Le sujet âgé en Réanimation - Pneumologie

Pr B Guidet
Hôpital Saint Antoine, Paris

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS
Institut Pierre Louis d'Épidémiologie et de Santé Publique
Pierre Louis Institute of Epidemiology and Public Health
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MÉDECINE SORBONNE UNIVERSITÉ
Unité mixte de recherche en santé n° 1136 (UMR-S 1136)
Directrice : Dominique Costagliola
Hôpitaux Universitaires Est Parisien
SAINT-ANTOINE

Attitudes of physicians towards the care of critically ill elderly patients – a European survey

B. Guidet[1,2,3], D. W. De Lange[4], S. Christensen[5], R. Moreno[6], J. Fjølner[5], G. Dumas[1,2] and H. Flaatten[7]

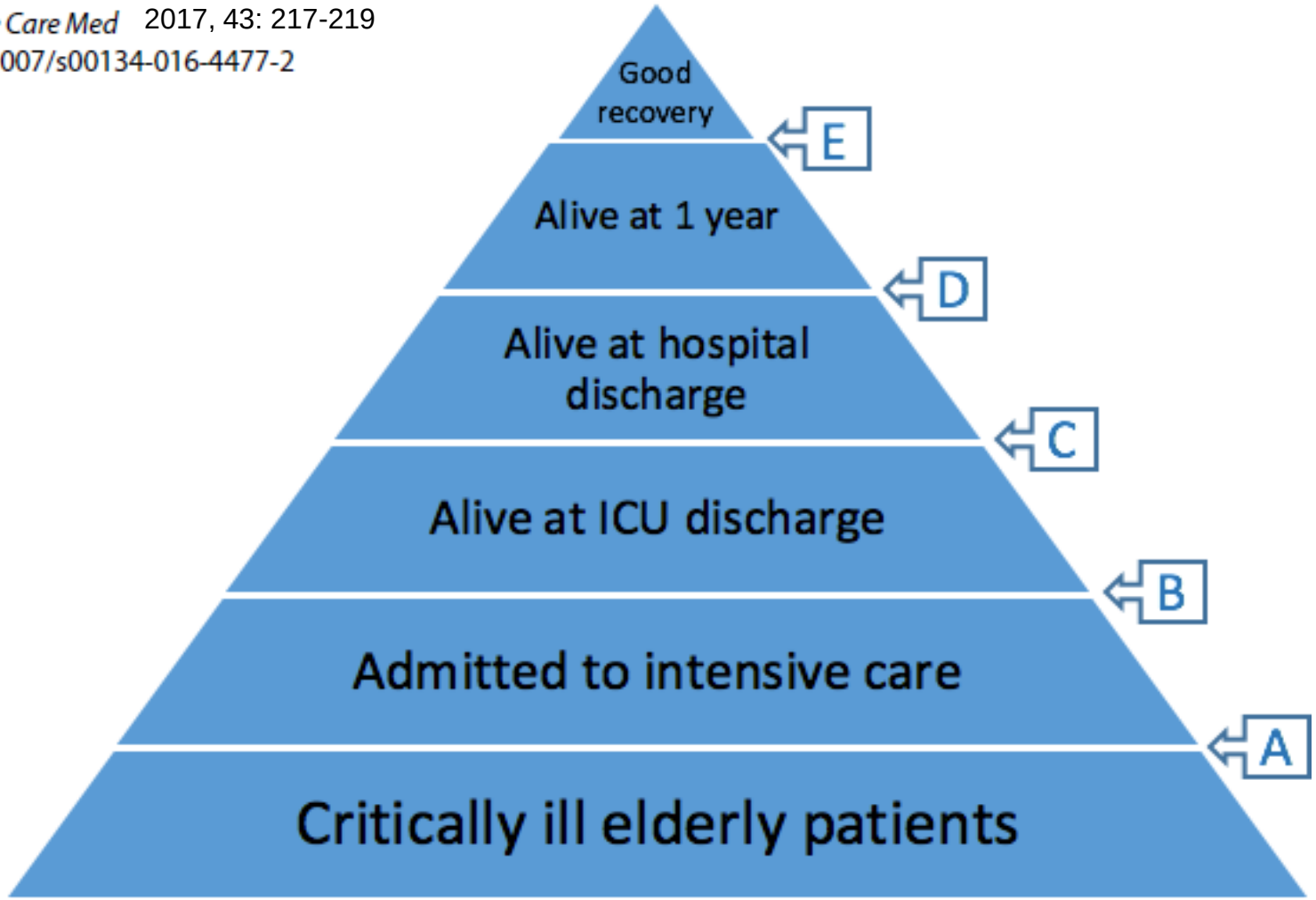
Acta Anaesthesiologica Scandinavica (2017) doi: 10.1111/aas.13021

- 162 ICUs – 20 European countries
- No clear evidence for ICU benefit: 37%
- Patients advance directive should be promoted: 97%
- Seeking relatives'opinion is mandatory: 83%
- Written guidelines should be available: 79%
- Assessement of frailty should be mandatory: 92%
- Level of care should be systematically reassess at day2-3: 91%
- Consultation of a geriatrician: 66%

Ten things to know about critically ill elderly patients

Guillaume Leblanc[1,2], Ariane Boumendil[2] and Bertrand Guidet[2,3,4*]

Intensive Care Med 2017, 43: 217-219
DOI 10.1007/s00134-016-4477-2



Questions

- Souhait du patient et son entourage?
- Comment caractériser un patient âgé?
- Quelle prise en charge en réanimation?
- Quel parcours hospitalier?
- Et pour quel résultat à distance?

