International Journal of Emergency Medicine

RESEARCH

Open Access

Scaling emergency care capacity during concurrent public health and humanitarian crises: outcomes of WHO-ICRC basic emergency care course implementation in the Republic of Moldova

Ion Chesov[1,2], Jennifer Pigoga Hart[1*], Miljana Grbic[1], Ion Prisacary[4], Iuliana Garam[1], Ihor Perehinets[5], Emilie J. Calvello Hynes[3], Dina Pfeifer[5] and Vitalii Stetsyk[1]

Abstract

Introduction The Republic of Moldova, an upper-middle-income nation in Eastern Europe, has encountered overlapping public health and humanitarian challenges that have tested the resilience of its health system. Following the COVID-19 pandemic and 2022 influx of refugees from neighbouring Ukraine, the Ministry of Health (MoH) identified an urgent need to upskill healthcare providers in emergency care. The World Health Organization-International Committee of the Red Cross Basic Emergency Care (BEC) course was selected as a rapid solution to train a range of providers in managing acute patients. This study assessed BEC's effects on emergency care knowledge and confidence in Moldova.

Methods From February 2023 to December 2024, 15 BEC courses were taught in Moldova. Participants completed pre- and post-course knowledge tests, confidence self-assessments, and feedback forms. Quantitative scores were assessed using descriptive statistics and nonparametric testing, and qualitative responses were analysed thematically.

Results Of 371 enrolled participants, 312 (84%) completed all course requirements. Post-course knowledge scores were significantly higher than pre-course (mean score: +20.2%, $p < 0.001$). Self-reports also improved, with mean scores (ranging from 1 - least - to 4 - most) increasing from 1.85 (SD: 0.91) to 2.17 (SD: 0.67) for confidence ($p < 0.001$) and 1.58 (SD: 0.79) to 2.07 (SD: 0.61) for competence ($p < 0.001$). Most (89%) found the course highly relevant to their work and rated instructors as excellent (97%). Participants valued the symptom-based approach, hands-on simulations, short course duration, and interactive teaching, while suggesting more time for hands-on skills practice.

Conclusion National BEC implementation in Moldova showed that a standardized short course can generate significant gains in emergency care knowledge and confidence across diverse provider cadres in a matter of days. Participants gained significant emergency care knowledge and confidence, even though the healthcare system

*Correspondence:
Jennifer Pigoga Hart
jennifer.hart@who.int

Full list of author information is available at the end of the article

© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

was under immense strain at the time of implementation. The rollout's decentralized delivery and high acceptability underscore its potential for national scalability and integration into existing preparedness frameworks. Moldova's experience demonstrates how targeted education can strengthen surge capacity and sustainably contribute to resilient health systems, even amid crises.

Keywords Basic emergency care, Emergency preparedness, Emergency care, Health system resilience, Workforce training, Humanitarian response, Ukraine refugee crisis, Republic of Moldova, Capacity building

Background

As an upper-middle-income country (UMIC) in Eastern Europe, the Republic of Moldova has experienced moderate economic growth and infrastructure improvements in recent decades [1]. Moldova aims to provide universal health coverage to its population but faces persistent challenges effectively in doing so [1, 2]. Its public health system historically centred around primary care and basic hospital services, with recent reforms aiming to increase access to specialists and emergency care [3]. But, health expenditure remains low compared to other UMICs, at just 3.8% of the country's gross domestic product in comparison to an average of 6.0% across the European Union [4]. In combination with staffing shortages and infrastructure deficiencies, this contributes to fragmented care delivery and limited availability of health services for much of the nation [3–6].

Within this broader health landscape, the development of a functional emergency care system has become an increasingly urgent priority for Moldova. Rates of death and disability from medical emergencies are high, disproportionately affecting younger, economically productive individuals and imposing substantial societal costs [7–13]. In recent years, the country has experienced several successive crises that have strained its nascent emergency care system. The COVID-19 pandemic exposed long-standing gaps in preparedness, resource allocation, and workforce capacity, particularly in rural regions [14]. These vulnerabilities were further magnified following the February 2022 invasion of Ukraine, which led to Moldova receiving one of Europe's largest per-capita influxes of refugees. More than 130,000 Ukrainians have sought safety, many of which required urgent care for injuries, maternal and newborn emergencies, in addition to short-term management of chronic conditions [15–17]. The dual impacts of the pandemic and subsequent refugee crisis placed extraordinary pressure on frontline health services in Moldova and underscored the limited readiness of facilities and providers to manage surges in demand.

