Age and Ageing 2025; **54:** afaf272
https://doi.org/10.1093/ageing/afaf272

© The Author(s) 2025. Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

SHORT REPORT

Understanding barriers and facilitators to implementation of consensus-based recommendations for the management of very old people in intensive care

Richard S. Bourne[1,2], Laura Alberto[3], Nathan E. Brummel[4,5], Bas de Groot[6,7], Dylan W. De Lange[8], Paul Elbers[9,10], Marielle H. Emmelot-Vonk[11], Hans Flaatten[12], Yonathan Freund[13,14], Alessandro Galazzi[15], Ana Garcia-Martinez[16], Bertrand Guidet[17,18], Iva Holmerová[19], Jeremy M. Jacobs[20,21], Gavin M. Joynt[22], Susannah Leaver[23], Marc Leone[24], Bairbre McNicholas[25], David McWilliams[26], Victoria Metaxa[27,28], Christian H. Nickel[29,30], Daniele Poole[31], Chiara Robba[32,33], Kevin Roedl[34], Marc Romain[35,36], Anne-Françoise Rousseau[37,38], Sviri Sigal[35,36], Wojciech Szczeklik[39], Hélène Vallet[40,41], James van Oppen[42,43], Christian Jung[44], Michael Beil[45]

[1]Pharmacy and Critical Care, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK
[2]National Institute for Health and Care Research (NIHR) Greater Manchester Patient Safety Research Collaboration (GM PSRC), University of Manchester, Manchester, UK
[3]Consejo Nacional de Investigaciones Científicas y Técnicas, Instituto de Investigación en Medicina y Ciencias de la Salud, Universidad del Salvador, Ciudad de Buenos Aires, Argentina
[4]Division of Pulmonary, Critical Care and Sleep Medicine, The Ohio State University College of Medicine, Columbus, Ohio, USA
[5]Davis Heart and Lung Research Institute, The Ohio State University Wexner Medical Center, Columbus, Ohio, USA
[6]Department of Emergency Medicine, Radboudumc, Nijmegen, GE, The Netherlands
[7]Research Centre for Emergency Medicine, Aarhus University Hospital, Aarhus, Central Denmark Region, Denmark
[8]Department of Intensive Care Medicine, Utrecht University, Heidelberglaan 100, Utrecht, Utrecht 3584 CX, The Netherlands
[9]Department of Intensive Care Medicine, Amsterdam University Medical Center Locatie Academic Medical Center, Amsterdam, Netherlands
[10]Center for Critical Care Computational Intelligence, Vrije Universiteit, Amsterdam, The Netherlands
[11]Department of Geriatrics, University Medical Centre Utrecht, Utrecht, The Netherlands
[12]Department of Research and Development, Haukeland Universitetssjukehus, Bergen, Norway
[13]IMProving Emergency Care, University Hospital Federations, Sorbonne Université, Paris, Île-de-France, France
[14]Emergency Department, Assistance Publique—Hopitaux de Paris, Pitié-Salpétrière Hospital, Paris, Île-de-France, France
[15]Department of Medicine and Surgery, Libera Università Mediterranea, Casamassima, Bari, Italy
[16]Emergency Department, IDIBAPS, Hospital Clínic, Barcelona, Spain
[17]Institut Pierre Louis d'Epidémiologie et de Santé Publique, Sorbonne Universite, Paris, Île-de-France, France
[18]Service de Réanimation Médicale, Assistance Publique—Hôpitaux de Paris, Paris, Île-de-France, France
[19]Centre of Expertise in Longevity and Long-term Care, Faculty of Humanities, Prague, Charles University, Prague, Czech Republic
[20]Department of Geriatric Rehabilitation and Center for Palliative Care, Hadassah Medical Center, Jerusalem, Jerusalem District, Israel
[21]Faculty of Medicine, Hebrew University of Jerusalem, Jerusalem, Jerusalem District, Israel
[22]Department of Anaesthesia and Intensive Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong, China
[23]General Intensive Care, St George's University Hospitals NHS Foundation Trust, London, UK
[24]Department of Anaesthesia and Intensive Care Medicine, Hôpital Nord, Assistance Publique des Hôpitaux de Marseille, Aix Marseille University, Marseille, France

