







Adjustment of medical standards in disaster, crises and war: a scoping review of the literature

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ABSTRACT

Introduction Currently, there is a lack of evidence on how societies and healthcare systems cope with disrupting situations like disasters, crisis and wars. The aim of the scoping review was to map evidence to the following questions: Is the fact of possible overwhelming of healthcare systems accepted or denied? Are medical standards adjusted? Are dedicated contingency concepts applied? Are there triage concepts for allocating scarce resources?

Methods We conducted and reported the scoping review in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for scoping reviews. A review protocol was published a priori in the Open Science Framework. Medline via PubMed was used as data source. We considered reviews, systematic reviews, guidelines and case-control studies in English or German as eligible for this scoping review, regardless of publication year or publication status. We searched Medline via PubMed up to 8 March 2023, and updated on 20 July 2023. Title/Abstract screening, full-text screening and data extraction were performed in a dual-reviewer mode.

Results A total of 2213 publications were identified and 71 publications were finally included. Of these, 87% generally accepted the possibility that the capacity of the healthcare system would be overwhelmed. A structured change of medical standards was reported in 89%. 51% deployed the crisis standard of care concept. International accepted guidelines for maintaining medical care do not exist. There is no common understanding of the medical care status with regard to the standards. There is a lack of political, legal and ethical agreement on the subject of triage.

Conclusion Future research must clarify which concepts and measures are suitable for building a robust healthcare system in order to maintain medical care according to accepted standards for as long as possible. Algorithms for the allocation of scarce resources must be defined in advance to enable medical staff to act with legal certainty in a crisis.

INTRODUCTION

Disasters, crises and wars lead to an increase of casualties and patients in hospitals and emergency services.^{1–4} During peacetime, medical treatment is focused on the individual patient

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Disasters, crises and wars pose major challenges for healthcare systems.
- ⇒ There is a consensus on this and there are numerous publications about it.
- ⇒ Nevertheless, there is no systematic overview of how healthcare systems prepare for such disrupting events and how medical standards are handled when systems are overwhelmed.

WHAT THIS STUDY ADDS

- ⇒ In our scoping review, we found a structured adaptation of medical standards as the predominant approach, when resources fall short.
- ⇒ The concept of crisis standards of care was identified as an important policy in the USA; however, we also identified significant evidence gaps.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ The identified evidence gaps should be addressed quickly and with great effort.
- ⇒ This will be the essential basis for maintaining medical care in disasters and wars for as long as possible.

according to current medical standards of care and to the patient's declared will.⁵ This works well when resources are readily available. Under crisis conditions, capabilities and resources (eg, staff, stuff and space) may fall short.^{6–12} Altered medical care was reported due to the shortfall of resources and destruction of infrastructure and triage and allocation decisions had to be made.^{13–15} Sooner or later treatment goals and principles had to be scaled back to fit available means.⁸

The concept of crisis standards of care (CSC) deals with this topic and describes a continuum of care with respect to limited resource availability and an increasing demand.^{16–18} The concept refers mostly to in-hospital disaster response and defines three distinct levels of care. Conventional

care is provided on a routine or daily basis. Contingency care is functionally equivalent to usual patient care while using uncommon approaches and means and crisis care describes the best possible care to the population because of very limited resources.¹⁶ Besides this framework of CSC, there is a lack of knowledge on how healthcare systems prepare for such situations with a high number of casualties and a scarcity of resources. It is not even known whether an overwhelming of healthcare systems is considered as a possible scenario to be prepared for.

The objectives of this scoping review were to map any existing evidence of medical standards during disaster, crisis and war, and to identify potential evidence gaps. It also aimed to identify existing concepts for the adjustments of standards of care in disasters or war and what those concepts include. In detail, we intended to find out whether the permanent overload and a collapse of the healthcare system has been considered as a possible scenario, whether changes to medical standards are planned systematically, whether the concept of CSC is applied and whether there are concepts for allocation of scarce resources.

MATERIALS AND METHODS

We conducted and reported the scoping review in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for scoping reviews (online supplemental file 1).¹⁹ A review protocol was published a priori in the Open Science Framework.²⁰

We considered reviews, systematic reviews, guidelines and case-control studies in English or German as eligible

for this scoping review, regardless of publication year or publication status.