Following the initial waves of the COVID-19 pandemic, the Ministry of Health (MoH) of the Republic of Moldova recognized the importance of establishing a more resilient emergency care system. As an initial step towards systems strengthening, MoH, with support from the World Health Organization (WHO), undertook a nationwide assessment of emergency care capacity. A two-pronged approach was used: The WHO Emergency Care Systems Assessment tool assessed the existing framework for emergency care at a systems-level, and the WHO Hospital Emergency and Intensive Care Unit Assessment Tool assessed emergency service delivery at individual facilities [18]. Both tools identified a range of potential improvements for Moldova's emergency care system, from governance and funding to upskilling healthcare providers and developing an evidence base for effective interventions. Stakeholders throughout the country noted shortages of specialty-trained physicians and nurses in emergency departments and called for the prioritization of emergency care education. However, as the assessment and review process concluded, additional demands on Moldova's health system arose with the onset of the war in neighbouring Ukraine.

The new challenges brought on by the arrival of refugees and potential for expansion of regional conflict necessitated that the MoH immediately focus on upskilling frontline providers to meet growing national needs. To achieve this in a rapid and cost-effective manner, the MoH adopted the WHO-International Committee of the Red Cross (ICRC) Basic Emergency Care (BEC) course as a scalable approach to strengthen provider readiness [19–22]. BEC's week-long standardized curriculum ensures that all provider cadres, regardless of their level of prior training, develop essential competencies in emergency patient assessment and early stabilization [23]. As part of WHO's Emergency Care Toolkit, BEC has been found to impact mortality in low-income settings [24]. The course is purpose designed for resource-limited settings like Moldova, and, though it historically had been implemented in stable environments, was recently adapted and delivered in Ukraine to upskill frontline providers in a conflict setting. Its implementation became a cornerstone of Moldova's post-pandemic investment in workforce readiness and national health emergency response amid successive crises. This study evaluated the implementation and impact of the BEC course in Moldova, assessing its effectiveness on improving provider knowledge and confidence, and contributions to national emergency preparedness.

Methods

Implementation of the BEC course in Moldova

From February 2023 to December 2024, BEC trainings were conducted throughout Moldova. All courses were endorsed by the MoH, with support from WHO, and delivered as a four-day simulation-based training. Each course was delivered to 25 students by six WHO-certified facilitators in compliance with International Federation for Emergency Medicine guidance [25]. Participants were Moldovans currently employed in one of three healthcare cadres: doctors, nurses/midwives, and feldshers (a form of mid-level practitioner in Moldova). Instruction was delivered in Romanian, the official language of Moldova. Teaching slides were available in both Romanian and Russian, while, due to time constraints, the participant workbook was only available in Russian.

Trainings were provided to participants from a range of organizations centrally in Chișinău (University Center for Simulation in Medical Training, Nicolae Testemitanu University of Medicine and Raisa Pacalo Center of Excellence in Medicine and Pharmacy) and at healthcare facilities in other districts. To complete the course and receive certification as a BEC provider, participants were required to attend and be engaged in all course sessions, complete a pretest, successfully lead a case scenario, and score ≥ 75% on a final written exam.

The average cost per participant was 495 USD for trainings held in Chișinău and 530 USD for those conducted outside of the capital.

Data collection

Uptake of emergency care knowledge was assessed using the WHO-ICRC BEC standardized course exams, which consisted of 25 multiple-choice questions evaluating recall of core emergency care concepts. The pre- and post-tests contained different questions but reflected the same content distribution. The pre-test was administered on the first day of the course prior to instruction, and the post-test following course conclusion. A WHO self-assessment questionnaire was also used to measure changes in participant confidence. It included 25 Likert scale items, with responses ranging from one (very unconfident) to four (very confident), and space for optional open-ended comments. At the end of the course, participants completed a structured feedback form that combined Likert-style items with open-ended questions to reflect on their learning experience.

All course assessment materials were translated into Romanian for use in Moldova. Participant pre- and post-tests and self-assessments were linked using unique identification codes. All tests, self-assessments, and feedback forms were completed online using Google Forms.

Data analysis

Data were exported from Google Forms, cleaned to remove inconsistencies and missing responses, and analysed quantitatively using Microsoft Excel and R Studio. A mixed-methods approach was taken analyse changes in provider knowledge and confidence. Descriptive statistics were generated, and statistical tests (Wilcoxon signed-rank tests and paired t-tests) were used to detect significant changes in pre-test and post-test scores and self-assessment questions. Open-ended commentary related to confidence ratings were translated to English by clinicians fluent in both English and Romanian and analysed thematically. Structured responses from the feedback form were quantified, while open-ended responses underwent thematic content analysis.

Results

Over a 23-month span in 2023 and 2024, 15 BEC courses were delivered at five venues in the Republic of Moldova: Three venues were in the capital, Chisinau, while two were outside of the capital region (Fig. 1a). A total of 28 organizations sent participants to these courses, including hospital, health centres, and nongovernmental organizations (Fig. 1b).

In total, 371 participants initiated the course. Most of the participants were doctors ($n = 270$, 72.8%), and the remainder ($n = 101$, 27.2%) were nurses, midwives, or feldshers. The course had a completion rate of 84.1%. The 312 BEC graduates included 81 nurses/midwives/felchers (80.2% completion rate) and 231 doctors (85.6% completion rate). Of the 59 individuals (14.4%) that did not pass the course, 22 (37.3%) failed to achieve a passing grade for the post-test and 37 (62.7%) were unable to attend the requisite course activities due to work duties.

