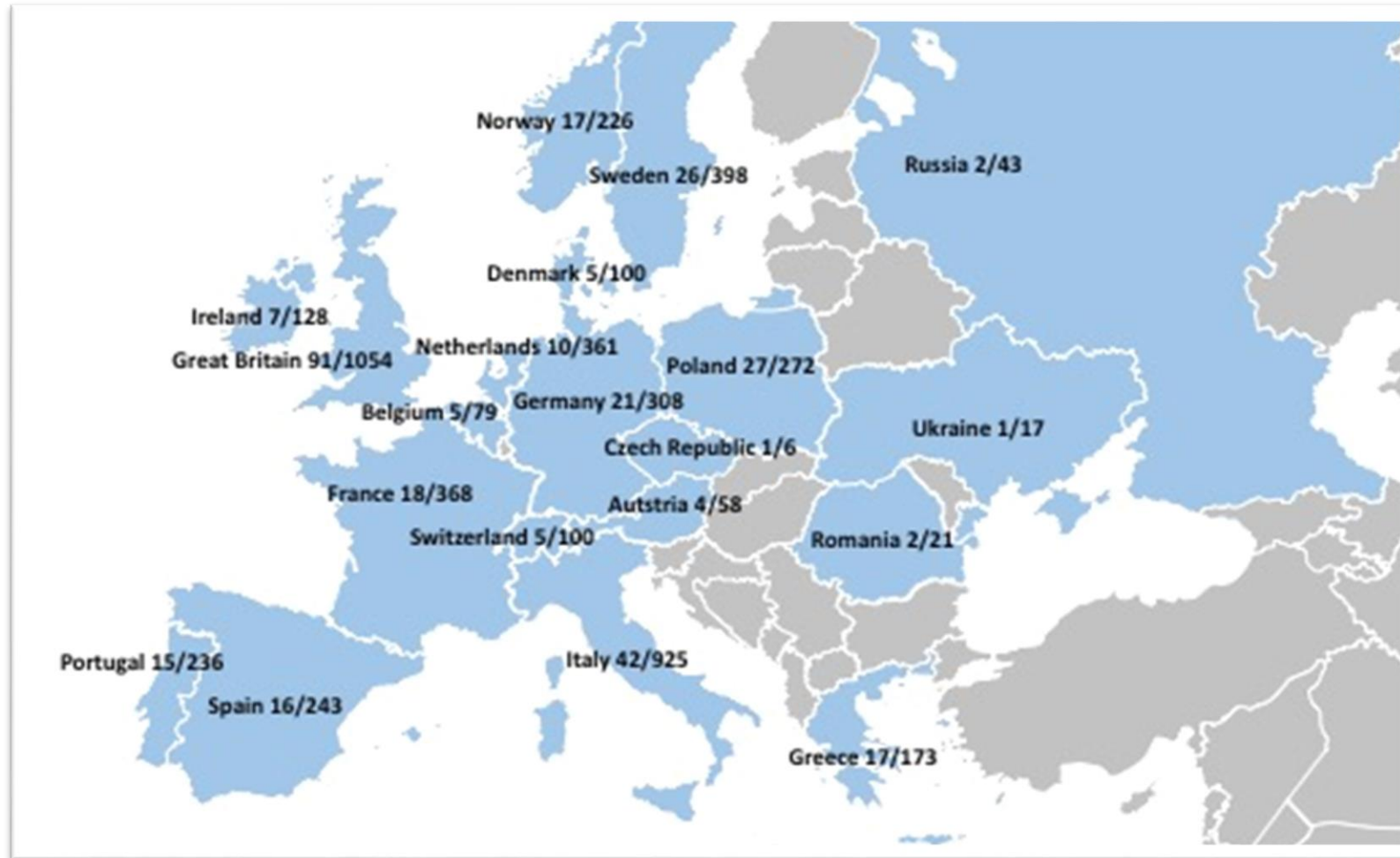


VIP network

The **V**ery old **I**ntensive care **P**atient

An ESICM/HSRO initiated research project


Hans Flaatten



