types, including armed conflicts. Overwhelming numbers of casualties with a myriad of illnesses and patterns of injuries are common in armed conflicts, leading to unpredictable workloads for hospital health care providers (HCPs). Identifying domains of hospital HCPs' core competency for armed conflicts is essential to inform standards of care, educational requirements, and to facilitate the translation of knowledge into safe and quality care.

Objective: The objective of this study is to identify the common domains of core competencies among HCPs working in hospitals in armed conflict areas.

Methods: A scoping review was conducted using the Joanna Briggs Institute framework. The review considered primary research and peer-reviewed literature from the following databases: Ovid Medline, Ovid EmCare, Embase, and CINAHL, as well as the reference lists of articles identified for full-text review. Eligibility criteria were outlined a priori to guide the literature selection.

Results: Four articles met the inclusion criteria. The studies were conducted in different countries and were published from 2011 through 2017. The methods included three surveys and one Delphi study.

Conclusion: This review maps the scope of knowledge, skills, and attitudes required by HCPs who are practicing in hospitals in areas of major armed conflict. Incorporation of identified core competency domains can improve the future planning, education, and training, and may enhance the HCPs' response in armed conflicts.

Mani ZA, Kuhn L, Plummer V. Common domains of core competencies for hospital health care providers in armed conflict zones: a systematic scoping review. *Prehosp Disaster Med.* 2020;35(4):442–446.

Introduction

Disasters of all types, including armed conflicts, are associated with high mortality and morbidity rates.^{1–3} There were approximately 261,000 deaths in the three years from 2014–2017 reported as a direct result of 49 armed conflicts world-wide.⁴

Major armed conflicts are associated with overwhelming numbers of casualties, often with unpredictable illnesses and injuries, leading to an unpredictable workload for health care providers (HCPs). Large-scale disasters are often more difficult for HCPs to manage than previous incidents they have been exposed to professionally.⁵ One of the greatest challenges is that disaster and major incident preparedness have not been well-addressed in nursing^{6,7} and medical literature.^{8,9} An understanding of the competencies necessary for HCPs to manage issues that arise from disasters is paramount to the provision of efficient and safe care, thereby reducing mortality and morbidity.

The attribution of competence to HCPs in disaster literature is defined as the basis of being effectively qualified or competent in response to all types of disasters.¹⁰ Core competencies function as the basis of research in standards development, education, and assessment that help to maintain quality and safety in the care HCPs provide to survivors of the armed conflict and other disasters.^{11,12}

Disaster core competencies for HCPs have evolved in response to necessity and over a prolonged period of time. Their development has been organic in response to a myriad of different types of disasters. The most common disaster core competencies include detection of and response to an incident, triage, understanding the use of an incident command system, isolation, surveillance and epidemiology, decontamination, communication,

psychological support, care of special populations, ethics, access to resources, and documentation.¹³⁻¹⁵ These competencies are essential domains for HCPs during disaster planning, preparedness, response, and recovery.¹³⁻¹⁵

While great attention has been afforded to disaster core competency research,^{2,9,13-16} little is known about the evidence regarding HCPs' core competencies in man-made disasters, particularly those working in hospitals in the context of major armed conflict. This is despite the acknowledgement that competence of HCPs in this setting is of critical importance.¹⁴ Therefore, the objective of this study is to identify the common domains of core competency among HCPs working in hospitals in armed conflict areas.

Method

A systematic scoping review methodology guidance that was developed by members of the Joanna Briggs Institute (JBI; Adelaide, Australia) had been adapted, which included: identifying the objective of the study; identifying the inclusion and exclusion criteria; and developing a search strategy, followed by extraction and charting of the results.^{17,18} In addition, the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist and explanation were followed (Supplementary File 1; available online only).¹⁹ Unlike systematic review, the scoping review is a systematic approach that is conducted to present an overview or to map the available evidence underpinning research area.^{18,19}

Inclusion and Exclusion Criteria

This review included original research articles specific to the core competencies of HCPs who practiced in hospitals in areas of major armed conflict. The Population, Concept, and Context (PCC) for conducting scoping reviews^{18,19} was adopted: the population was HCPs, the concept was core competencies, and the context included hospital settings in areas of armed conflict.

Types of Studies

Primary research published in full text in peer-reviewed journals, in English language, over the last 10 years from 2009 through 2019, were reviewed against listed inclusion criteria. The International Council of Nursing (ICN; Geneva, Switzerland) and World Health Organization (WHO; Geneva, Switzerland) jointly published the Disaster Nursing Competencies framework in 2009, and they encourage the review and revision of core competencies. All articles that met the review aim and eligibility criteria were extracted for full-text review.