We included publications reporting on natural disasters (eg, flood, earthquake, storm, avalanche, drought, landslide, tidal wave, tornado and wildfire), war, conflicts and terrorism. In addition, all publications reporting on the adjustment of standards of care in those situations were also considered.

The exclusion criteria were:

- ▶ ‘Wrong study design’: randomised controlled trials and interventional trials were considered not feasible, unpractical and unethical during crisis scenarios. Editorials and commentaries were also excluded due to the limited information these contain.
- ▶ ‘Irrelevant information’: the publication was dealing with the topic of disaster and crisis but did not include planning issues or information about medical standards of care.
- ▶ ‘Unspecific planning’: the publication has reported about contingency planning without offering information about standards of care.
- ▶ ‘Specialty-specific crisis standards of care’: publications that describe a specialty related adaption or treatment options in relation to available resources (eg, orthopaedic surgery).
- ▶ ‘Lessons learnt and identified, but not applied’: publications which drew lessons from disaster analysis but did not translate them in contingency planning with respect to altered standards of care.

Table 1 Search strategy

Search block	Search term
#1	(“war”[Title/Abstract] OR “warfare”[MeSH Terms] OR “armed conflicts”[MeSH Terms] OR “terroris*”[Title/Abstract] OR “terrorism”[MeSH Terms] OR “natural disasters”[MeSH Terms] OR “disaster*”[Title/Abstract] OR “earthquake*”[Title/Abstract] OR “storm*”[Title/Abstract] OR “avalanch*”[Title/Abstract] OR “flood*”[Title/Abstract] OR “drought*”[Title/Abstract] OR “landslide*”[Title/Abstract] OR “tidal wave*”[Title/Abstract] OR “tornado*”[Title/Abstract] OR “wildfire*”[Title/Abstract] OR “triage”[MeSH Terms])
#2	(((“guideline*”[Title/Abstract] OR “concept*”[Title/Abstract] OR “protocol*”[Title/Abstract] OR “procedure*”[Title/Abstract] OR “approache*”[Title/Abstract] OR “toolkit*”[Title/Abstract]) AND (“adapt*”[Title/Abstract] OR “adjust*”[Title/Abstract] OR “modif*”[Title/Abstract] OR “alterat*”[Title/Abstract] OR “rearrange*”[Title/Abstract] OR “allocat*”[Title/Abstract]) AND (“treatment*”[Title/Abstract] OR “standard of care”[Title/Abstract] OR “standards of care”[Title/Abstract] OR “standard of care”[MeSH Terms] OR “scarce resource*”[Title/Abstract])) OR (“surge capacity”[MeSH Terms] OR “surge capacit*”[Title/Abstract] OR “disaster planning” [MeSH Terms] OR “health care rationing”[MeSH Terms] OR “medical countermeasures”[MeSH Terms] OR “relief work”[MeSH Terms] OR “crisis standards of care”[Title/Abstract] OR “crisis standard of care”[Title/Abstract] OR “disaster plan*”[Title/Abstract] OR “health care ration*”[Title/Abstract] OR “medical countermeasure*”[Title/Abstract] OR “relief work”[Title/Abstract] OR “Resource Allocation”[MeSH Terms])
#3	(“Guideline”[Publication Type] OR “Review”[Publication Type] OR “Systematic Review”[Publication Type] OR “Case-Control Studies”[MeSH Terms] OR “case control stud*”[Title/Abstract])
#4	#1 AND #2 AND #3

Table 2 Variables for which data were sought

Variable	Options
Publication year	Free text
Language used mainly	English; German
Journal	Free text
Publication type	Review; systematic review; guideline; case-control study; other
Aim of study	Free text
Country investigated	USA; UK; Germany; other
Notes	Notes for the first section
Scenario based or incident based?	Scenario; incident; both; N/A; other
Type of scenario/incident?	War; conflict; terrorism; natural disaster; other man-made disaster; general Approach; N/A; other
If natural disaster, which?	Free text
Which incident in particular?	Free text
Year of incident	Free text
Extend	Local; regional; national; international; N/A; other
Onset	Acute; slow, both; no information; other
Military or civil	Military; civil; both; N/A; other
If civil: hospital or prehospital?	Hospital; prehospital; both; none; N/A; other
Notes_1	Notes for the second section
Explicit acceptance of a potential overwhelming of the healthcare system	Yes; no; N/A; other
Altered standards	Structured; unstructured, undefined; N/A; other
Altered standards for	Staff; stuff; supply; medical concepts; N/A; other
Concept of CSC	In total, partial; both; N/A; other
Triage for allocating scarce resources	Primary; secondary; tertiary; N/A; other
Notes_2	Notes for the third section
CSC, crisis standards of care; N/A, not available.	