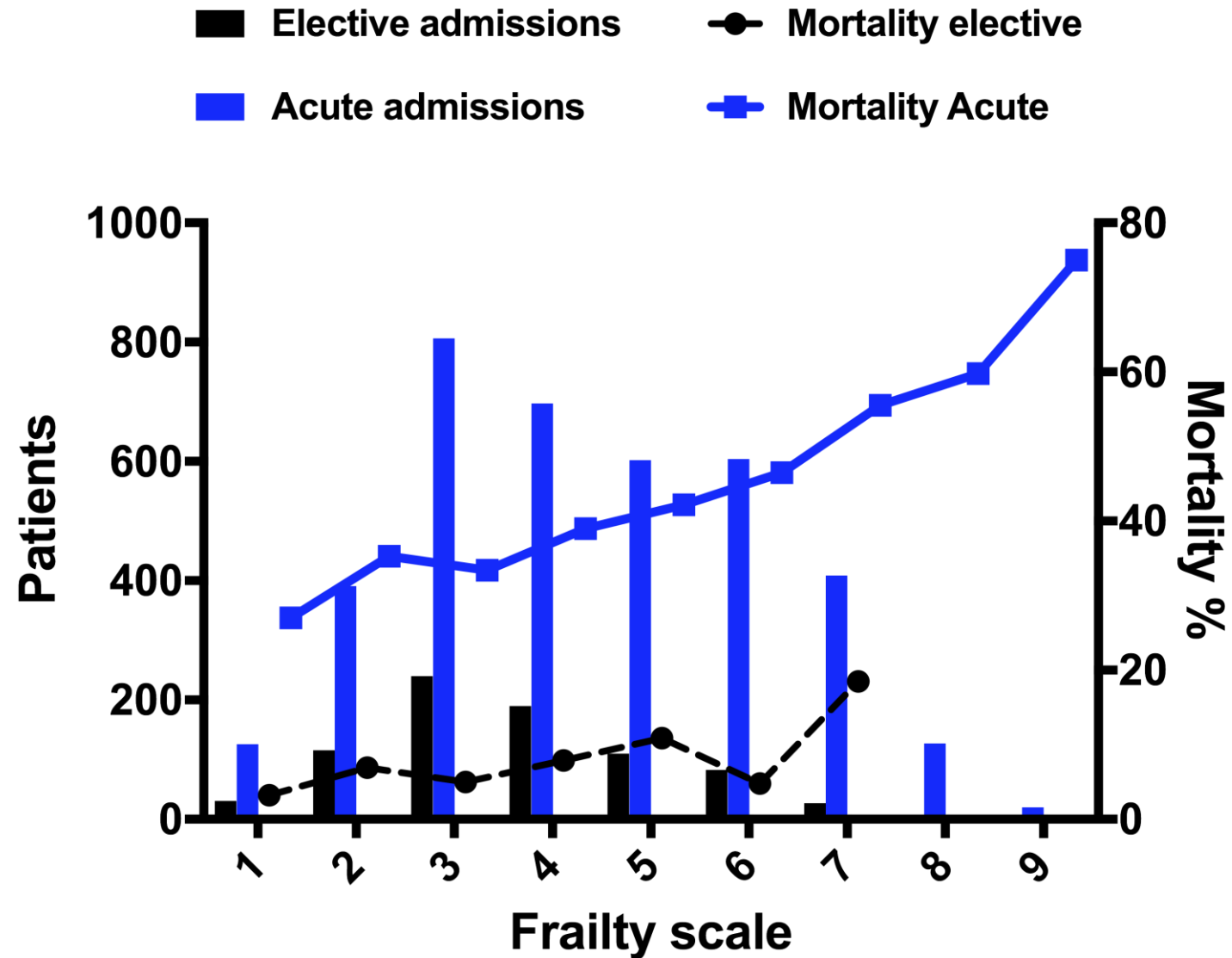
ORIGINAL



The impact of frailty on ICU and 30-day mortality and the level of care in very elderly patients (≥ 80 years)