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

[25]Department of Anaesthesia and Intensive Care Medicine, School of Medicine, University of Galway, Galway, County Galway, Ireland
[26]Centre for Care Excellence, Coventry University, Coventry, UK
[27]Department of Critical Care, King's College Hospital NHS Foundation Trust, London, UK
[28]Centre for Education, Faculty of Life Sciences and Medicine, King's College London, London, UK
[29]Emergency Department, University Hospital Basel, Basel, Switzerland
[30]Department of Clinical Research, University of Basel, Basel, Switzerland
[31]Operative Unit of Pain Therapy, Ospedale San Martino Belluno, Belluno, Veneto, Italy
[32]Istituto di Ricovero e Cura a Carattere Scientifico (IRCCS) Ospedale Policlinico San Martino, Genoa, Liguria, Italy
[33]Dipartimento di Scienze Chirurgiche Diagnostiche ed Integrate, University of Genoa, Genoa, Liguria, Italy
[34]Department of Intensive Care Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
[35]Department of Medical Intensive Care, Hadassah Medical Center, Jerusalem, Israel
[36]Faculty of Medicine, Hebrew University of Jerusalem, Jerusalem, Israel
[37]Intensive Care Department, University Hospital of Liège, Liège, Belgium
[38]Research Unit for a Life-Course Perspective on Health and Education, University of Liège, Liège, Belgium
[39]Center for Intensive Care and Perioperative Medicine, Jagiellonian University Medical College, Krakow, Poland
[40]Service de Gériatrie Aigue/UPREG, Assistance Publique–Hôpitaux de Paris, Hôpital Saint-Antoine, Paris, Île-de-France, France
[41]Centre d'Immunologie et de Maladies Infectieuses, Institut National de la Santé et de la Recherche Médicale (INSERM), Sorbonne Université, Paris, Île-de-France, France
[42]Centre for Urgent and Emergency Care Research, The University of Sheffield, Sheffield, UK
[43]Department of Population Health Sciences, University of Leicester, Leicester, UK
[44]Department of Cardiology, Pulmonology and Vascular Medicine and Cardiovascular Research Institute Düsseldorf, Heinrich-Heine-Universitat Dusseldorf, Düsseldorf, NRW, Germany
[45]Department of Medicine, National Health Service Highland, Inverness, UK

Address correspondence to: Richard S. Bourne, Sheffield Teaching Hospitals NHS Foundation Trust - Pharmacy and Critical Care, Northern General Hospital, Herries Road, Sheffield, S5 7AU, UK. Email: richard.bourne1@nhs.net

Abstract

Background: Recent consensus-based recommendations on the management of people aged ≥80 years in intensive care units (ICUs) were developed to guide the management of quality care.

Objective: To understand perceived barriers and facilitators to consensus-based recommendations to support their implementation into multi-professional and disciplinary clinical practice.

Methods: Analysis of comments made by an international multiprofessional group of intensive care, emergency and geriatric medicine specialists in the Delphi consensus on the management of people aged ≥80 years in ICUs. Barrier and facilitators were analysed using the Theoretical Domains Framework.

Results: Care statement comments were provided by 99 of the 124 (79.8%) participants completing the Delphi first round; primarily identifying barriers (239/258; 92.6%). Most participants identified limitations in the environmental context and resources within the healthcare system (152, 63.6%); predominantly limitations in resources/material resources, with staffing (60, 25.1%), and beds or facilities (30, 12.6%) concerns. Potentially modifiable domains focused on inadequate knowledge (25, 10.5%), beliefs about consequences (18, 7.5%), care goals (16, 6.7%) and social/professional role and identity (16, 6.7%). Facilitators focused on improving staff knowledge, particularly amongst geriatric medicine and intensive care medicine specialities, and environmental context and resources (both 8, 42.1%).

Conclusions: The environmental context and resources domain was the most common barrier identified. Behaviour change opportunities are centred on the domains knowledge, beliefs about consequences, goals and social/professional role and identity. Linked behaviour change techniques can be identified and developed according to local healthcare context to support implementation of care recommendations.