We searched Medline via PubMed on 8 March 2023, and updated on 20 July 2023. The search strategy is provided in [table 1](#).

Publication selection

Following the search, all identified publications were collected and uploaded to Covidence (Covidence, Melbourne, Australia).²¹ Titles and abstracts were screened by two independent reviewers. In case of disagreement among the reviewers, a final vote was decided through discussion of reviewers. If necessary, a third reviewer was consulted to find a decision. Full texts of publications were screened by two individual reviewers and disagreements were resolved as described above. Publications, where the abstract and or full text were not publicly available or accessible through the University

Library Würzburg were marked as ‘awaiting classification’. Data from those publications were not used. Only publications which completely fulfilled the inclusion criteria were used in the scoping review.

Data extraction

The data extraction was performed by two individual reviewers using a data extraction tool developed by the reviewers ([table 2](#)). A draft version of the data extraction tool was provided in the study protocol.²⁰ A modified version of the draft version was tested for applicability using five randomly selected publications. Thereafter, the data extraction tool was modified and released for the extraction process to the reviewers. The final data extraction tool is provided in [table 2](#).

Extracted data were exported to and analysed with Microsoft 365 Excel. Diagrams were also created with Microsoft 365 Excel (Microsoft, Redmond, USA).

RESULTS

With the search strategy, we found 2213 publications of whom 986 were eligible for full-text review. A total of 440 publications were classified as awaiting classification because full texts were neither available publicly nor through institutional access. Of 546 assessed full texts, 475 publications were excluded due to irrelevant information (n=170) or unspecific planning (n=126) followed by specialty-specific CSC (n=76) and the other exclusion criteria (n=103) ([figure 1](#)).

Finally, 71 publications dealing with medical standards in disaster, crisis or war were included in our scoping review ([figure 1](#)). 35% of the publications were reviews, followed by reports (11%), consensus statements (11%) and systematic reviews (11%). The remaining 22 publications were considered as other publication types (32%) (online supplemental table 1). 52% of the publications reported on scenarios in the USA or international scenarios (32%); 21% reported on scenarios from other countries.

There was no publication that reported solely on war or armed conflicts, 25% reported on both military and civil situations^{13 16 22–36} and 75% reported on solely civil situations.^{5–8 15 17 37–83}

Most publications discussed the in-hospital situation only (71%)^{5 6 8 15 17 22–26 28 30 36 38–40 42–47 49–51 53 54 56 58–64 67–69 71–76 78–84}. One study considered prehospital¹³ or long-term nursing⁴⁸ situations respectively, and the other studies addressed in-hospital as well as prehospital situations (26%).^{7 16 27 29 31–35 37 41 52 55 57 65 66 70 77}

Planning scenarios were described in 9 publications,^{6 24 26 29 54 66 67 78 84} 12 publications were exclusively reporting on real-world incidents.^{5 15 38 40 43 49 59 60 63 65 75} But most of the publications (n=49) reported on both, incident and scenario-based planning.^{7 8 13 16 17 22 23 25 27 28 30–37 41 42 44–48 50–53 55–58 62 64 68–74 76 77 79–83}

Important results are summarised in [figure 2](#).