Knowledge of emergency care

The standardized BEC content assessment demonstrated a significant increase in emergency care knowledge among participants following the course ($N = 312$). The median pre-course score was 16 (IQR: 14–19) (below the passing mark of 75%), and, after training, the median post-course score was 21 (interquartile range [IQR]:19–24) (above passing). Across participants, post-intervention scores were significantly higher than pre-intervention scores (Wilcoxon p-value < 0.001) (Fig. 2).

Self-assessment of confidence

Self-assessment questionnaires scored from one (least confident) to four (most confident) were used to assess confidence in, and understanding of, emergency care provision. A total of 302 completed assessments from participants showed significant improvements across all items except one (Table 1). Confidence was most improved in participants' feeling that they possessed an

Fig. 1 **a**: Locations of WHO-ICRC BEC trainings throughout Moldova, 2023–2024 (*N* = 5). **b**: Locations of organizations participating in WHO-ICRC BEC trainings throughout Moldova, 2023–2024 (*N* = 28)

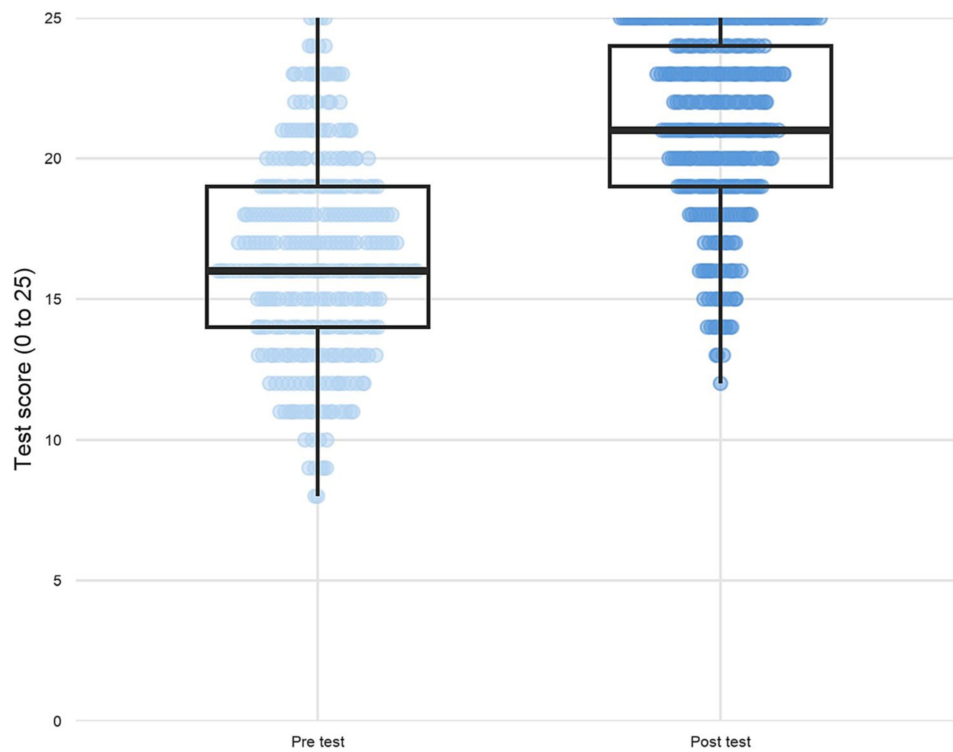


Fig. 2 Comparison of pre- and post-course exam scores for WHO-ICRC BEC trainings in Moldova, 2023–2024 (*N* = 312)

Table 1 Changes in emergency care confidence before and after WHO-ICRC BEC trainings in Moldova, 2023–2024 ($N = 302$)