Keywords: intensive care; consensus; recommendations; older people; barriers and facilitators

Key Points

- Consensus-based recommendations on the management of people aged ≥80 years in intensive care units (ICUs) have been developed to support delivery of quality person care and allocation of resources
- Delphi participants identified many barriers to implementation of care recommendations into routine clinical practice

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

- Challenges related to healthcare resources (staffing and specialist bed availability) were common and are often dependent on the external healthcare environment
- Potentially more modifiable opportunities for ICUs centred on the Theoretical Domains Framework domains knowledge, beliefs about consequences, goals and social/professional role and identity
- Linked behaviour change techniques can be identified and developed according to local healthcare context to support implementation into routine clinical practice

Introduction

With ageing populations, there is an increasing demand for capacity and capability of care for "very old" (defined as age ≥ 80 years) people in intensive care units (ICUs) [1, 2]. This cohort of people commonly exhibit functional disabilities, multimorbidity and frailty [3]. The prevalence of these age-related conditions increases peoples' vulnerability to illness and insults, adversely affecting their recovery capacity and clinical trajectory [4]. Indicators of biological age, such as frailty, are better predictors of short-term mortality than chronological age per se in the older person in ICU [4]. Notable heterogeneity in biological ageing exists across populations and individuals, creating uncertainty on the best strategy how best to manage and allocate resources for critical illness in older people [5]. Such healthcare uncertainties are compounded by the absence of practice guidance or policy, presenting challenges to the quality of care provided. To address this, we previously undertook a consensus-based process to make recommendations for the management of people in intensive care aged ≥80 years [6]. Statement recommendations addressed major decisions along the care trajectory for very old people requiring intensive care: principles of intensive care, key decisions along the ICU and hospital pathway, and healthcare system infrastructure and service development. Participants identified many barriers and facilitators to care statements. The aim of this report was to focus on the understanding the perceived barriers and facilitators to support implementation of recommendations into clinical practice.

Methods

Ethics approval was granted for the Delphi consensus process and all participants provided informed consent [6]. Participants were an international and multiprofessional group of specialists (physicians, nurses, pharmacists and physiotherapists) in intensive care, emergency medicine and geriatric medicine. The European Society of Intensive Care Medicine (ESICM) endorsed the project. Further details on the characteristics of the Delphi participants have been previously reported [6]. Delphi participants rated each statement on a 9-point Likert scale (1—strongly disagree to 9—strongly agree). Consensus was defined as strong or moderate if the agreement (7–9) or disagreement (1–3) between panellists was ≥90% or between 80% and 90%, respectively. Two Delphi rounds were completed [6]. In the Delphi first round, all panellists were asked to submit concerns about the feasibility of implementing specific recommendations in their country as a comment to each statement or checklist item.

We analysed all barriers and facilitators identified from these invited comments made by participants [6]. Firstly, for each comment individual elements were identified, then categorised as a barrier or facilitator. These barriers and facilitators were then, (i) mapped to domains in the Theoretical Domains Framework (TDF, version 2.0) [7], before, (ii) identifying the domain construct (initial TDF mapping by RSB and independently reviewed by MB). The TDF is comprised of fourteen domains, each representing a cluster of theoretical constructs that influence human behaviour. Classification of the barriers and facilitators using the TDF provides a behavioural basis for implementation strategies in clinical practice [7]. Each TDF domain can then be mapped to specific behaviour change techniques that target the domain mechanisms [7].

Results

Of the 124 participants who completed the first round of the Delphi consensus process, 99 (79.8%) participants provided comments related to the care statements proposed. Participants commenting represented intensive care medicine (66, 66.7%), geriatric medicine (18, 18.2%), emergency medicine (7, 7.1%), other clinical specialties (6, 6.1%) and non-clinical researchers (2, 2.0%). Most commenting participants were doctors (84, 84.9%) and male (59, 59.6%). Two hundred and fifty-eight unique comment elements were provided, most of those were insights into barriers (239, 92.6%) to recommendation application, informing quality care of people aged ≥80 in ICU (Figure 1). Selected exemplar comments from participants of barriers and facilitators matched to frequently reported TDF domains and constructs are provided (Table 1).

Over 80% of participants commenting identified limitations in the environmental context and resources within the healthcare system, potentially adversely affecting service provision (152, 63.6%). More than half of all comments highlighted barriers related to resources/material resources (139, 58.2%) (Figure 1). Specific comments highlighted staffing limitations (primarily medical and allied health professionals) and geriatric or post-ICU rehabilitation facilities. Lack of care continuity between secondary and primary care was the main organisational culture/climate concern.