1 - Souhait
du patient et de son entourage?

Intensive Care Med (2013) 39:1565–1573
DOI 10.1007/s00134-013-2976-y

ORIGINAL

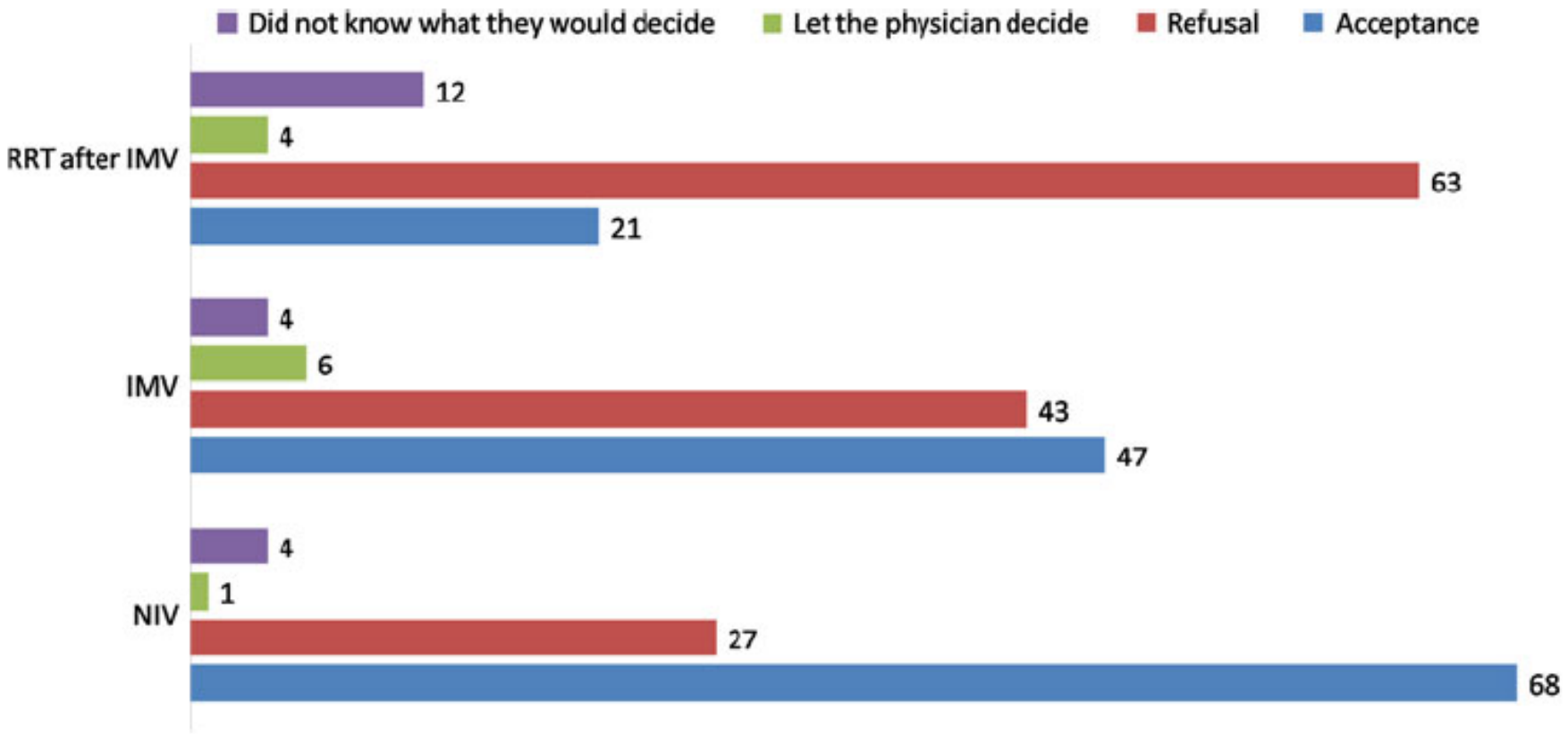
F. Philippart
A. Vesin
C. Bruel
A. Kpodji
B. Durand-Gasselin
P. Garçon
M. Levy-Soussan
J. L. Jagot
N. Calvo-Verjat
J. F. Timsit
B. Misset
M. Garrouste-Orgeas