Question	Score (mean [SD])		Mean difference	*p*-value*
	Pre-course	Post-course		
Confidence in emergency care ("I feel…")				
…comfortable handling any patient requiring emergency care.	1.92 (0.76)	2.16 (0.62)	+ 0.24	< 0.001
…that others in my clinical unit have the knowledge/skills to handle emergency patients.	1.86 (0.91)	2.01 (0.67)	+ 0.15	0.773
…prepared to see emergency care patients in my clinical setting.	1.90 (0.73)	2.17 (0.64)	+ 0.27	< 0.001
…confident seeing very ill patients.	1.68 (0.77)	1.91 (0.70)	+ 0.23	< 0.001
…that I understand the ABCDE's of basic emergency care.	1.81 (0.88)	2.34 (0.63)	+ 0.52	< 0.001
…that I have an organized approach to be prepared for all emergency patients.	1.52 (0.97)	2.12 (0.57)	+ 0.60	< 0.001
…that emergency care trainings for generalist healthcare providers are important.	2.23 (1.12)	2.50 (0.67)	+ 0.27	< 0.001
All confidence-related questions	*1.85 (0.91)*	*2.17 (0.67)*	*+ 0.32*	< 0.001
Basic Emergency Care competencies				
Emergency management of the acutely ill adult	1.75 (0.68)	2.11 (0.58)	+ 0.36	< 0.001
Emergency management of the acutely ill child	1.26 (0.74)	1.77 (0.62)	+ 0.51	< 0.001
Emergency management of the injured adult	1.66 (0.76)	2.08 (0.63)	+ 0.42	< 0.001
Emergency management of the injured child	1.30 (0.78)	1.83 (0.64)	+ 0.53	< 0.001
Emergency management of shock	1.50 (0.88)	2.09 (0.58)	+ 0.59	< 0.001
Emergency management of altered mental state	1.42 (0.87)	2.06 (0.59)	+ 0.64	< 0.001
Emergency management of difficulty in breathing	1.69 (0.70)	2.14 (0.60)	+ 0.45	< 0.001
Understanding of emergency drugs	1.60 (0.91)	2.08 (0.63)	+ 0.48	< 0.001
Management of obstructed (blocked) airway	1.70 (0.75)	2.18 (0.60)	+ 0.48	< 0.001
Management of a patient with difficulty in breathing	1.69 (0.71)	2.15 (0.58)	+ 0.46	< 0.001
Management of bleeding problems	1.69 (0.71)	2.12 (0.55)	+ 0.43	< 0.001
Immobilization of patients	1.71 (0.75)	2.16 (0.59)	+ 0.45	< 0.001
All Basic Emergency Care competency questions	*1.58 (0.79)*	*2.07 (0.61)*	*+ 0.49*	< 0.001

SD: Standard Deviation

*p-values obtained using the Wilcoxon signed-rank test for individual questions and paired t-test for overall composite scores

organized approach to be prepared for all emergency care patients (mean difference of 0.60 points) (Fig. 3). The largest increase in clinical competency was for altered mental state, which increased by 0.64 points. Only one item – related to confidence that others in the clinical unit have knowledge and skills to manage emergency patients – saw a positive but insignificant increase.

Across all confidence-related questions, mean scores increased significantly from 1.85 (standard deviation [SD] = 0.91) to 2.17 (SD = 0.67) (mean difference of + 0.32 points, t = 8.51, $p < 0.001$). Similarly, for BEC competencies, mean scores improved from 1.58 (SD = 0.79) to 2.07 (SD = 0.61) (mean difference of + 0.49 points, t = 13.98, $p < 0.001$).