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

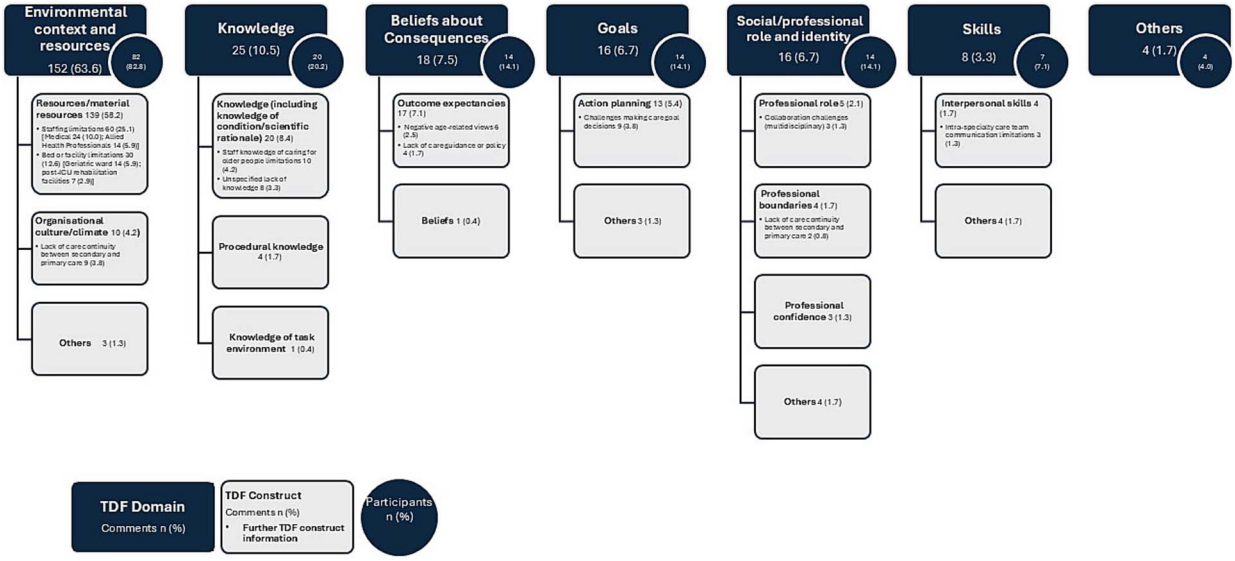

Figure 1. Barriers to implementation of practice recommendations for people aged ≥80 in intensive care.

Deficits in people's knowledge were also identified (25, 10.5%) by one in five participants, primarily staff knowledge of caring for older people rather than procedural knowledge or intensive care considerations. Staff skills were less of a concern (8, 3.3%), and when specified, often related to intra-team communication (interpersonal skills).

Barriers related to beliefs about consequences (18, 7.5%) highlighted a perception of poor age-related outcomes if admitted to ICU. Related to this were social/professional role and identity domain barriers (16, 6.7%), where professional role, boundaries and confidence TDF constructs identified care collaboration and continuity challenges. In goals (16, 6.7%), action planning construct barriers comprised principally of challenges in making care goal decisions.

In contrast, 10 (10.1%) participants shared few (19, 7.4%) facilitator comments. The most common enablers related to staff knowledge and environmental context and resources (both 8, 42.1%), with 6 (31.6%) resources/material resources construct. The knowledge enablers identified the importance of both intensive care and geriatric specialities having more clinical knowledge of each other's practice. Resources focused on having the healthcare professional workforce required and availability of geriatric ward beds.

Discussion

We identified the barriers and facilitators to the implementation of recommendations for the management of people aged ≥80 in ICUs. TDF analysis provided a basis to inform priorities for behaviour change processes, supporting implementation of these recommendations in practice [6, 8]. Mapping of TDF determinants of behaviour domains to behaviour change techniques facilitates designing interventions that are theoretically grounded and targeted at specific behavioural determinants [9]. Such behaviour change technique links must consider local context and healthcare perspectives [10].