Hans Flaatten^{1,2*} , Dylan W. De Lange³, Alessandro Morandi^{4,5}, Finn H. Andersen^{6,7}, Antonio Artigas⁸, Guido Bertolini¹⁰, Ariane Boumendil¹¹, Maurizio Cecconi¹², Steffen Christensen⁹, Loredana Faraldi¹³, Jesper Fjølner⁹, Christian Jung¹⁴, Brian Marsh¹⁵, Rui Moreno¹⁶, Sandra Oeyen¹⁷, Christina Agwald Öhman¹⁸, Bernardo Bollen Pinto¹⁹, Ivo W. Soliman²⁰, Wojciech Szczeklik²¹, Andreas Valentin²², Ximena Watson¹², Tilemachos Zaferidis²³, Bertrand Guidet^{24,25,26} on behalf of the VIP1 study group

Association between frailty and mortality



THE VIP 1 STUDY

23 publications

Separate publications

National sub-studies (3)

Subgroup: Sepsis

Subgroup: ARF

Attitudes

Research board permission

Limitations of care

Acute vs elective admissions

Outcome score

Current Anesthesiology Reports
https://doi.org/10.1007/s40140-019-0024-1
CRITICAL CARE ANESTHESIA (BS RASMUSSEN, SECTION EDITOR)

How Does Frailty Affect ICU Outcome?

Hans Flaatten¹, Christian Jung², Helene Vallet^{3,4}, Bertrand Guidet^{1,6}

Guidet et al. *Ann. Intensive Care* (2018) 8:114
https://doi.org/10.1186/s13613-018-0458-7

REVIEW Open Access

Caring for the critically ill patients over 80: a narrative review

Bertrand Guidet^{1,2,7}, Helene Vallet^{3,4}, Christian Jung², Dylan W de Lange⁵, Alessandro Morandi^{6,7}

Caring for very old patients in the ICU

Describes the epidemiology and outcomes for very old patients as known in 2018, along with a short introduction to the most relevant geriatric

Elderly Patients in the Intensive Care Unit

Hans Flaatten, MD, PhD^{1,2}, Michael Beil, MD, PhD³, Bertrand Guidet, MD⁴

¹Department of Anesthesiology and Intensive Care, Haukeland University Hospital, Bergen, Norway
²Department of Clinical Medicine, Faculty of Medicine, University of Bergen, Bergen, Norway
³Institute of Health Sciences, Philosophisch-Theologische Hochschule Valldorf, Vallendar, Germany
⁴Sciences Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique, INSERM, Institut de Recherche Biomédicale, Paris, France

OPEN ACCESS

The good, the bad and the ugly: pandemic priority decisions and triage

Hans Flaatten^{1,2}, Vernon Van Heerden³, Christian Jung⁴, Michael Beil³, Susannah Leaver⁵, Andrew Rhodes⁶, Bertrand Guidet⁷, Dylan W de Lange⁸

Current controversy

REVIEW
The status of intensive care medicine research and a future agenda for very old patients in the ICU
H. Flaatten^{1,2}, D. W. de Lange³, A. Artigas⁴, D. Bin⁵, R. Moreno⁶, S. Christensen⁷, G. M. Joyce⁸, Sean M. Bazhaw⁹, C. L. Soriano¹⁰, D. Benoit¹¹, M. Soares¹² and B. Guidet^{13,14,15}

ORIGINAL
The impact of frailty on ICU and 30-day mortality and the level of care in very elderly patients (≥ 80 years)
Hans Flaatten^{1,2}, Dylan W. de Lange³, Alessandro Morandi^{4,5}, Finn H. Andersen⁶, Guido Bertolini⁷, Ariane Boumendil⁸, Maurizio Cecconi⁹, Steffen Christensen¹⁰, Christian Jung¹¹, Brian Marsh¹², Rui Moreno¹³, Sean M. Bazhaw¹⁴, Bernardo Bollen Pinto¹⁵, Ivo W. Soliman¹⁶, Wojciech Szczeklik¹⁷, Tilmachos Zafandis¹⁸, Bertrand Guidet^{19,20,21} on behalf of the