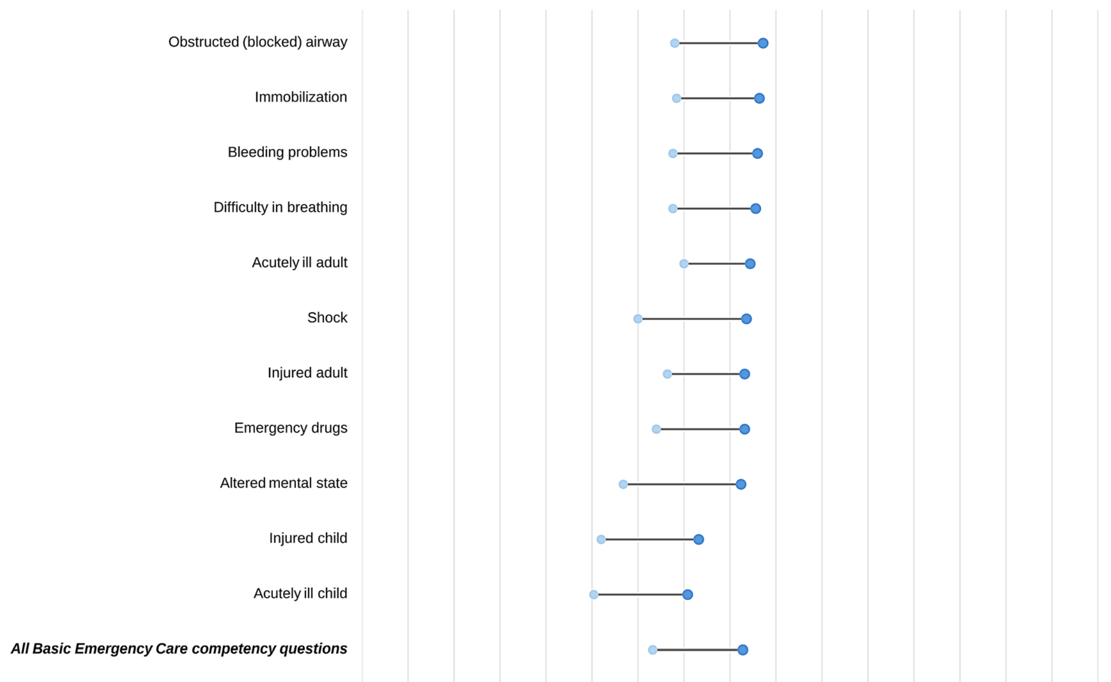
Structured course feedback

Structured feedback forms ($N = 312$), combining free-text and multiple-choice responses, revealed high participant satisfaction with the BEC course; it also identified areas for course improvement (Table 2). Nearly all participants (89%) found the content "very appropriate" for their professional needs, and most felt the instructional materials were clear. Instructors received overwhelmingly positive ratings, with 97% deemed "excellent," and over 80% of participants reported they would not change any aspect of the course. Practical elements such as a medication jeopardy game and interactive teaching methods were frequently praised for enhancing engagement and application of knowledge. Areas for improvement included requests for more time to absorb material and practice skills, and better sequencing of theory with hands-on activities. Only 10% of participants noted the course moved too quickly, and a small number (2%) requested additional Romanian-language support. Written feedback was consistent with self-assessments, with many participants reporting increased confidence and preparedness for emergency situations following the training.

Discussion

Moldova's implementation of the WHO-ICRC BEC course demonstrates how a short, standardized training can be deployed at scale to rapidly strengthen emergency care capacity. BEC was chosen for its pragmatic design, minimal time and resource demands, and ability to deliver essential clinical content in a modular format. This rollout, which is one of the largest published to date, used a decentralized training model to train both public and private organizations in regional hubs and ensure adequate geographic coverage. Based on previous data published in Cameroon with an average participant cost of USD 762, it was expected that BEC would

Basic Emergency Care competencies: I can manage...



Condidence: I feel confident that…

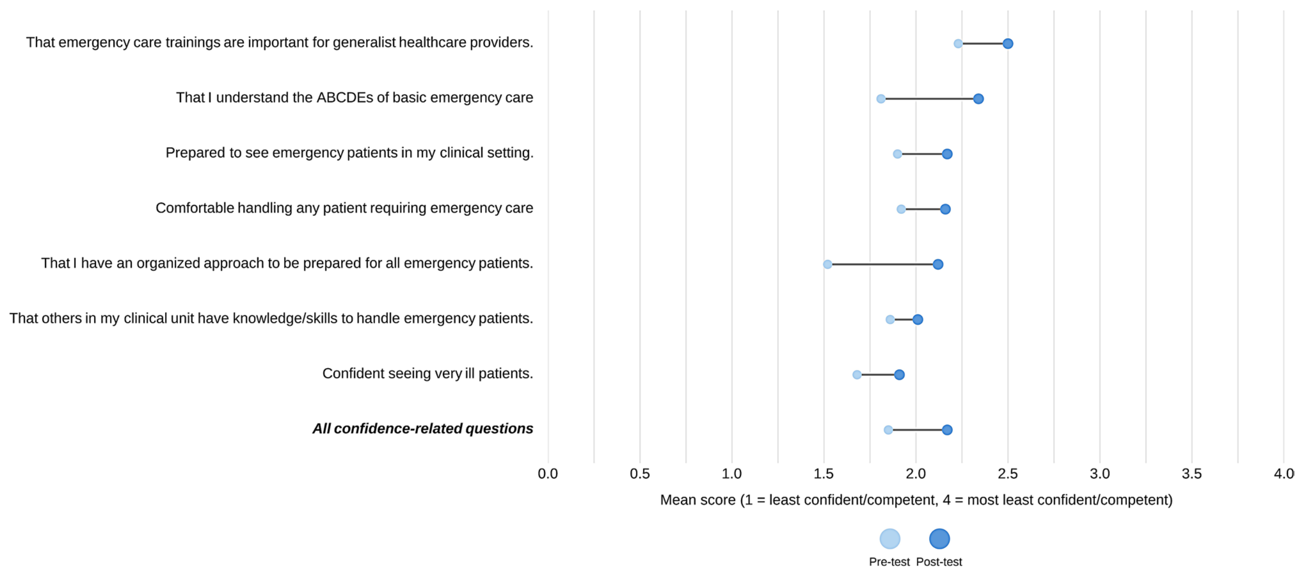


Fig. 3 Changes in emergency care confidence before and after WHO-ICRC BEC trainings in Moldova, 2023–2024 (*N* = 302)

Table 2 Selected comments illustrating key themes identified in structured feedback forms for WHO basic emergency care trainings in Moldova, 2023–2024 (*N* = 302)

Theme	Example of positive comments	Example of constructive comments
Interactive learning	"*Interactive approach*"; "*Practical activities*"	"*More time for information assimilation*"
Instructor quality	"*The instructor team was exceptional*"	"*The course should be longer*"; "*More time for practice*"
Course relevance	"*New updates for practice*"; "*Very useful*"	"*Support materials in Romanian would be useful for better understanding*"
Emergency readiness	"More confident in emergency situations"	"*More hands-on scenarios*"
Time management	"*Time management was well thought out*"	"*Slightly slower pace*"
Practical sessions	"*The medication jeopardy session was very effective*"	"*It would be more useful for practice to follow theory immediately*"

be cost-effective [19]. Moldova's implementation was even lower in cost, averaging approximately USD 500 per participant even when some travel was required. And, despite being implemented during a time of immense strain on healthcare providers, participants gained significant emergency care knowledge and found the course acceptable. Learning outcomes align with those observed in similar contexts, such as Ukraine, reinforcing the practicality of BEC in unstable healthcare settings [22].