The TDF domain environmental context and resources and construct resources/material resources link to behaviour change techniques such as restructuring the physical environment. However, such physical restructuring of healthcare resources (staffing and specialist bed availability) is often dependent on the external environment, at an organisational level or higher. Various models of care for older people in critical care have been described with different levels of resource and workforce requirements [11]. Uncertainty around the impact and cost-effectiveness of different care models of care are a challenge to securing healthcare resources.

Important barriers to implementation of clinical practice guidelines extend beyond the health system and resources [12]. These include socio-technical (e.g. care team collaboration and communication) and healthcare professional factors (e.g. knowledge about the care recommendations) [12]. A systematic review of barriers and facilitators to shared decision making in older people with multiple long-term conditions, also identified the importance of social (e.g. cultural, leadership, collaboration) and interactional contextual (e.g. person and healthcare professional characteristics) factors [13]. Barriers identified in the TDF domains knowledge, beliefs about consequences, goals, social/professional role and identity provide potentially more modifiable opportunities for healthcare system improvements within existing resources. For example, the TDF domains of knowledge and beliefs about consequences both link to the behaviour change technique information about health consequences [9]. Goals can link to goal setting (outcome) and social/professional role and identity include a link to review behaviour goals, helping professionals to align their actions with their perceived role and responsibilities [9]. These approaches to implementation strategies are consistent with recommendations on multiprofessional staff education on the care of the older person [2]; and approaches to

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

Table 1. Selected exemplar participant comments representative of frequent TDF domains and constructs

TDF domain	TDF construct	Comment	Participant details
Environmental context and resources	Resources/material resources	'Availability/resource/pool of geriatricians—finite resource and may not be able to provide ad hoc support' (Barrier)	Geriatric medicine; Doctor (United Kingdom) [P#86]
		'Financial resources to open suitable facilities (especially intermediate care units)' (Facilitator)	Geriatric Medicine; Doctor (France) [P#73]
		'ED admissions are often poorly completed as time pressured so all information not always available for decision makers' (Barrier)	Intensive Care; Nurse (United Kingdom) [P#87]
		'Low staffing levels leading to prioritisation of other cases' (Barrier)	Intensive Care; Allied Health Professional (United Kingdom) [P#37]
		'Palliative physicians and geriatricians should be available promptly' (Facilitator)	Intensive Care; Doctor (Germany) [P#14]
	Organisational culture/climate	'Organisational barriers between sectors that limit flow of information, coordination and cooperation' (Barrier)	Intensive Care Medicine; Doctor (Norway) [P#31]
		'Disconnect between hospital care and primary care due to funding models and silos (state vs federal)' (Barrier)	Geriatric Medicine; Doctor (Australia) [P#76]
Knowledge	Knowledge (including knowledge of condition/scientific rationale)	'Lack of specialised geriatric knowledge among ICU specialists' (Barrier)	Geriatric Medicine; Doctor (Czech Republic) [P#83]
		'Ensuring education and training of those working in critical care roles is probably more deliverable' (Facilitator)	Geriatric Medicine; Doctor (United Kingdom) [P#16]
Beliefs about Consequences	Outcome expectancies	'Evidence. Deploying additional resources for many of these types of age-friendly interventions is significantly limited by the lack of clear benefit to older adults' (Barrier)	Intensive Care Medicine; Doctor (USA) [P#95]
		'The wrong interpretation and expectation of some caregivers in the benefit of critical care for very old patients' (Barrier)	Intensive Care Medicine; Doctor (Belgium) [P#11]
		'Ageism related practices from clinical teams' (Barrier)	Geriatric Medicine; Doctor (P#52)
		'Feedback from geriatricians about long term *follow up*' (Facilitator)	Intensive Care Medicine; Doctor (France) [P#46]
	Beliefs	'A misconception that valid recommendation must be supported by high quality evidence' (Barrier)	Intensive Care Medicine; Doctor (Norway) [P#31]
Goals	Action planning	'In the ED sometimes limited information about prognosis and reversibility of acute organ failure while condition of patient requires immediate decision on admission to ICU or not' (Barrier)	Emergency Medicine; Doctor (Netherlands) [P#41]
		'Power of frailty assessment and consequences on outcome are unknown' (Barrier)	Intensive Care Medicine, Doctor (Germany) [P#97]
		'Clear directives about goals of care and treatment escalation decisions may be useful in case patients attend the ED for a new acute decompensation' (Facilitator)	Emergency Medicine, Doctor (Spain) [P#40]
Social/professional role and identity	Professional role	'Perceived "need to do everything" by clinicians' (Barrier)	Intensive Care medicine; Doctor (Austria) [P#57]
		'The main risk is to consider teams of geriatric doctors solely as social workers, although their contribution in fact mainly concerns expertise in managing situations of complex polymorbidity and their functional consequences' (Barrier)	Geriatric Medicine; Doctor (France) [P#12]
	Professional boundaries	'Poor integration (silos) of service providers' (Barrier)	Intensive Care Medicine; Doctor (Israel) [P#70]
	Professional confidence	'All ICU physicians are not open about old patient ICU admission' (Barrier)	Geriatric Medicine; Doctor (France) [P#9]
Skills	Interpersonal skills	'Lack of knowledge, lack of communication skills, strong focus on treatment—instead of shared decision-making, lack of wanting to take responsibility for talks about level of treatment, much easier to just go ahead than to address end-of-life, prognostic awareness and patient preferences' (Barrier)	Geriatric Medicine; Doctor (Norway) [P#51]
		'Poor communication between intensivist and geriatrician' (Barrier)	Intensive Care Medicine; Doctor (Poland) [P#99]