ORIGINAL AND CLINICAL ARTICLES
Frailty increases mortality among patients ≥ 80 years old treated in Polish ICUs
Jakub Fronczak¹, Karol Polak², Irena Nowak-Kozłowska³, Anna Włodarczyk⁴, Jacek Górkali⁵, Włodzisław Ciołkosz⁶, Paweł Błaszczak⁷, Mirosław Zdobych⁸, Lukasz R. Nowak⁹, Maciej Zukowski¹⁰, Katarzyna Kucio¹¹, Katarzyna Gier¹², Ryszard Gajdosz¹³, Bonawit Bohayewicz¹⁴, Jowita Bielewska¹⁵, Paweł Gucziński¹⁶, Paweł Nardowski¹⁷, Natalia Popk¹⁸
RESEARCH ARTICLE Open Access
Clinical Frailty Scale (CFS) reliably stratifies octogenarians in German ICUs: a multicentre prospective cohort study
Ulrich M. Muehleisen¹, Arne M. Nix², Marina Maywald³, Alexander Leuten⁴, Anne Lena Sachse⁵, Thorsten Bönner⁶, Stefan Fenzl⁷, Frank Bredt⁸, Henning Sieff⁹, Stefan J. Schuler¹⁰, Kristina Lorenz¹¹, Thomen Deck¹², Sebastian Schuster¹³, Tobias Grottel¹⁴, Burk A. Jahn¹⁵, Patrick Muehleisen¹⁶, Ralfbus Grottel¹⁷, Stefan Schuster¹⁸
Journal of Critical Care
Therapy limitation in octogenarians in German intensive care units is associated with a longer length of stay and increased 30 days mortality: A prospective multicenter study

Intensive Care Med
https://doi.org/10.1007/s00134-018-5262-1
EDITORIAL
Predicting outcomes in very old ICU patients: time to focus on the past?
Hans Flaatten¹, Sandra Oeyen² and Dylan W. de Lange³

Intensive Care Med
https://doi.org/10.1007/s00134-018-5262-1
WHAT'S NEW IN INTENSIVE CARE
Should this elderly patient be admitted to the ICU?
Bertrand Guidet^{1,2,7}, Dylan W. de Lange³ and Hans Flaatten^{1,6}

Intensive Care Med
https://doi.org/10.1007/s00134-018-5262-1
EDITORIAL
Frailty: we need valid and reliable tools in critical care
Hans Flaatten^{1,2} and Andrew Clegg³

Critical Care
LETTER
The hospital frailty risk score is of limited value in intensive care unit
Journal of Critical Care
A comparison of very old patients admitted to intensive care unit after acute versus elective surgery or intervention
Abraham et al. *BMC Geriatrics* (2018) 18:322
https://doi.org/10.1186/s12877-018-1315-8

RESEARCH ARTICLE Open Access
Validation of the clinical frailty score (CFS) in French language
Paul Abraham^{1,2,3,4}, Delphine S. Courvoisier⁵, Cedric Annweiler⁶, Cliff Lencio⁷, Thomas Millien^{1,3}, Françoise Dalmat⁸, Hans Flaatten⁹, Rui Moreno¹⁰, Steffen Christensen¹¹, Dylan W. de Lange¹², Bertrand Guidet¹³, Bernhard Walden¹⁴ and Bernardo Bollen Pinto¹⁵

ORIGINAL
Withholding or withdrawing of life-sustaining therapy in older adults (≥ 80 years) admitted to the intensive care unit
Bertrand Guidet^{1,2,7}, Hans Flaatten³, Alessandro Morandi⁴, Finn H. Andersen⁵, Guido Bertolini⁶, Ariane Boumendil⁷, Maurizio Cecconi⁸, Steffen Christensen⁹, Christian Jung¹⁰, Brian Marsh¹¹, Rui Moreno¹², Sandra Oeyen¹³, Christiana Aguiar-Olmos¹⁴, Bernardo Bollen Pinto¹⁵, Ivo W. Soliman¹⁶, Wojciech Szczeklik¹⁷, Andreas Uebachs¹⁸, Irena Nowak-Kozłowska¹⁹, Tilmachos Zafandis²⁰ and Dylan W. de Lange²¹ on behalf of the VIP1 study group