On a global level, Moldovan results support existing evidence of BEC's educational effectiveness in a wide range of health contexts. Like in Africa and Europe, participants in Moldova experienced significant improvements in emergency care knowledge, with post-training scores narrowing the performance gap across all provider types [19, 22, 26, 27]. The slightly larger gain between pre- and post-test scores observed in Moldova may reflect iterative BEC curriculum enhancements over time and the benefit of instruction delivered primarily in participants' native language; it may also be due a lower baseline of emergency care knowledge and thus increased capacity for learning from course content. Moldova's course lends additional data to BEC as a tool to increase confidence in emergency care delivery. Comparable findings have been reported in Malawi, Liberia, and Tanzania, where increased self-efficacy has been linked to more consistent clinical decision-making and earlier recognition of life-threatening conditions [22, 26–28]. This further motivates the use of the course in resource-limited and crisis settings, as confidence is especially important when providers are often working without direct supervision or reliable referral systems. However, one notable finding was that, while participants' own confidence improved, this did not extend to their confidence of others in their units. This is somewhat unsurprising, as the course was delivered to a only a subset of providers from each organization. But it highlights the fact that preparedness efforts cannot rely solely on individual upskilling and are better enacted as team-based approaches. Expanding course delivery to include entire clinical units might yield greater benefits.

Participant feedback provided further insight into the ways in which BEC contributes to individual and collective preparedness for emergencies. Providers were highly satisfied with course content, valuing the scenario-based format of the course. As seen in other countries, suggestions for improvement included extending hands-on sessions, increasing Romanian-language support, and allowing more time to practice and reflect. While some participants in Moldova suggested extending the course, experience from other countries shows the current format is already near the limit of what is feasible for providers with limited non-clinical time and would be especially impractical in crisis-strained settings. BEC's newer hybrid model addresses this by delivering lectures online and focusing in-person time on skills and cases, though this format may not match some Moldovan participants' preference for more in-person engagement.

Beyond immediate learning gains, Moldova's experience highlights BEC's potential as a tool for emergency preparedness and response, as well as sustainable development. In this study, emergency preparedness is intended to describe the readiness of frontline healthcare providers to manage acute presentations during times of increased demand. While disaster preparedness often refers to planning and response for specific hazards, this work focuses on hazard-agnostic workforce readiness as a foundational component of both emergency preparedness and longer-term system resilience. The original implementation of BEC supported development of a national, multiorganizational team of instructors, who are currently cascading the training to both untrained staff at their own facilities and other hospitals that were unable to participate in the initial rollout. In 2025 alone, these trainers have gone on to teach an additional 15 BEC courses with nearly 400 participants. The brief, hazard-agnostic design of BEC makes it well-suited for rapid deployment during periods of increased system demand. In Moldova, BEC was used to build surge capacity among frontline providers, equipping them with foundational skills to effectively manage acute and chronic presentations seen at high rates in both residents and newly arrived refugees. Similar applications have been observed globally: in Ukraine, the course was adapted for pre-deployment training in conflict zones; [22] in Uganda, it was used to prepare providers for national triage scale-up during a period of health system reform; [28] in Ethiopia, it helped maintain continuity of emergency services in rural facilities facing staffing instability; [29] and in Egypt, rapid BEC training was deployed during the regional response to the October 7, 2023, escalation in Gaza to strengthen frontline preparedness [30]. Alongside Moldova, these examples reinforce the role of BEC not only as a clinical training program, but as a scalable, context-sensitive intervention that supports broader health system readiness.

While Moldova's work aligns with previous research in demonstrating BEC's positive impact on educational outcomes, these findings should be considered in the context of several limitations. The study used on a pre-post design, with no control group, and the method by which participants were selected from each organization to participate was not defined. Additionally, measures of confidence were self-reported and may not translate into actual competency. To fully assess impacts of the course, participants should be followed to track longitudinal knowledge retention and confidence, and skills use can be validated in clinical settings. Detailed

cost-effectiveness analyses will also be essential to better quantify the course's impact on patient care and system preparedness. Additionally, some elements of this implementation were specific to the Moldovan context, including MoH endorsement, some existing infrastructure for training, and the availability of bilingual trainers, and may be difficult to replicate in other settings. But, the rollout's core features, such as the short course duration, standardized curriculum, and decentralized delivery, are likely transferable to similar UMIC settings facing increased demand for emergency care. Despite these limitations, Moldova's BEC outcomes add valuable real-world evidence to an ever-growing body of literature supporting the course and uniquely highlight its practicality for supporting emergency preparedness at the national level under complex conditions.