The ETHICA study (part I): elderly's thoughts about intensive care unit admission for life-sustaining treatments

100 participants

Variables	Data
Age (years)	
Mean ± SD	84.8 ± 3.5
Females (*n*)	68
Site of residence (*n*)	
At home	65
Nursing facility	10
Assisted-living facility	25

Preferences of the 100 elderly



Intensive Care Med (2013) 39:1574–1583
DOI 10.1007/s00134-013-2977-x

ORIGINAL

M. Garrouste-Orgeas
A. Tabah
A. Vesin
F. Philippart
A. Kpodji
C. Bruel
C. Grégoire
A. Max
J. F. Timsit
B. Misset

The ETHICA study (part II): simulation study of determinants and variability of ICU physician decisions in patients aged 80 or over

Table 1 Factors associated with decisions to use life-sustaining treatments (multivariate analysis)

Variables	OR for performing LST	95 % CI	*p* value
Invasive mechanical ventilation			
Patient factors			
Age ≥85 years	0.30	0.14–0.64	0.002
IADL score (1–4) vs. 0	0.23	0.10–0.52	0.0006
Previous ICU admission	0.29	0.13–0.65	0.01
Cancer	0.23	0.10–0.52	0.003
Centre factors			
1 available bed vs. 0	4.89	1.99–12	<0.0001
2 available beds vs. 0	7.92	3.09–20.30	
>2 available beds vs. 0	12.41	4.49–34.26	

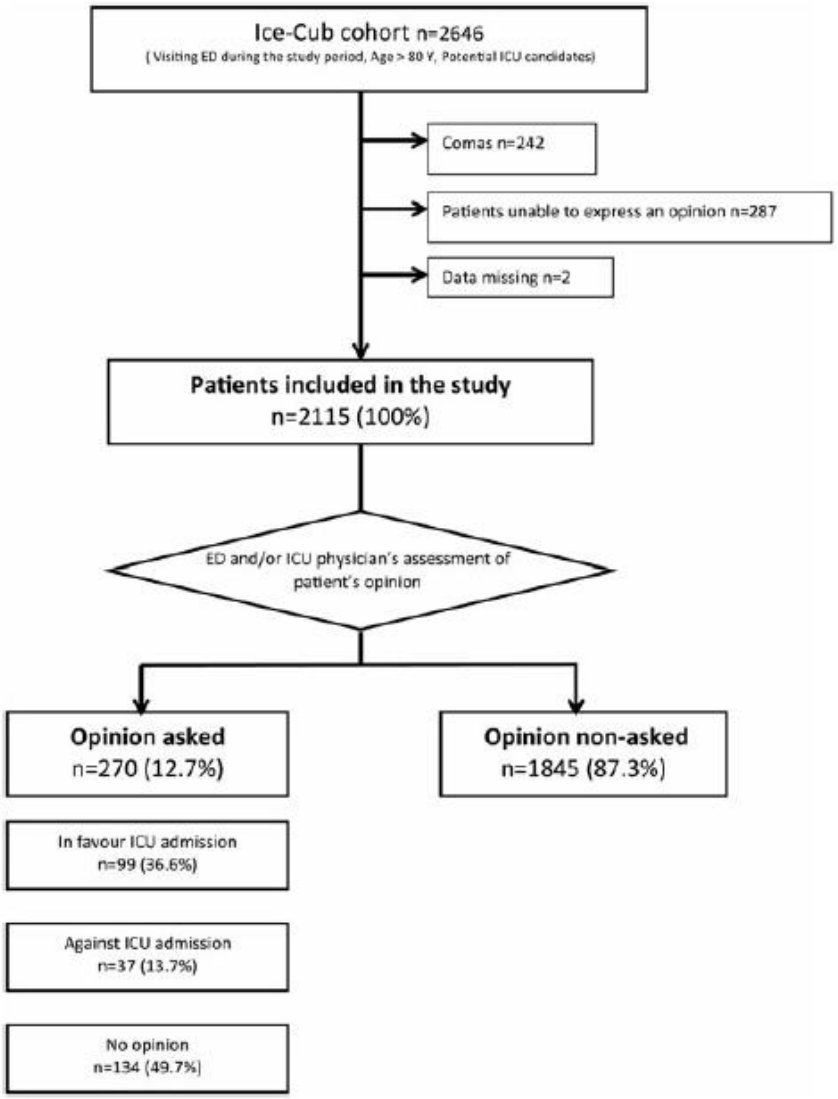
Table 2 Factors associated with decisions to use life-sustaining treatments after information about patient preferences and quality of life (multivariate analysis)

Variables	OR for performing LST	95 % CI	*p* value
Invasive mechanical ventilation			
Patient factors			
Age ≥85 years	0.45	0.26–0.78	0.004
Previous hospitalisation in the last year	0.51	0.30–0.85	0.01
WHO QOL-BREF environment >75	2.14	1.25–3.67	0.006
Patient preferences			<0.0001
"I don't know", I let the physician decide vs. I refuse"	0.70	0.14–3.44	
"I accept vs. I refuse"	10.6	6.17–18.4	