Types of Population

The population of interest included any HCPs who practiced in hospitals in areas of armed conflict, including nurses, physicians, pharmacists, medical technicians, and medical military personnel.

Concepts

Literature that focused on core competencies, competence or competency domains, knowledge, skills, and attitudes of HCPs in hospitals in areas of armed conflict were considered. The specific concept of confidence was excluded, acknowledging it is in co-relationship with the concept of competence, yet the two do not equate.

Context

The context of interest for this review was hospital settings in areas of armed conflict internationally. An armed conflict is defined as a contested incompatibility involving government and/or territory over which the use of armed force between the two military forces

has resulted in at least 25 battle-related deaths.²⁰ The contexts of the frontline and staging posts were excluded from the review as were the scenes of conflicts.

Moreover, humanitarian incidents resulting from mixed disaster and armed conflicts, or those including deployment contexts only, rather than hospital settings, were excluded.

Search Strategies

A systematic search of the databases was utilized to identify keywords in accordance with the defined PCC concepts.^{17,18} A limited preliminary search was undertaken in Ovid Medline (Ovid Technologies; New York, New York USA) to identify the relevant keywords and subject headings. The keywords and subject heading terms identified were then added to the PCC concepts map (Supplementary File 2; available online only).

All identified keywords and subject headings were used to systematically search and obtain related articles from Ovid Medline; Ovid EmCare (Elsevier; Amsterdam, Netherlands); Embase (Elsevier; Amsterdam, Netherlands); and CINAHL (EBSCO Information Services; Ipswich, Massachusetts USA) databases. The reference lists of the articles selected for full-text review were also reviewed for additional research papers.

Literature Identification

Systematic database searches resulted in identification of 984 articles (Ovid Medline $n = 284$; Ovid EmCare $n = 196$; Embase $n = 454$; and CINAHL $n = 50$). A total of 469 duplicated articles were deleted, leaving 515 articles, plus an additional 25 articles identified from the manual reference list search, resulting in a total yield of 540 articles. Titles and abstracts of the identified articles were each read to assess them against the defined eligibility criteria, and articles that were obviously not related or ineligible were removed. A total of 137 articles were read in full by two reviewers independently. Failure to agree between the reviewers was resolved by discussion or by adjudication from a third reviewer. Four articles met the objective of this research and were included in the scoping review.²¹⁻²⁴ The search strategy outcome is presented in Figure 1.

Results

Extracting and Charting the Result

Four research papers that examined hospital HCP core competencies in areas of armed conflict were included with data extracted into an annotated table.^{17,18} This table was used to capture the details of authors, year of publication, country, research design, population, and core competency domains findings (Table 1).^{17,18} Due to the objective of this study and the nature and heterogeneity of the core competency domain findings, the identified domains were mapped in Table 1.

Studies reported in the selected papers were completed in four countries, including Libya, Iraq, the United Kingdom, and Northern Ireland from 2011 through 2017. The study by Linney, et al from the United Kingdom identified competencies for HCPs during armed conflicts involving chemical, biological, radiological, nuclear, and explosive (CBRNe) incidents.²¹ Using an anonymized online Delphi study approach, experts reached consensus on 46 items for acute hospital HCPs, which were cross-referenced to the 10 core competencies.²¹ Another study conducted by Mitchell, et al²² in 2012 found similar competency domains to those reported by Linney, et al.²¹ Both the UK and Northern Ireland studies shared the same lead author. Mitchell, et al²² used a competency questionnaire in Northern Ireland and identified 10 competency domains, along with 40 competency questions:

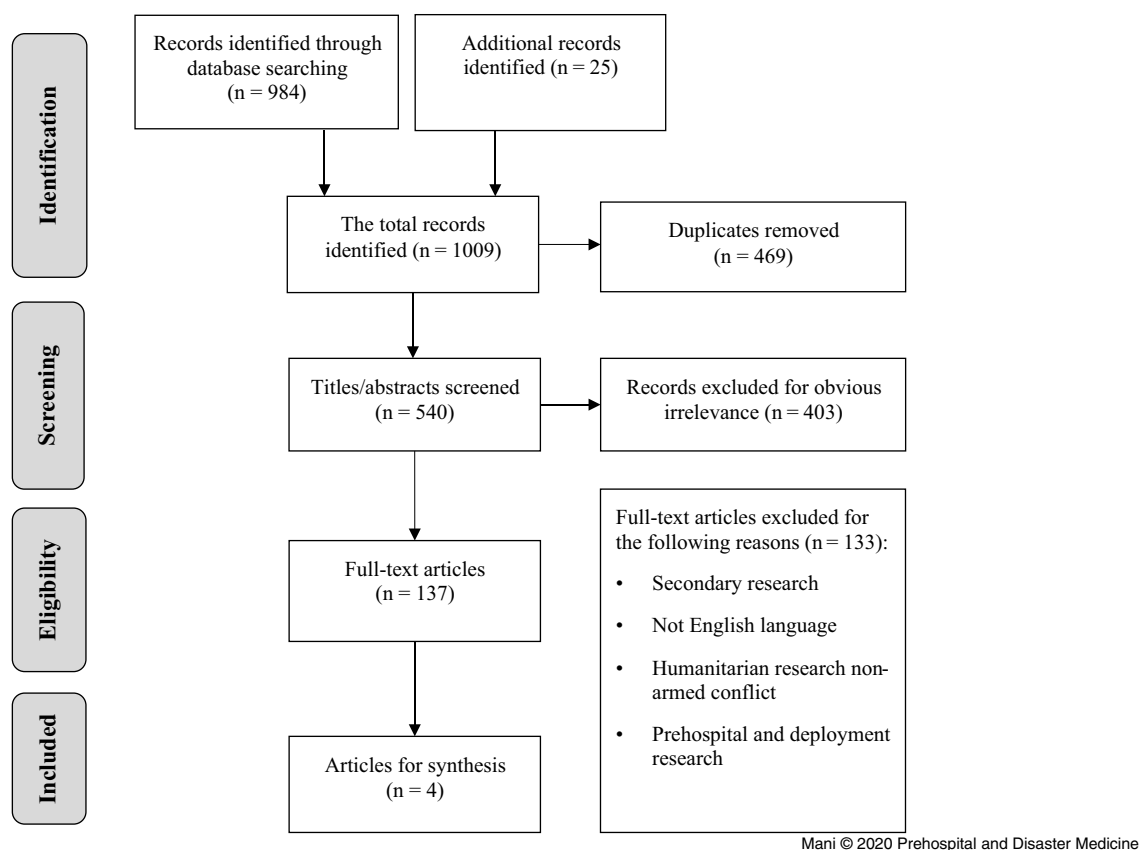


Figure 1. Flow Diagram of Search Results.¹⁸

27 were knowledge-based, eight related to skills, and five were attitude-based items.²² Linney, et al and Mitchell, et al recommend a national blueprint to CBRNe competencies for HCPs to guide programs and increase consistency to reduce morbidity and mortality.

In 2012, Donaldson, et al conducted a questionnaire with emergency department physicians in Iraq during armed conflict.²³ A total of eight competency domains were identified in this study. The most commonly listed core competency domains were security, safety, resources management, and ambulance services.²³ Finally in 2017, Oun, et al implemented a questionnaire to physicians in Libya to identify the knowledge of blast injury management among hospital physicians.²⁴ There were 10 competency domains identified,²⁴ contributing important knowledge to management in the context of the hospital setting during armed conflict.

The terminology and structures of core competency domains were generally inconsistent among the selected papers. However, the most common core competency domains were blast and bullet injuries, CBRNe, disaster plan, command and control, safety, security, personal protective equipment (PPE), decontamination, communication, surge capacity, triage, ambulance services, transportation, and frequent drills.

Discussion

This systematic scoping review mapped the domains of core competency that were required for hospital HCPs in the context of armed conflict. Four articles included in this study reported common core competency domains. Each competency domain

being a key domain for standard of care, education, and training of hospital HCPs in the context of the armed conflicts.

Hsu, et al¹³ developed a disaster core competencies approach for all HCPs because the nature of disaster management is related to situations requiring cooperation between HCPs. Furthermore, evidence suggested that management of man-made disasters required core competencies for all involved HCPs.^{16,25} Therefore, the identified core competency domains in this study are specified in armed conflict contexts and is therefore useful to inform HCP practice. However, the level of competency required for different professionals may differ depending on the situation, their role, and the tasks required of them.¹⁶

The most core competencies identified as essential for HCPs in armed conflicts were similar to those reported in disaster core competencies research.^{12,13,16,26,27} However, some of the universal disaster core competencies of the ICN and WHO¹² were not mentioned in this study. Those competencies were ethical and legal practice, care of the vulnerable population, psychological care, and long-term care for the individual and the community.