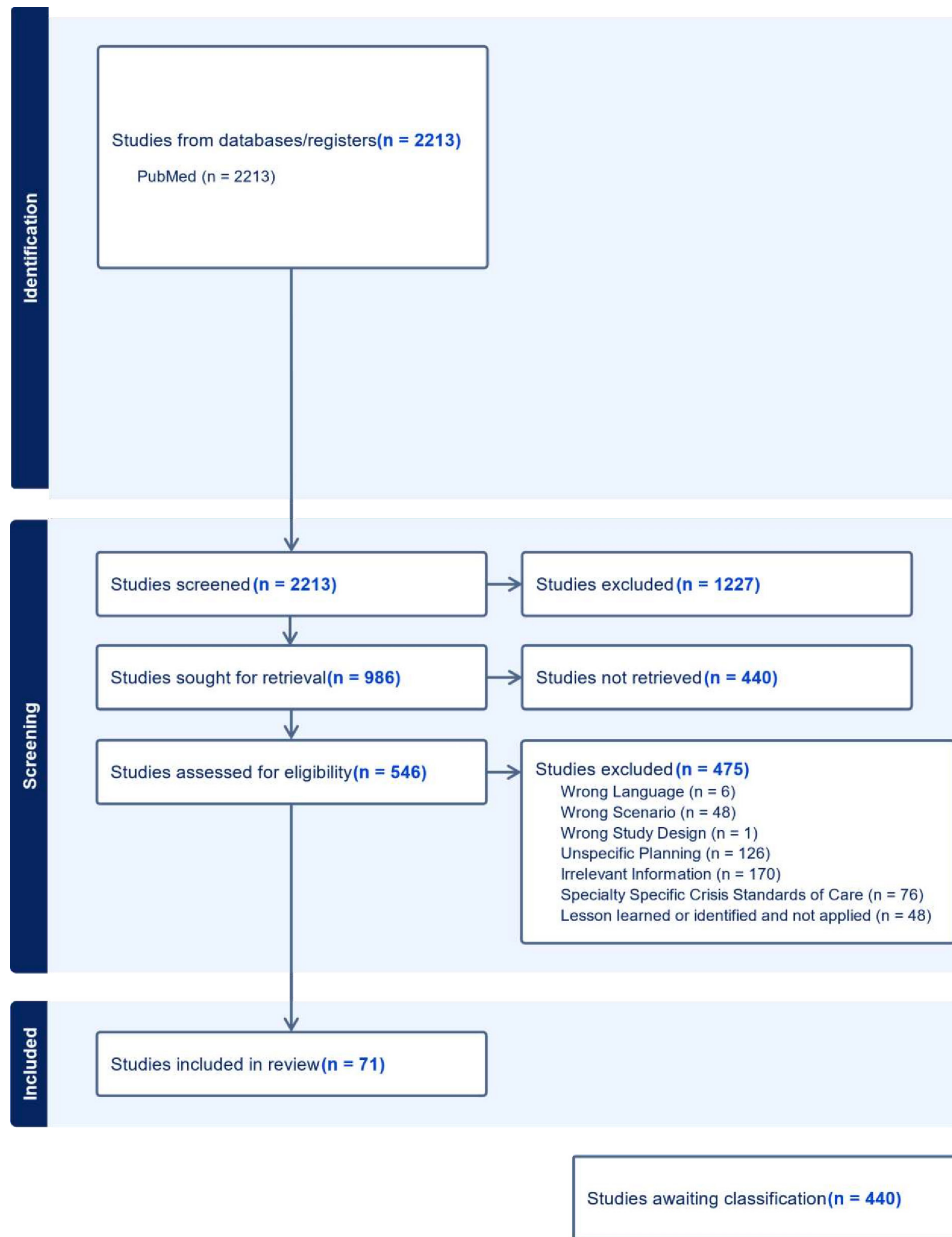


Figure 1 Process of study selection.

The different disciplines among the articles that were excluded due to their specialty-specific CSC are shown in [table 3](#).

Overload and collapse of healthcare systems

A permanent overload and a collapse of the healthcare system has been considered as a possible scenario in most of the publications (87%) (online supplemental table 1). 19% of the publications based their statement on analysis of real incidents,^{5 15 38-40 43 49 59 60 63 65 75} 91% of them were based on SARS-CoV-2 pandemic^{5 15 38-40 43 49 59 60 63 75} and 9% on Hurricane Katrina.⁶⁵ 67% drew their conclusions based on analysis of real incidents and planning scenarios (n=42), while 12% related their insights from planning scenarios only.^{6 24 26 29 54 66 67 78 84}

However, all publications took a possible overwhelming situation as a basic argument for

comprehensive disaster preparedness and development of contingency plans.