Conclusions

BEC implementation in Moldova showed that a single course can yield significant gains in emergency care knowledge and confidence across diverse provider cadres in only a few days. The training was feasible and acceptable, delivered to hundreds of participants from both public and private organizations. BEC offers a practical, low-cost approach to strengthening frontline capacity in regions that facing overlapping public health crises. Leveraging the hybrid model that is now available from WHO may further expand the reach of the course and improve completion rates, while reducing expenses. Future research should continue to assess cost effectiveness, knowledge retention, and broader impacts of BEC on national emergency preparedness.

Abbreviations

BEC	Basic Emergency Care
ICRC	International Committee of the Red Cross
IQR	Interquartile Range
MoH	Ministry of Health
SD	Standard Deviation
UMIC	Upper-Middle-Income Country
WHO	World Health Organization

Acknowledgements

We gratefully acknowledge the contributions of the following individuals who facilitated BEC courses in Moldova: Marin Vozian, Natalia Belîi, Victoria Catana, Aurelia Gagiu, Nicu Gagiu, Raed Habach, Tatiana Malcova, Maxim Postanciuc, Svetlana Plămădeală, Dumitru Rabii, Dumitru Savca, Cristina Scripcari, Romanița Chesov, Emil Ceban, Olga Cernetchi, Andrei Romancenco, Diana Manea, Boris Leonti, Gheorghe Brinza, Valentin Mustea, Vadim Aftene, Ala Preguza, Maria Bejireanu, Ruslana Flocea, Rodica Munteanu, Cornelia Panico, Ion Vaculin, Viorel Ceban, Mariana Negrean, Petru Ciubotaru, Diana Bradu, Ludmila Capcelea, Ella Ursu, Iurie Crasiuc, Serghei Suman.

Author contributions

IC collected data. IC and JPH cleaned and analysed data. IC, JPH, VS, and IG drafted the manuscript, and MG, IP, IP, EJCH, and DP reviewed and revised. All authors read and approved of the final manuscript.

Funding

The authors would like to acknowledge the valuable contribution of the following partners and donors in funding the implementation of the BEC in the Republic of Moldova, namely (listed in alphabetical order): United States Bureau of Population, Refugees and Migrants, WHO Health Emergencies Programme Ukraine and neighboring countries receiving and hosting refugees (main donor); Swiss Cooperation Office in Moldova, WHO Project Strengthening the Emergency Care System in the Republic of Moldova (main donor); European Union support for COVID-19 vaccine deployment in the Eastern Partnership, repurposed funds for WHO Health Emergencies Programme Ukraine and neighboring countries receiving and hosting refugees; and Norwegian Agency for Development Cooperation (Norad), WHO Health Emergencies Programme Ukraine and neighboring countries receiving and hosting refugees.

Data availability

The data that support the findings of this study are available from WHO, but restrictions apply to the availability of these data, which were used under approval for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of WHO.

Declarations

Ethics approval and consent to participate

Ethical approval for analysis of routinely collected course data for this study was obtained from the Research Ethics Committee of Nicolae Testemițanu State University of Medicine and Pharmacy (no. 2025.61).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]World Health Organization Country Office, Chișinău, Republic of Moldova
[2]Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, Republic of Moldova
[3]World Health Organization, Geneva, Switzerland
[4]Ministry of Health, Chisinau, Republic of Moldova
[5]World Health Organization Regional Office for Europe, Copenhagen, Denmark

Received: 23 November 2025 / Accepted: 25 December 2025
Published online: 13 January 2026

References

1. World Bank Country and Lending Groups: The World Bank. 2025 [Available from: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups
2. Moldova. Economy: Britannnica. 2024. Available from: https://www.britannica.com/place/Moldova/Economy.
3. Rechel B, Maresso A, Sagan A, Hernandez-Quevedo C, Williams G, Richardson E, et al. editors. Organization and financing of public health services in europe: country reports. European Observatory Health Policy Series. Copenhagen (Denmark). 2018.
4. Health Systems in. Action: Republic of Moldova. 2022.
5. Omic E, Handeland C. Healthcare in Western Balkans hurting people's well-being and economic future. Paris, France: Council of Europe Development Bank; 2022.
6. Arenliu Qosaj F, Bourdeaux M. Health policy developments in the Western Balkan countries 2000-19: towards European health and health care policies. Eur J Public Health. 2024;34(3):460–6.
7. Chang CY, Abujaber S, Reynolds TA, Camargo CA Jr., Obermeyer Z. Burden of emergency conditions and emergency care usage: new estimates from 40 countries. Emerg Med J. 2016;33(11):794–800.
8. Nilsen P, Hudson D, Lindqvist K. Economic analysis of injury prevention–applying results and methodologies from cost-of-injury studies. Int J Inj Contr Saf Promot. 2006;13(1):7–13.