This study has highlighted several competency domains of planning and preparedness related to HCPs in armed conflicts. These domains are required for HCPs to enhance their response in armed conflict incidents effectively. For instance, when situations deteriorate suddenly in disasters, the staff should be able to respond, communicate, and manage the situations based on their knowledge, skills, and attitudes that they learned in the planning and preparedness phases.¹⁴ Planning and preparedness domains play an important role in mitigating risks, enhancing prevention, and reducing morbidity and mortality rates in armed conflicts.

Authors	Year	Country	Design	Sample	Core Competency Domains
Oun, Hadida, Stewart	2017	Libya	Questionnaire, descriptive analysis	Physicians (n = 607)	Mass casualty Security Blast injury management Staff and patient safety PPE including decontamination Plan for functional collapse by shortage of fuel or electrical shutdown Disaster response plan Frequent drills Triage Surge capacity plan including staff, staff and structure
Donaldson, Shanovich, Shetty, Clark, Aziz, Morton	2012	Iraq	Questionnaire, descriptive analysis	Emergency physicians (n = 148)	Security Triage Blast and bullet injuries Effective communication system with ambulance services Transportation Ambulance services Surge capacity plan includes staff, staff and structure Necessary medications are immediately available
Mitchell, Kernohan, Higginson	2012	Northern Ireland	Questionnaire, descriptive analysis	Emergency Department Nurses (n = 50)	CBRNe materials awareness CBRNe major incident plan Blast injury management Plan available for lockdown Role of management includes patient flow Triage for CBRNe major incident PPE including decontamination Command and control CBRNe waste management Health and safety
Linney, Kernohan, Higginson	2011	UK	Delphi study	NHS Health professional experts (n = 21)	Awareness of local and national hazards Dynamic risk assessment Emergency planning Management of resources including extra funds, supplies, staff, and volunteers Training of equipment uses Training and exercising of blast injuries effect, lock-down, cordons, hot-warm-cold zones, CBRNe signs and symptoms Response including communication and knowing the action cards and chain of command Command and control Transportation system including multi agency. Recovery including managing the contamination of plant, bodies, buildings

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Table 1. Core Competency Domains for HCPs in Armed Conflict Areas

Abbreviations: CBRNe, chemical, biological, radiological, nuclear, and explosion; HCPs, health care providers; PPE, personal protective equipment.

In order to enhance the ability of HCPs to initiate the disaster planning, they should participate in the planning development and demonstrate the application of the required skills in the frequent drills.^{26,28}

More recent attention has focused on the CBRNe management in armed conflicts. A number of authors have identified competency domains of CBRNe management in this study.^{21,22} Those domains included identifying the signs and symptoms of patient exposure to CBRNe, how to perform decontamination effectively, and how to manage contaminated waste. Another essential competency is staff understanding of how and when to use PPE properly to protect themselves, patients, and others. This was considered to be a crucial core competency in the research described by Martin²⁹ and Veenema, et al³⁰ that enhanced the readiness of the staff to safely respond to disasters. Familiarity of using decontamination equipment and procedures was required for HCPs to maintain their own and patient safety.²⁶

There are relatively few studies investigating HCP competence in the context of armed conflict. A possible explanation for this may

be the dynamic and changing nature of armed conflict fieldwork and potential risks to researcher safety and security. Therefore, there is abundant room for further research in the armed conflict context. Future studies in different types of armed conflict and in different hospital and health care types, focusing on the range of vulnerable groups and employing various methods such as comparative studies, are recommended.

Limitation

This systematic scoping review included literature written in English only. Only peer-reviewed primary literature was included, and therefore, secondary resources and grey literature were excluded.

Conclusion

This is the first systematically conducted scoping review that identifies common core competency domains for hospital-based HCPs in areas of armed conflict. It provides a map of the evidence on the essential scope of knowledge, skills, and

attitudes required for hospitalized HCPs in armed conflict areas. The identified common competency domains for HCPs included management of blast and bullet injuries, CBRNe, disaster plan, command and control, safety, security, PPE, decontamination, communication, surge capacity, triage, ambulance services, transportation, and frequent drills. Future development on implementation of these core competency domains as the

standard of care, supported by workplace education and drills for hospital HCPs, is likely to enhance outcomes of response to armed conflicts.

Supplementary Material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1049023X20000503>

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