Change in medical standards and crisis standards of care concept

89% of the publications described a structured change in medical standards during disasters, crises and wars (online supplemental table 1). Of these, 57% used the concept of CSC (online supplemental table 1). Eight publications are part of a consensus statement in 2014,^{17 42 46 47 50 51 53 68} 3 systematic reviews,^{33 72 76} 13 reviews,^{6 7 25 28 40 49 56 59 60 62 69 80 84} 1 expert panel report,⁶³ 1 retrospective observational study,³⁸ 1 rapid guideline³⁹ and 9 other reports.^{16 27 31 32 37 38 64 70 77} 66% of these publications reported about crisis response in the USA.^{16 17 27 31 32 37 38 40 42 46 47 49-51 53 59 60 62 63 68 70 72 77 84} Without applying the entire concept of CSC, 25% of

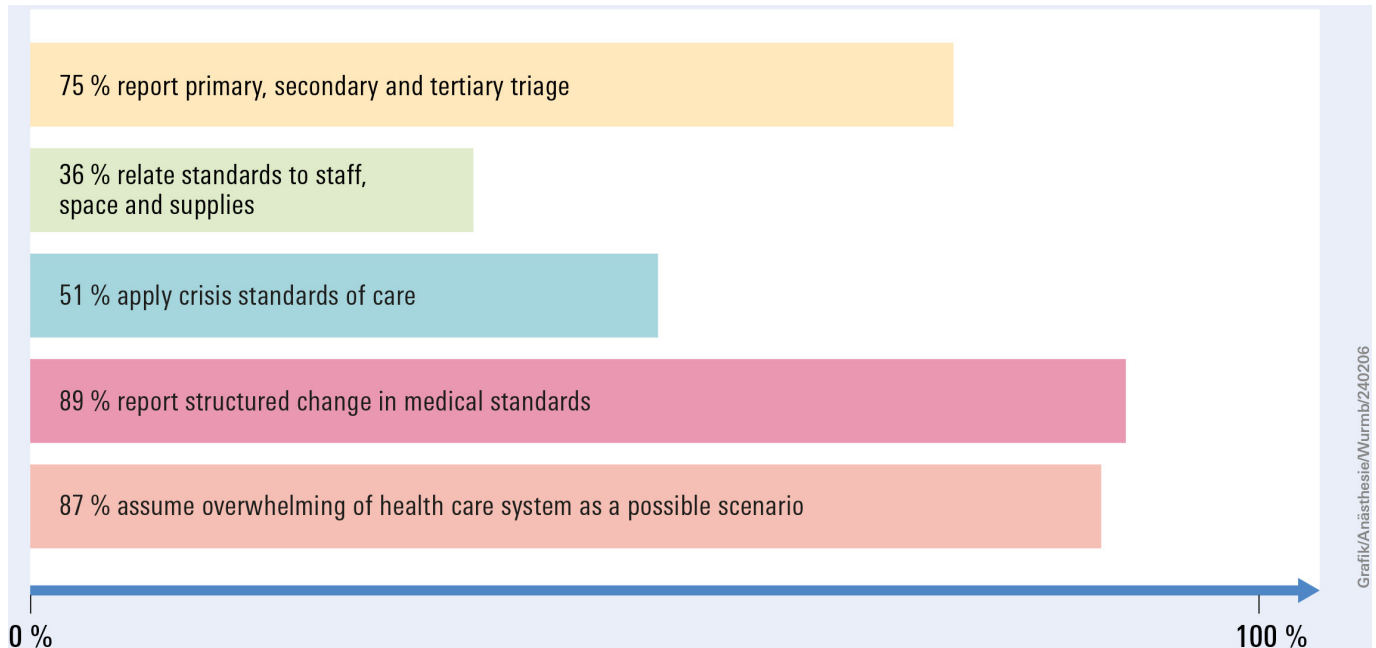


Figure 2 Summary of the most important results.

the publications referred to the adaptation of medical standards with respect to all three categories staff, supply and space.^{5 8 23 24 29 36 43 45 54 58 65 67 71 73–75 82 83} In 20%, the change of medical standards is related to isolated and specific aspects of medical care (online supplemental table 1).^{13 22 30 34 35 41 44 48 52 55 57 61 78 79}

Allocation of scarce resources/triage

Allocation of scarce resources is based on triage decisions. Primary, secondary and tertiary triage was described and used in 75% of the included publications (online supplemental table 1). 11% of the included publications provided unspecific^{34 36 50 55 71 79 83} or general⁶⁰ information on triage while 14% did not provide any information on triage.^{13 23 26 44 57 68 69 78 81 82}