Changes in physician decisions ($n = 400$) induced by receiving information on patient

	Physician decisions before and after information on patient preferences	*N* (%)
NIV		
	Yes/yes	311 (77.8)
	No/no	36 (9.0)
	Yes/no	32 (8.0)
	No/yes	21 (5.3)
IMV		
	Yes/yes	228 (57.0)
	No/no	72 (18.0)
	Yes/no	84 (21.0)
	No/yes	16 (4.0)
RRT after IMV		
	Yes/yes	144 (36.0)
	No/no	138 (34.5)
	Yes/no	105 (26.3)
	No/yes	13 (3.3)

Are elderly patients' opinions sought before admission to an intensive care unit? Results of the ICE-CUB study



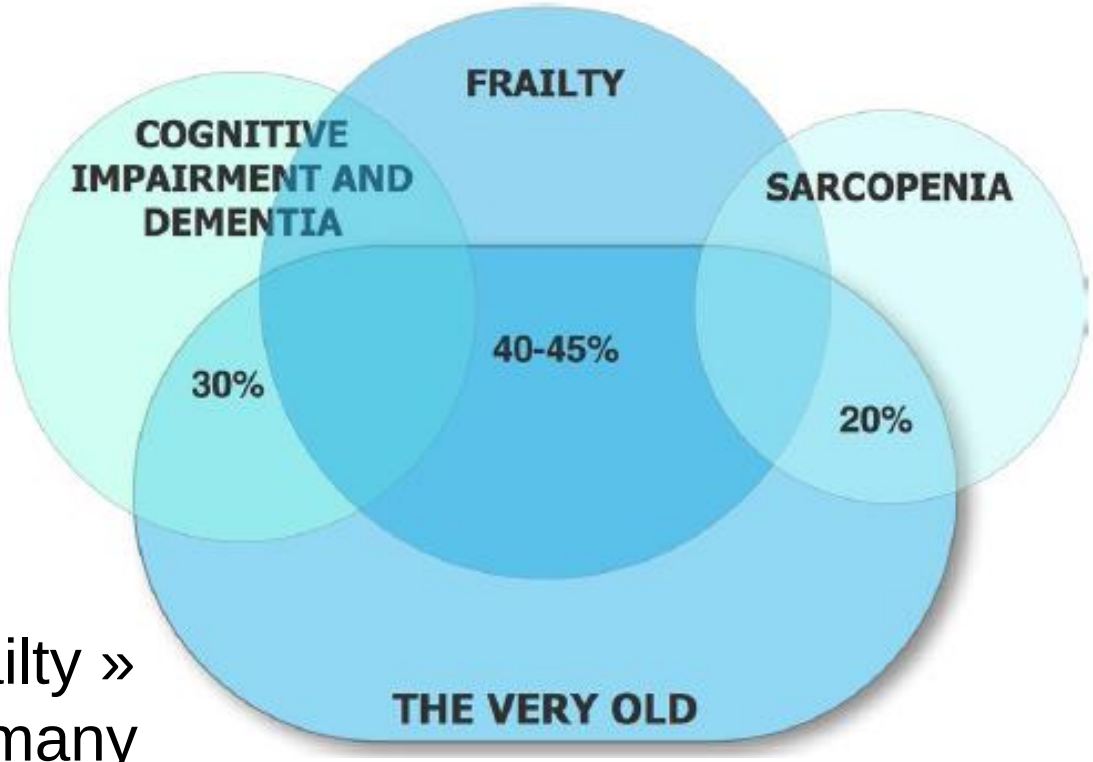
	Odds ratio	CI 95%	*P*
Age (per 1 year increase)	0.97	0.94–1.00	0.07
Living place			
Home versus nursing home/hospital	0.65	0.39–1.04	0.08
Chronic conditions			
Dementia	0.47	0.25–0.83	0.01
Chronic neurological disease	0.65	0.35–1.11	0.13
Autonomy			
Full autonomy versus severe FI	2.10	1.39–3.21	<0.01
Moderate FI versus severe FI	1.53	0.95–2.46	0.08
ED physician			
Senior versus junior	0.48	0.35–0.66	<0.01
Relative			
Asked versus not asked	5.46	3.80–7.88	<0.01

Age Ageing 2016; 45 :303-9

2 - Caractériser un patient âgé

Predicting outcomes in very old ICU patients: time to focus on the past?