RESEARCH ARTICLE
A comparison of very old patients admitted to intensive care unit versus elective surgery or intervention
Christian Jung^{1,2,3}, Bernhard Walden⁴, Johanna M. Mueser⁵, Malte Kelm⁶, A

BRIEF REPORT
Cumulative Prognostic Score Predicting Mortality in Patients Older Than 80 Years Admitted to the ICU
Dylan W. de Lange, MD, PhD^{1,2}, Sylvia Broekman, PhD³, Hans Flaatten, MD, PhD^{4,5}, Ariane Boumendil, PhD⁶, Alessandro Morandi, MD, MPH^{7,8}, Finn H. Andersen, MD, PhD⁹, Antonio Artigas, MD, PhD¹⁰, Guido Bertolini, MD¹¹, Maurizio Cecconi, MD¹², Steffen Christensen, MD, PhD¹³, Loredana Lurati, MD¹⁴, Jasper Foubert, MD, PhD¹⁵, Christian Jung, MD¹⁶, Brian Marsh, MD¹⁷, Rui Moreno, MD, PhD¹⁸, Sandra Oeyen, MD, PhD¹⁹, Christiana Aguiar-Olmos, MD, PhD²⁰, Bernardo Bollen Pinto, MD²¹, Ivo W. Soliman, MD, PhD²², Wojciech Szczeklik, MD, PhD²³, Andreas Uebachs, MD²⁴, Irena Nowak-Kozłowska, MD²⁵, Tilmachos Zafandis, MD²⁶ and Bertrand Guidet, MD^{27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100}

RESEARCH Open Access
Sepsis at ICU admission does not decrease 30-day survival in very old patients: a post-hoc analysis of the VIP1 multinational cohort study
Alexandre Raut¹, Ariane Boumendil², Lennke E. M. Haas³, Adrian Nazzari⁴, Hans Flaatten^{5,6}, Dylan W. de Lange⁷, Alessandro Morandi⁸, Finn H. Andersen⁹, Guido Bertolini¹⁰, Maurizio Cecconi¹¹, Steffen Christensen¹², Loredana Lurati¹³, Christian Jung¹⁴, Brian Marsh¹⁵, Rui Moreno¹⁶, Sandra Oeyen¹⁷, Christiana Aguiar-Olmos¹⁸, Bernardo Bollen Pinto¹⁹, Ivo W. Soliman²⁰, Wojciech Szczeklik²¹, Andreas Uebachs²², Irena Nowak-Kozłowska²³, Tilmachos Zafandis²⁴, Bertrand Guidet^{25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100}


Attitudes of physicians towards the care of critically ill patients – a European survey
B. Guidet^{1,2,3,4}, D. W. de Lange⁵, S. Christensen⁶, R. Moreno⁷, J. Fjølner⁸, G. Dumas^{9,10}, 4. Flaatten¹¹
Hospital Saint Antoine, Service de Réanimation Médicale, Assistance Publique – Hôpital de Paris, Paris, France
UPMC Univ Paris 06, UMR_S 1136, Institut Pierre Louis d'Epidémiologie et de Santé Publique, Sorbonne Université, Paris, France
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Department of Intensive Care Medicine, University Medical Center, Utrecht, The Netherlands
Department of Anesthesiology and Intensive Care, Antwerp University Hospital, Antwerp, Belgium
Unidade de Cuidados Intensivos Neurocirúrgicos, Hospital de São José, Centro Hospitalar do Centro, Coimbra, Portugal
Department of Clinical Medicine, University of Bergen, Department of Anesthesiology and Intensive Care, Haukeland University Hospital, Bergen, Norway

RESEARCH ARTICLE Open Access
Huge variation in obtaining ethical permission for a non-interventional observational study in Europe
Dylan W. de Lange^{1,2,3}, Finn H. Andersen⁴, Antonio Artigas⁵, Guido Bertolini⁶, Rui Moreno⁷, Steffen Christensen⁸, Maurizio Cecconi⁹, Christiana Aguiar-Olmos¹⁰, Finn G. Gaddum¹¹, Christian Jung¹², Brian J. Marsh¹³, Sandra Oeyen¹⁴, Bernardo Bollen Pinto¹⁵, Wojciech Szczeklik¹⁶, Xenia Watson¹⁷