Evidence gaps

Apart from the CSC concept in the USA, there is no uniformly used definition of graduated and altered standards in medical care during disasters, crises or wars. Therefore, there is no standardised nomenclature and no common understanding of the status of medical care in disasters, crises and wars. Moreover, a consensual approach to the allocation of scarce resources could not be identified. There were also no accepted parameters that can be used to scientifically measure and evaluate the success or failure of an applied triage scheme. There is a lack of political, legal or ethical agreement on the subject of triage. We could not identify an internationally accepted approach for maintaining medical care for casualties and the affected population for as long as possible. The concept of CSC seems to be well established in the USA but is not common in other nations. Measures to maintain the delivery of medical care are described, but their effectiveness cannot be measured or scientifically verified.

DISCUSSION

We conducted a scoping review to map existing evidence on medical standards during disaster, crisis and war. We have found 71 publications that dealt with this topic.

There is a broad consensus that a collapse and overload of the healthcare systems is a possible scenario. Nevertheless, the time of occurrence can be postponed by thorough and comprehensive preparation. Kadri *et al* clearly demonstrated that caseload surge during COVID-19 was associated with a higher mortality.⁸⁵ This underpins the importance of building up surge capacity to better cope with disrupting healthcare crisis. It is important to notice that the more robust and resilient a healthcare system is built up, the longer it will be possible to maintain medical care with regard to the usual standards. This affords direct investment in healthcare (ie, in workforce, improving supply chains and stockpiles, training and exercising, etc) and a thorough preparation, planning and training is indispensable.^{4 86 87} However, it is not known what the most suitable measures are to achieve this goal and how to make the effectiveness of each of the available measures measurable. It seems to be one of the most important questions to be answered soon: Which means are valid to ensure healthcare delivery and which means are suitable for postponing the onset of collapse and overload for as long as possible?

In 2009, Hick *et al* published a framework for detailed and phased surge capacity categorisation and implementation.¹⁸ This framework was the basis for the development of the CSC concept, which is well established in the USA.^{16–18 27} With the aim of being able to maintain medical care even under the extreme conditions of a disaster, three care levels conventional care, contingency care and crisis care are defined. Depending on the availability of staff, stuff and space, the care changes

Table 3 Different disciplines among the articles that were excluded due to their specialty-specific crisis standards of care

Specialty	N
Aesthetics	1
Anaesthesiology	3
Burn medicine	7
Burn medicine	1
Cardiac surgery	1
Cardiology	1
Diabetology	2
Diabetology; nephrology; cardiology	1
Emergency medicine	1
Gastroenterology	1
Geriatrics	1
Haematology	1
Haematology; oncology	1
Internal medicine	3
Neonatology; paediatrics	1
Nephrology	11
Nursing	4
Oncology	3
Ophthalmology	1
Orthopaedics	1
Paediatrics	15
Radiology	8
Surgery	4
Transfusion medicine	2
Vascular surgery	1
Total	76

from individual-centred to population-centred outcome focus.^{16 49 56 77 84} The development of the concept started with a series of suggestions for the management of mass critical care.⁸⁸ This was followed by very detailed, consensus-based recommendations for crisis and disaster response in 2014.^{17 42 46 47 50 51 53 68} After the SARS-CoV-2 pandemic, the concept was evaluated, followed by different suggestions for adaptation and evolution.⁴⁹

Although an international introduction of CSC concept might be impossible, a first important step would be to develop a generally accepted standardised definition of the levels of medical care in disasters, crises and wars. This would be essential for communication during operations, a uniform assessment of the situation and the management of relief measures. It is also important to define measures that contribute to maintaining medical care for as long as possible. To this end, parameters must be defined that make this success measurable. The definition and use of the three stages of the CSC concept can make a valuable contribution to this.^{16 17} Maintaining

medical care at the contingency level would be one of such a success criterion. Measures that have led to maintaining contingency care or to the fastest possible transition from crisis care back to contingency care can be classified as suitable. Such parameters are potentially measurable and might build the area for the future work in this field.