P#—participant number; ED—emergency department.

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

improve inter-care team collaboration [4, 14], for shared decision-making supporting care continuity across teams and clinical environments [13]. Such interventions are centred on improving inter-team performances based on a mutual appreciation of the specific considerations for quality care in older people. Whilst further research is required to identify specific risk factors that impact on outcomes for older people with critical illness; informing people's beliefs about consequences and future practice policy.

Strengths of this report included an international and multiprofessional expert panel from intensive care, emergency and geriatric medicine. TDF framework analysis identified specific behavioural determinants for behaviour change techniques developments within local healthcare contexts. Limitations in panel representation (e.g. healthcare profession and healthcare income country classifications) [6, 13], potentially affect the generalisability of recommendations, extending to the barriers, facilitators and TDF domains identified. Another potential limitation is that barriers and facilitators were only conducted in the Delphi first round, in keeping with most Delphi consensus processes [15]. Nevertheless, inclusion of open comments in further rounds may have provided further insights into barriers and facilitators to care recommendations. Each participant could provide multiple comments, thus potentially creating an over-representation bias. We provide data on comment and participant numbers here for reassurance.

Conclusion

The TDF domain environmental context and resources and construct resources/material resources barriers were emphasised, being dependent on strategic healthcare organisational support. Potentially more modifiable behaviour change opportunities are centred on the TDF domains knowledge, beliefs about consequences, goals and social/professional role and identity. Linked behaviour change techniques can be identified and developed according to local healthcare context supporting implementation interventions. Greater understanding of specific risk factors impacting on older people's morbidity with critical illness are needed to inform people's beliefs about consequences on likely care outcomes and future practice policy.

Acknowledgements: The authors thank all the consensus process participants for their informative comments.

Declaration of Conflicts of Interest: BM received fees as consultant from Teleflex. CJ received fees as speaker from Boehringer-Ingelheim, Bristol Myers Squibb and Daichi Sankyo. CR received fees as speaker from Edwards, BD and Integra. JvO received fees as speaker from Thermo Fisher Scientific. ML received fees as consultant from AOP Pharma, Biomerieux, Previa and Viatris and as speaker from Grifols, Shionogi and Viatris. MR received fees as consultant from Fize medical and received fees as speaker from Baxter.

Declaration of Sources of Funding: RSB is supported by a National Institute for Health and Care Research (NIHR) Senior Clinical and Practitioner Research Award (NIHR304524). JvO is supported by a NIHR Clinical Lectureship. NB was supported by the National Institute on Aging and the National Institute of Child Health and Human Development of the National Institutes of Health under award numbers R03AG083556, R01AG077644, R01HD107103. The implementation of the Delphi study on the Welphi platform (www. welphi.com) was funded by ESICM.

The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the National Institute for Health and Care Research or the Department of Health and Social Care.