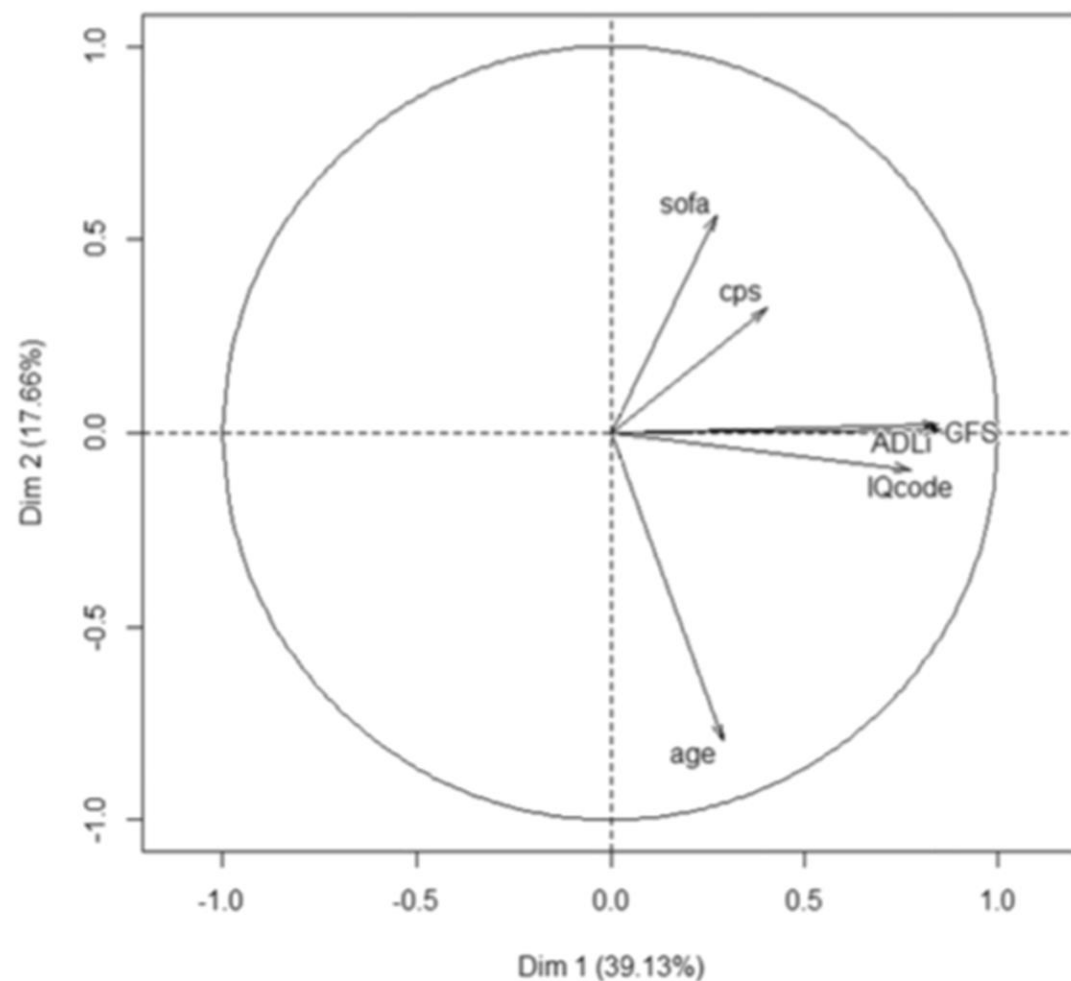
ORIGINAL

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



Bertrand Guidet^{1*} , Dylan W. de Lange², Ariane Boumendil³, Susannah Leaver⁴, Ximena Watson⁵, Carol Boulanger⁶, Wojciech Szczeklik⁷, Antonio Artigas⁸, Alessandro Morandi⁹, Finn Andersen¹⁰, Tilemachos Zafeiridis¹¹, Christian Jung¹², Rui Moreno¹³, Sten Walther¹⁴, Sandra Oeyen¹⁵, Joerg C. Schefold¹⁶, Maurizio Cecconi^{17,18}, Brian Marsh¹⁹, Michael Joannidis²⁰, Yuriy Nalapko²¹, Muhammed Elhadi²², Jesper Fjølner²³, Hans Flaatten^{24,25} for the VIP2 study group