Mitigation strategies

Following the experience gained during the SARS-CoV-2 pandemic, 10 suggestions were derived based on the CSC concept. These can serve as an important basis for the further development of disaster plans for healthcare systems.⁴⁹ According to the Task Force for Mass Critical Care, important measures to avoid overload and system-collapse include load balancing through efficient command and control, communication, resource allocation and early transfer of patients.⁴⁹ Above all, supporting hospitals or regions under particular strain by transferring patients or supplying materials is a key measure to mitigate crisis impact and to reduce risk to the single patient.

The '8D' concept describes mitigation strategies that are supposed to be valid to cope with the situation of mass casualty.⁸⁹ The key strategies for increasing capacity in times of exceeding demand are: distribute, decompress, delay, delegate, deliver faster and deliver better.⁸⁹

Horne *et al* describe that a collapsed healthcare system reaches an upper limit to which patients can be treated according to medical standards.⁸⁹ Slow casualty evacuation, exhausted resources including staff and a collapse of infrastructure and communication networks may worsen the situation.⁹⁰ Horne *et al* discuss dedicated compensation mechanisms to delay such an overload for as long as possible and they provide concrete mitigation measures when such an overload occurs. The authors also point out that there are situations in which the threshold is lowered beyond which injuries are considered hopeless and treatment is not provided. The associated legal considerations and consequences are also discussed.⁸⁹

In the end, the authors call for a broad and coordinated discussion, consented solutions and dedicated research on this topic. This work was published after the conclusion of the scoping review. However, together with the results of this review, it provides a solid basis and a good starting point for further research in this area.

Triage decisions

Allocation of scarce resources is based on triage decisions. But there is no consensus about the algorithm and the criteria that are best in terms of equal and just decision-making.^{45 77} On the other hand, there seems to be broad agreement that decisions should not be made haphazardly. It was stated that 'core ethical principles by which healthcare professionals want to make those decisions must be defined, and real-time access to data is necessary to constantly be able to better inform the dynamic situation and needs'.⁷⁷ The report from a summit on

legal and ethical issues in the context of public health preparedness and disaster response focused on 10 principles to guide decisions to allocate scarce resources in public health emergencies. Those were divided in three categories: obligations to community, balancing personal autonomy and community well-being as well as good preparedness practice. These data are considered a good starting point for further planning and development.⁴¹

A process that is deemed equitable and just based on its transparency, consistency, proportionality and accountability was described as key elements that should underlie all CSC plans.^{16 27} The challenge in developing international guidelines was emphasised by Aquino *et al.*⁵ As a result of a scoping review the authors concluded, that operationalising abstract principles, avoiding internal inconsistencies and potentially problematic assumptions about objectivity are major difficulties in this process.

More research will be needed to evaluate and further develop those concepts.

It is worth acknowledging that shortage might hit a single drug or resource, which can alter the standard of a single treatment or measure. Currently, this occurs mostly due to stressed supply chains and is described by the Society of Gynecologic Oncology for the availability of carboplatin and cisplatin, which causes a restriction and is followed by allocation decisions.⁹¹ Two consequences can be derived from this. First, secure supply chains are essential for robust healthcare provision and second, allocation decisions are also made outside of major crises.

Legal and ethical aspects

Although no search terms relating to ethical and legal aspects were included in our search strategy, legal and ethical aspects were discussed in many of the included publications. This highlights their importance in this context.^{5 15 31 38–43 45 48 49 55 59 60 63 69 75 77} Discussion and broad consensus prior to the occurrence of a disaster was seen as an essential condition for an ethically acceptable framework for action during the disaster response.^{5 39 41 42} A lack of consensus on ethical and social issues is reported by Bader *et al.* The authors emphasise the different perspectives with regard to the distribution of scarce resources in the event of a disaster or crisis.⁴⁰

The SARS-CoV-2 pandemic has given this topic global significance. In our scoping review, we found many publications that discussed a change of legal frameworks during a disaster.^{5 15 38–40 43 45 48 49 55 59 60 63 69 75 77} Some authors emphasise that the decision to adapt medical standards should not be the responsibility of the individual medical practitioner, but of the higher authorities.