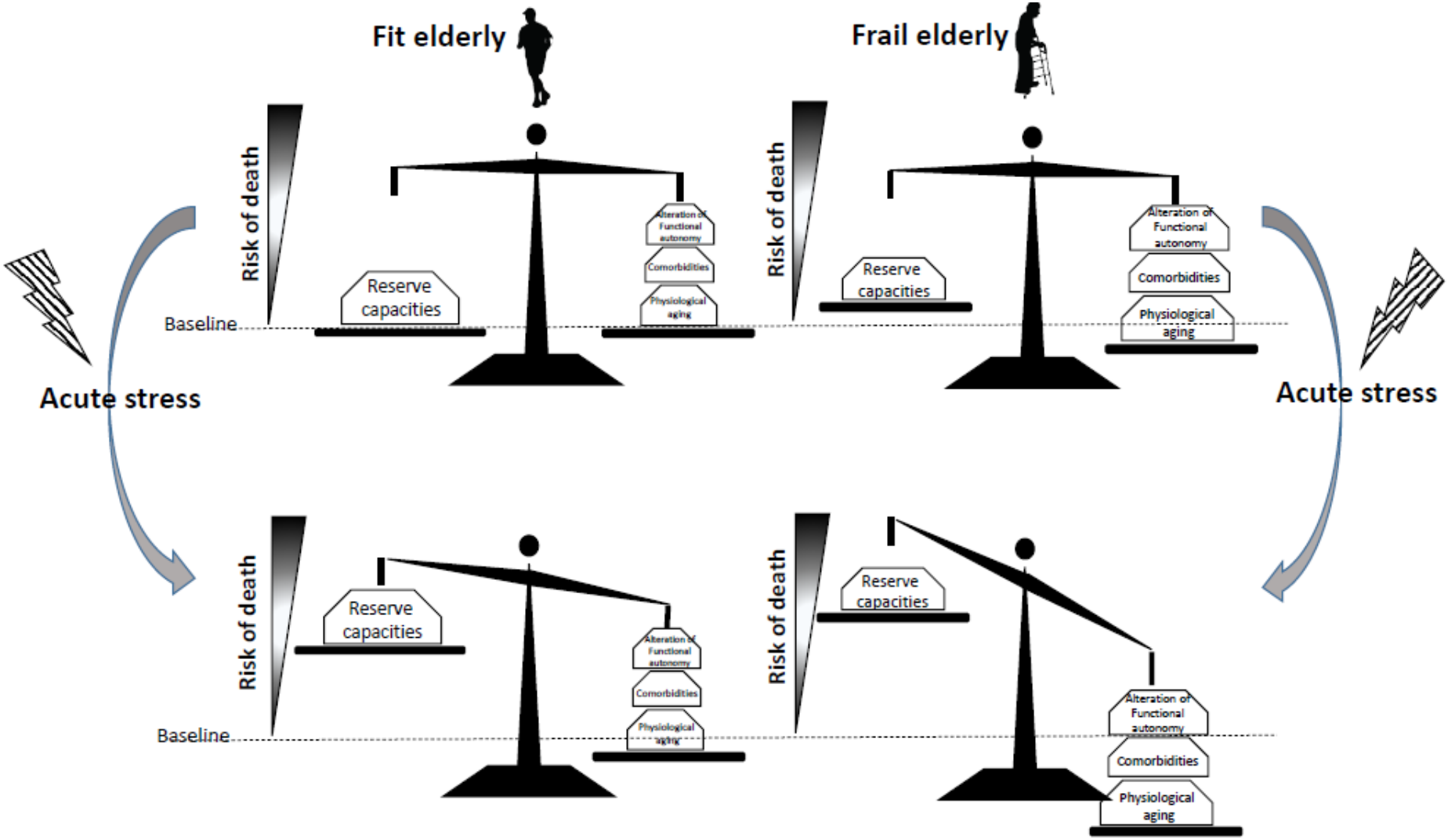
Hans Flaatten[1*], Sandra Oeyen[2] and Dylan W. deLange[3]



The state of increased vulnerability is called « frailty »
Frailty is associated with many geriatric symptoms