Variables factor map (PCA)



Dim 1 (39.13%)

Fig. 1 Principal component analysis (PCA). Two-dimensional projection of the sample was constructed having the axes (principal components, PC) as the factors. Each PC is a linear combination of the original variables and PCs are orthogonal to each other. The angles between the vectors tell us how variables correlate with one another: when two vectors are close, forming a small angle, the two variables they represent are positively correlated. If they meet each other at 90°, they are not likely to be correlated and when they diverge and form a large angle (close to 180°), they are negatively correlated. The length of the vector shows how much weight a specific variable has on each principal component

What should we know more about?

- The occurrence of pre- and post-ICU admission frailty and sarcopenia and its effects of functional outcomes
- What is the opinion of octogenarians towards use of critical care resources in acute, severe vital organ failure? A European survey among 10,000 octogenarians
- The effects of including a geriatrician in the early assessment and discharge of octogenarians.
- The burden of intensive care, a prospective study in caregivers of octogenarians in the ICU
- **Development of a prognostic tool for the very old ICU patients**
- Sepsis in the very old ICU patients: incidence and outcomes
- Dementia development after ICU discharge of octogenarians. A prospective follow-up study
- Pharmacokinetics of midazolam, propofol and dexmedetomidine in very old ICU patients
- End of life trajectories in the very old. A European multicentre study

<https://vipstudy.org/>

COVIP study – a VIP network study

Corona Virus disease (COVID19) in Very Elderly Intensive care Patients (VIPs). A VIP network study.

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COVIP study: Corona Virus disease (COVID19) in Very Elderly Intensive care Patients (VIPs)

A multinational, multicenter study of outcomes and prognostic factors in coronavirus disease (COVID-19) in very old intensive care patients.

[Click to register your ICU now](#)

You will receive further information when you register.

See the [COVIP page](#) for information, country coordinator list, protocol, documents, notes and ethical approval etc.

**270 ICUs
registered**

(Updated: 28-08-2020 00:28)

**38 countries
participating**

(Updated: 28-08-2020 00:28)

**1575 patients
documented**

(Updated: 28-08-2020 00:28)

See the
[COVIP study](#)
information page

ResearchGate

Follow the [COVIP project on ResearchGate](#)

ClinicalTrials.gov

View on ClinicalTrials.gov



The COVIP study is endorsed by [ESICM](#)
(European Intensive Care Society)

EOSC Project 2020: Database to develop guidelines for managing elderly critical ill patients during a respiratory virus pandemic

Challenges: In new infectious diseases, the set of symptoms, the degree of organ failure and, eventually, the outcome are difficult to predict. Prognostic models have been developed for cohorts of younger patients but are not validated for the elderly to inform guidelines about efficient interventions and provide training and continuous professional education.

Cloud services: Extension of the collaborative database from VIP1 and VIP2 studies to store, share, reuse and combine patient data

Immediate benefits: Open access for clinicians (to input data) and researchers (to analyse and model data) in participating countries

Longterm benefits: Establishing the framework for these studies will improve preparedness and reaction time during the next pandemic or public health emergency.

Evolving challenges in critical care

infectious diseases (pandemics)
toxicology (e.g. new drugs in oncology)

environmental (new habits, e.g. car driving)
social (e.g. military conflicts)

demographic ageing (new disease patterns)
climate change (new stress-related illnesses)

short term



long term

Network of *sentinel* ICU's to detect and monitor new challenges



Methodological challenges

Study design (retrospective, snapshots, prospective including registries)

Data types (cross-sectional vs. longitudinal, simple variables vs. composite scores)

Quality and completeness of data (including reproducibility of assessments)

Reference groups (composition and related biases)

National regulations for documentation (e.g. for reimbursement)

General data protection regulation (GDPR)