The psychological burden of planning for CSC without a strong ethical grounding and pre-existing policies to guide care under crisis conditions was investigated by MacMartin *et al* during the COVID-19 crisis in the USA.⁹² The authors concluded that the psychological burden was significant and may hinder planning for further crisis. There was a clear statement that major improvements will be necessary to avoid future moral tragedy.⁹²

Legal aspects were discussed critically, whereby the interpretation and application of existing legal frameworks during disaster response was considered as a particular difficulty.⁴¹ There are many publications and reports on guidelines on how to deal with the shortfall of resources. Nevertheless, there seems to be no consensus on the ethical and legal assessment. There is also no agreement on the specific procedures needed at the frontline. This is underlined in a study by Chelen *et al.*⁹³ The authors stated that clear standards for the development of allocation policies are needed to avoid individual approaches.⁹³

Accordingly, empirical studies are needed to test the applicability and suitability of existing guidelines.⁵ The work of Heller *et al* has already made a contribution to comparing different approaches and classifying them in terms of their quality.^{94–96}

Limitations

Only Medline via PubMed was used as the electronic database. This is a limitation that must be taken into account when interpreting the results. 440 publications (all listed at PubMed) were unavailable as full text. This was due to limited institutional access. This may cause a bias in reporting on the evidence gaps. Due to the urgency of the topic and the considerable time delay that would have been associated with the follow-up of these publications, we decided to terminate the review at this point and to focus on the evaluation.

There might be a certain bias due to the fact, that ‘pandemic’ and ‘epidemic’ were not included as search terms. Our initial focus was on war and natural disasters. Therefore, the search strategy was tailored to those search terms. For this reason, it is important to realise that the conclusions drawn can only be applied to pandemics to a limited extent.

Another bias might result from the fact that most failures of healthcare to deliver the usual standard of care remains unpublished, due to legal or other reasons. So, the true scope and impact of crisis might be underestimated in this review.

CONCLUSION

There is a consensus that healthcare systems may be overwhelmed, and a collapse can occur. There is also agreement that the occurrence of such a collapse can be postponed by creating a robust healthcare system. The way in which standards are adapted in such situations is assessed differently in the included publications. A structured adaption in medical standards is the predominant approach. A frequently applied concept is CSC, which is mainly found in US disaster response plans. Moreover, its basic elements, the availability of staff, space and supplies, are important pillars in most of the published contingency plans. According to our findings, the concept or its elements might serve as a basis to develop national and international disaster response plans and it may help

to develop a common understanding of the real status of medical care during disastrous conditions. Future research must clarify whether the principles of CSC are suitable for building a robust healthcare system in order to maintain medical care for as long as possible according to accepted standards.

Triage decisions become necessary when resources are scarce or even lacking. This is not controversial. However, there are differing opinions on the mechanism of allocation of scarce resources and on the specific content of the algorithms used. The legal and ethical consequences of these decisions are the subject of intense debate. It should be noted that the legal landscape varies greatly from nation to nation and even within a nation, making it difficult to address those systematically. However, common and widely accepted guidelines can help to make the best possible decisions under pressure, can offer healthcare providers the best possible protection against legal action and should reduce the moral burden and promote equal access to care.

Even though the SARS-CoV-2 pandemic has intensified the focus on the topic of triage, there is still a need to define political responsibility, achieve a social consensus and provide a secure framework of action for healthcare workers intending to provide the best possible care in acute situations.

The authors are convinced that addressing medical standards in the context of disaster, crisis and war preparedness requires greater attention. Failing to do so risks inadequate preparation, resulting in premature adjustments in standards of care.

Contributors TEW: conceptualisation (equal) and formal analysis (equal), investigation (equal) and methodology (equal), resources (equal), supervision (equal), validation (equal), visualisation (equal), writing—original draft (equal), agrees for all aspects in the work. TEW is the guarantor and accepts full responsibility for the finished work and/or the conduct of the study, had access to the data and controlled the decision to publish. JS: conceptualisation (equal) and formal analysis (equal), investigation (equal) and methodology (equal), validation (equal), visualisation (equal), writing—original draft (equal), agrees for all aspects in the work. S-JS: data curation and formal analysis (equal), investigation (equal), validation (equal), writing—review and editing (equal), agrees for all aspects in the work. PM: conceptualisation (equal), methodology (equal), validation (equal), writing—review and editing (equal), agrees for all aspects in the work. SW: conceptualisation (equal) and methodology (equal), validation (equal) and supervision (equal), writing—review and editing (equal), agrees for all aspects in the work. MK: conceptualisation (equal) and methodology (equal), validation (equal) and writing—review and editing (equal), agrees for all aspects in the work.

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