9. Obermeyer Z, Abujaber S, Makar M, Stoll S, Kayden SR, Wallis LA, et al. Emergency care in 59 low- and middle-income countries: a systematic review. Bull World Health Organ. 2015;93(8):577–G86.
10. Collaborators GDI. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the global burden of disease study 2021. Lancet. 2024;403(10440):2133–61.
11. Arnaut O, Croitoru D, Grabovschi I, Sandru S. Trauma scoring systems. Mold Med J. 2020;63(1):64–74.
12. Olaru A, Igor C, Liviu V, Roman P, Octavian M, Stepan C, et al. Management of missed injuries in polytrauma patients. Arta Med. 2016;4(61):55.
13. Dumcheva A, Nevalainen J, Laatikainen T, Nuorti P. How likely are Eastern European and central Asian countries to achieve global NCD targets: multi-country analysis. BMC Public Health. 2024;24(1):2714.
14. Delvento G, Curteanu A, Rotaru C, Van Poel E, Willems S, Prytherch H, et al. The impact of the COVID-19 pandemic on primary health care practices and patient management in the Republic of Moldova - results from the PRICOV-19 survey. BMC Prim Care. 2023;24(Suppl 1):221.
15. Aljadeeah S, Hosseinalipour SM, Khanyk N, Szocs E, Traianou A, Tomas A, et al. Healthcare provision for displaced people in transit: analyses of routinely collected data from INTERSOS clinics at the Ukrainian border with Moldova and Poland. J Migr Health. 2025;11:100287.
16. Kumar BN, James R, Hargreaves S, Bozorgmehr K, Mosca D, Hosseinalipour SM, et al. Meeting the health needs of displaced people fleeing ukraine: drawing on existing technical guidance and evidence. Lancet Reg Health Eur. 2022;17:100403.
17. Ukraine Refugee Situation. / Republic of Moldova. 2025.
18. WHO Tools for strengthening emergency care systems: World Health Organization. 2024 [Available from: https://www.who.int/docs/default-source/emergencies-trauma-care/who-tools-for-strengthening-emergency-care-systems---feb-2020.pdf?sfvrsn=56f2ccf3_2
19. Kouomogne BAN, Tania BL, Ndongo CB, Noulala AC, Ntembwa HK, Kariyo PC, et al. Improving emergency care capacity with the WHO-ICRC basic emergency care (BEC) course. Afr J Emerg Med. 2025;15(4):100892.
20. Basic Emergency care: approach to the acutely ill and injured Geneva: World Health Organization. 2019 [Available from: https://www.who.int/publications/i/item/basic-emergency-care-approach-to-the-acutely-ill-and-injured
21. Werner K, Risko N, Kalanzi J, Wallis LA, Reynolds TA. Cost-effectiveness analysis of the multi-strategy WHO emergency care toolkit in regional referral hospitals in Uganda. PLoS ONE. 2022;17(12):e0279074.
22. Kivlehan SM, Allen A, Viun O, Makarov DA, Schnorr D, Patel S, et al. Evaluation of change in emergency care knowledge and skills among front-line health-care providers in Ukraine with the basic emergency care course: a pretest/post-test study. BMJ Open. 2022;12(6):e050871.
23. Reynolds TA, Sawe H, Rubian AM, Do Shin S, Wallis L, Mock CN. Strengthening health systems to provide emergency care. Disease control priorities: improving health and reducing poverty. 3 ed. The International Bank for Reconstruction and Development/The World Bank; 2017.
24. Broccoli MC, Nonde J, Mwanza KE, Dixon J, Pigoga Hart J, Lai King L, et al. Impact of the WHO emergency care toolkit on mortality in zambia: an implementation-effectiveness hybrid study. BMJ Glob Health. 2025;10(11).
25. Basic Emergency Care Training Course Guidelines. (Provisional). International Federation for Emergency Medicine; 2024.
26. Broccoli MC, Dixon J, Skarpiak B, Phiri G, Muck AE, Calvello Hynes EJ. Application of the world health organization's basic emergency care course in Zambia. Afr J Emerg Med. 2021;11(1):140–3.
27. Khongo BD, Schmiedeknecht K, Aron MB, Nyangulu PN, Mazengera W, Ndarama E, et al. Basic emergency care course and longitudinal mentorship completed in a rural Neno District, malawi: A feasibility, acceptability, and impact study. PLoS ONE. 2023;18(2):e0280454.
28. Tenner AG, Sawe HR, Amato S, Kalanzi J, Kafwamfwa M, Geduld H, et al. Results from a world health organization pilot of the basic emergency care course in sub saharan Africa. PLoS ONE. 2019;14(11):e0224257.
29. Hagos AA, Firew T, Gebreyesus A, Sambo BH, Reynolds TA. Ethiopia's quest to champion emergency care systems. Bull World Health Organ. 2019;97(9):582.
30. Gaza. UN Egypt fully mobilized as Egypt stands at forefront of humanitarian effort. 2023.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.