Intensive Care Med (2018) 44:1344–1345

Fit vs Frail patient: Impact of acute stress



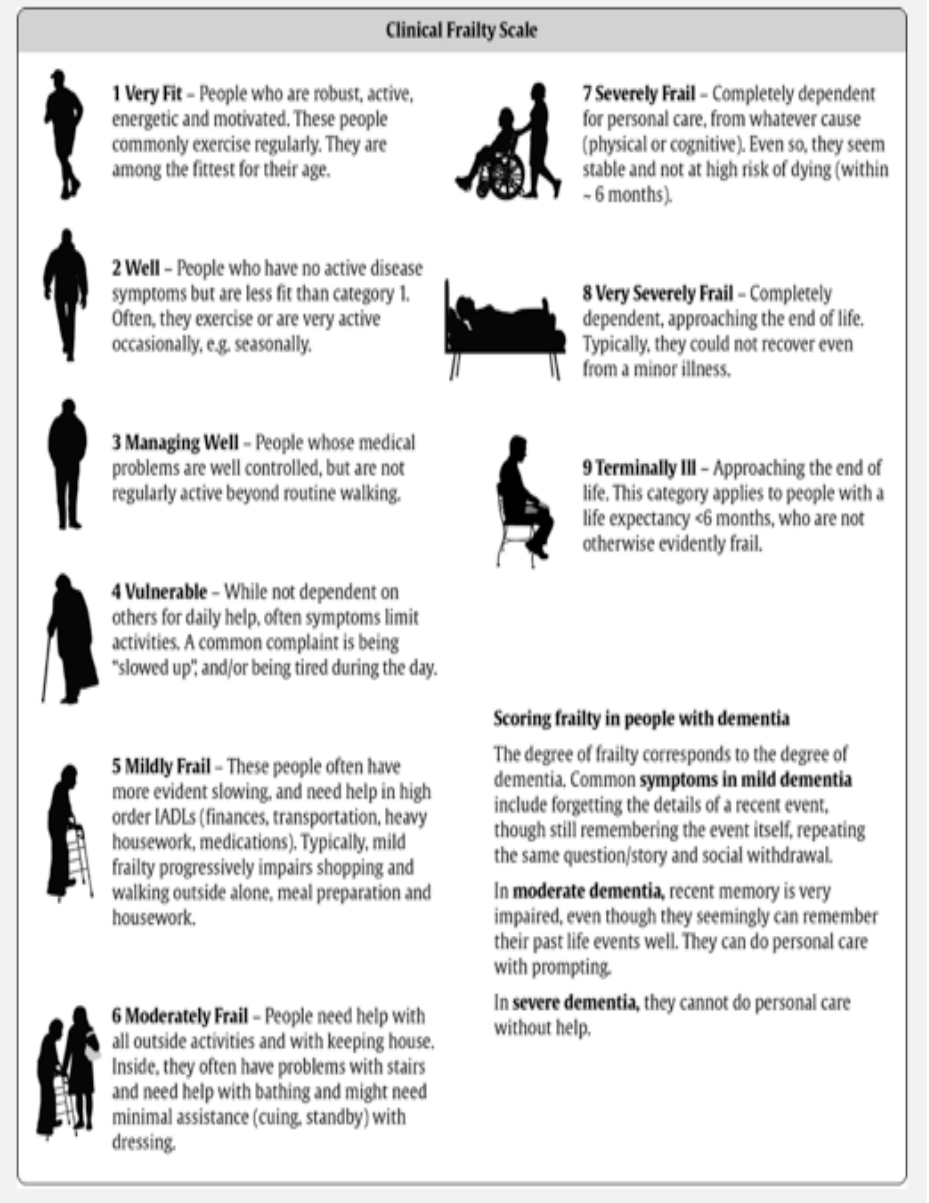
Frailty phenotype

- Items
  - unintentional weight loss (10 lbs in past year),
  - self-reported exhaustion,
  - weakness (grip strength),
  - slow walking speed,
  - low physical activity.
- Prevalence of frailty (≥ 3 criteria) age > 65y : 6.9%
- Predictive (over 3 years) of :
  - incident falls,
  - worsening mobility or ADL disability,
  - hospitalization, and death,

Fried LP, et al. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci2001 Mar;56(3):M146-56.

Clinical Frailty Scale (CFS)

- 9 classes
- Canadian Study on Health & Aging, Revised 2008
  - K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;



Clinical Frailty Scale

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 Terminally Ill – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

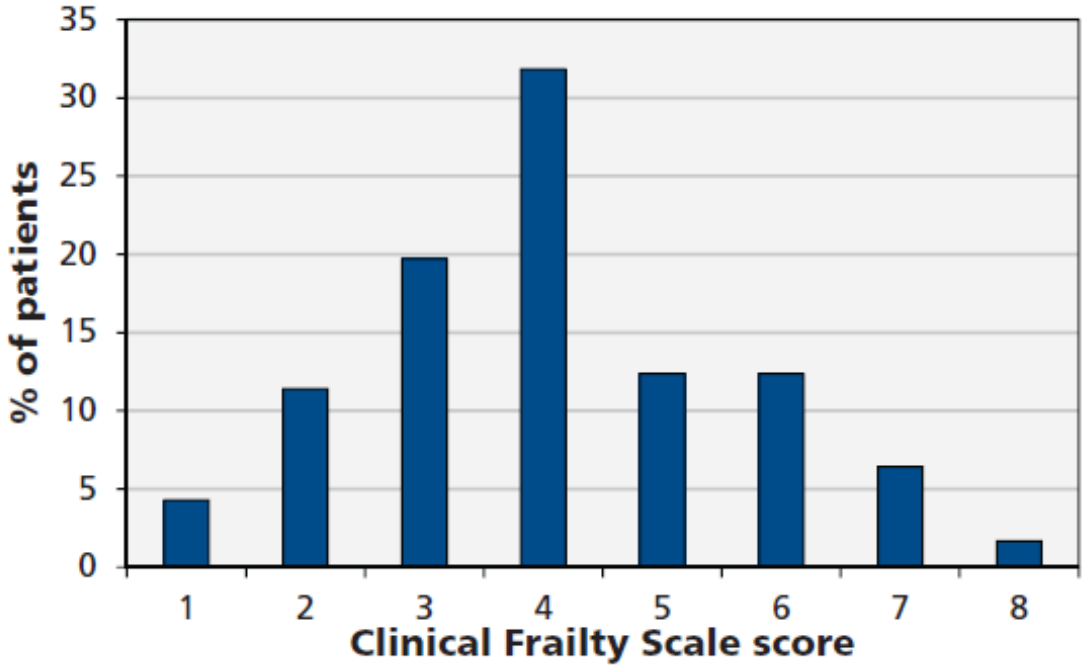
The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia,** recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia,** they cannot do personal care without help.