Ethics Approval: The Ethics Committee at the Medical School of the Heinrich-Heine-University in Düsseldorf, Germany, granted ethical approval for the Delphi study in December 2023 (no. 2023-2680).

References

1. Aliberti MJR, Bailly S, Anstey M. Tailoring treatments to older people in intensive care. A way forward. *Intensive Care Med*. 2022;**48**:1775–7. https://doi.org/10.1007/s00134-022-06916-6.
2. Brunker LB, Boncyk CS, Rengel KF *et al.* Elderly patients and management in intensive care units (ICU): clinical challenges. *Clin Interv Aging*. 2023;**18**:93–112. https://doi.org/10.2147/CIA.S365968.
3. Stewart J, Bradley J, Smith S *et al.* Do critical illness survivors with multimorbidity need a different model of care? *Crit Care*. 2023;**27**:485. https://doi.org/10.1186/s13054-023-04770-6.
4. Guidet B, de Lange DW, Boumendil A *et al.* The contribution of frailty, cognition, activity of daily life and comorbidities on outcome in acutely admitted patients over 80 years in European ICUs: the VIP2 study. *Intensive Care Med*. 2020;**46**:57–69. https://doi.org/10.1007/s00134-019-05853-1.
5. Beard JR, Jotheeswaran AT, Cesari M *et al.* The structure and predictive value of intrinsic capacity in a longitudinal study of ageing. *BMJ Open*. 2019;**9**:e026119. https://doi.org/10.1136/bmjopen-2018-026119.
6. Beil M, Alberto L, Bourne RS *et al.* ESICM consensus-based recommendations for the management of very old patients in intensive care. *Intensive Care Med*. 2025;**51**:1412–3. https://doi.org/10.1007/s00134-025-07881-6.
7. Atkins L, Francis J, Islam R *et al.* A guide to using the theoretical domains framework of behaviour change to investigate implementation problems. *Implement Sci*. 2017;**12**:77. https://doi.org/10.1186/s13012-017-0605-9.
8. Michie S, Johnston M, Abraham C *et al.* Making psychological theory useful for implementing evidence based practice: a consensus approach. *Qual Saf Health Care*. 2005;**14**:26–33. https://doi.org/10.1136/qshc.2004.011155.
9. Johnston M, Carey RN, Connell Bohlen LE *et al.* Development of an online tool for linking behavior change

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025

techniques and mechanisms of action based on triangulation of findings from literature synthesis and expert consensus. *Transl Behav Med*. 2021;**11**:1049–65. https://doi.org/10.1093/tbm/ibaa050.

10. Moore G, Campbell M, Copeland L *et al.* Adapting interventions to new contexts—the ADAPT guidance. *BMJ*. 2021;**374**:n1679. https://doi.org/10.1136/bmj.n1679.
11. Wissanji T, Forget M-F, Muscedere J *et al.* Models of care in geriatric intensive care—a scoping review on the optimal structure of care for critically ill older adults admitted in an ICU. *Crit Care Explor*. 2022;**4**:e0661.
12. Correa VC, Lugo-Agudelo LH, Aguirre-Acevedo DC *et al.* Individual, health system, and contextual barriers and facilitators for the implementation of clinical practice guidelines: a systematic metareview. *Health Res Policy Syst*. 2020;**18**:74. https://doi.org/10.1186/s12961-020-00588-8.
13. Pel-Littel RE, Snaterse M, Teppich NM *et al.* Barriers and facilitators for shared decision making in older patients with multiple chronic conditions: a systematic review. *BMC Geriatr*. 2021;**21**:112. https://doi.org/10.1186/s12877-021-02050-y.
14. Michalsen A, Long AC, DeKeyser GF *et al.* Interprofessional shared decision-making in the ICU: a systematic review and recommendations from an expert panel∗. *Crit Care Med*. 2019;**47**:1258–66. https://doi.org/10.1097/CCM.0000000000003870.
15. Schifano J, Niederberger M. How Delphi studies in the health sciences find consensus: a scoping review. *Syst Rev*. 2025;**14**:14. https://doi.org/10.1186/s13643-024-02738-3.

Received 1 May 2025; accepted 5 August 2025

Downloaded from https://academic.oup.com/ageing/article/54/9/afaf272/8266406 by University of Liege user on 27 September 2025