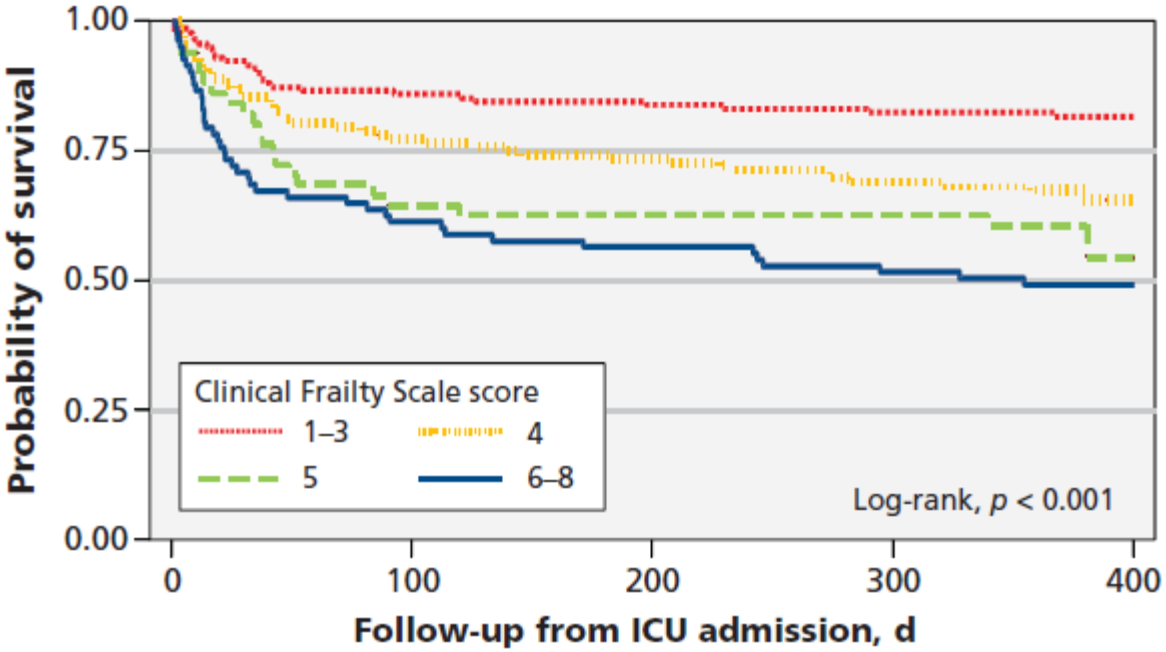
Association between frailty and short- and long-term outcomes among critically ill patients: a multicentre prospective cohort study

Sean M. Bagshaw MD, H. Thomas Stelfox MD, Robert C. McDermid MD, Darryl B. Rolfson MD, Ross T. Tsuyuki PharmD, Nadia Baig BSc, Barbara Artiuch MD, Quazi Ibrahim MSc, Daniel E. Stollery MD, Ella Rokosh MD, Sumit R. Majumdar MD



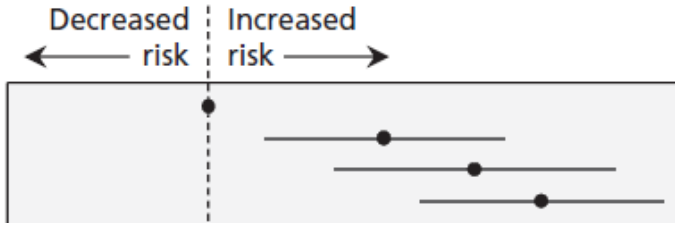
Outcome	Group; no. (%) of patients*		Association, OR (95% CI) or difference in medians (*p* value†)
	Frail *n* = 138	Not frail *n* = 283	
Adverse event‡	54 (39.1)	83 (29.3)	1.54 (1.01–2.37)
Death			
In ICU	16 (11.6)	27 (9.5)	1.37 (0.72–2.62)
In hospital	44 (31.9)	45 (15.9)	1.81 (1.09–3.01)
Duration of stay, d, median (IQR)			
In ICU	7 (4–13)	6 (3–10)	1 d (0.02)
In hospital	30 (10–64)	18 (10–40)	12 d (0.02)
Discharge disposition§	*n* = 91	*n* = 235	
Home, living independently	20 (22.0)	104 (44.3)	0.35 (0.20–0.61)
Home, living with help	33 (36.3)	58 (24.7)	1.67 (1.00–2.81)
Other¶	38 (41.8)	73 (31.1)	1.51 (0.92–2.48)
Discharged newly dependent**	24 (70.6)	96 (51.6)	2.25 (1.03–4.89)
Hospital readmission§	51 (56.0)	92 (39.1)	1.98 (1.22–3.23)

Association between frailty and short- and long-term outcomes among critically ill patients: a multicentre prospective cohort study



One year mortality

Model	Frailty score	HR (95% CI)
Unadjusted	1–3	1.00 (ref)
	4	2.01 (1.25–3.24)
	5	2.88 (1.65–5.02)
	6–8	3.76 (2.33–6.07)



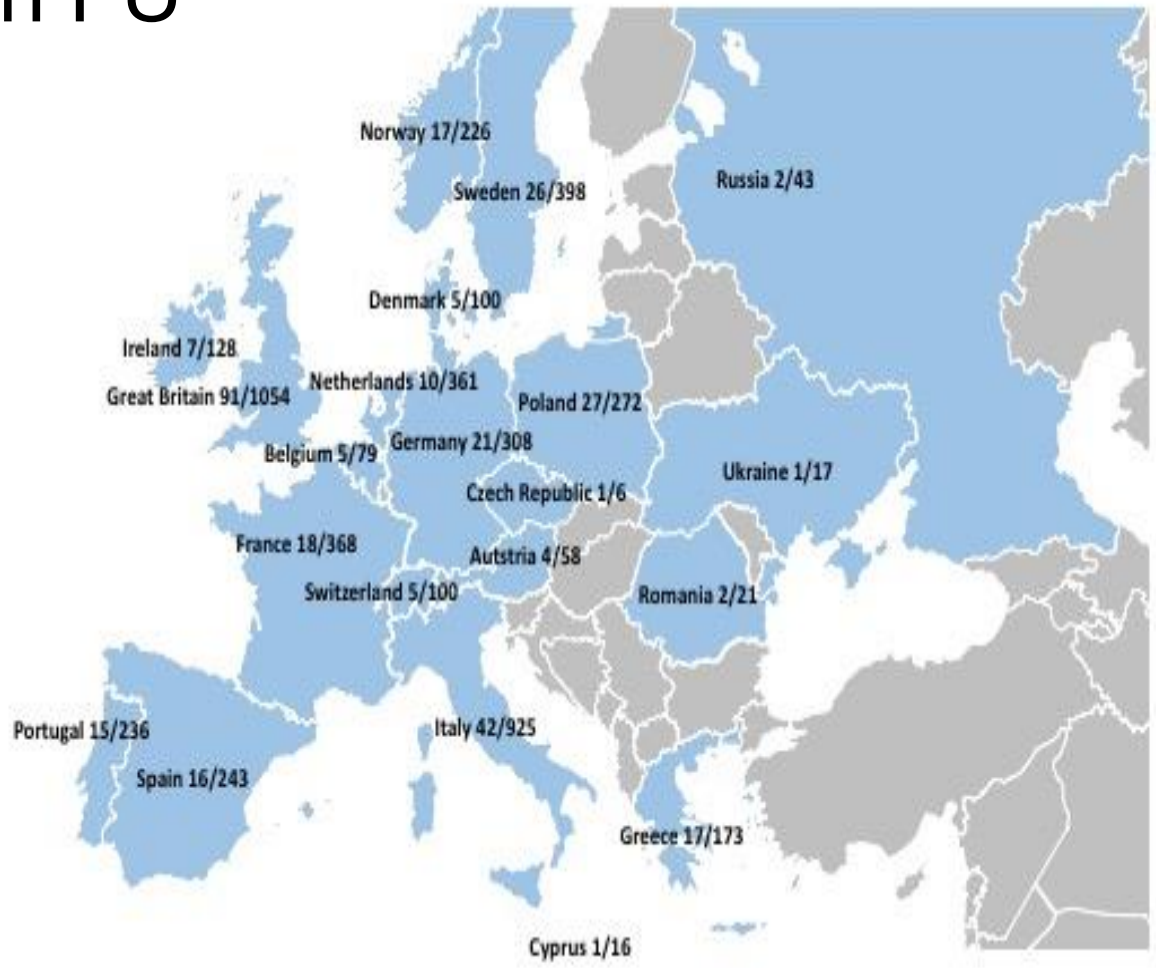
Intensive Care Med 2017; 43:4940-8
DOI 10.1007/s00134-017-4940-8

ORIGINAL

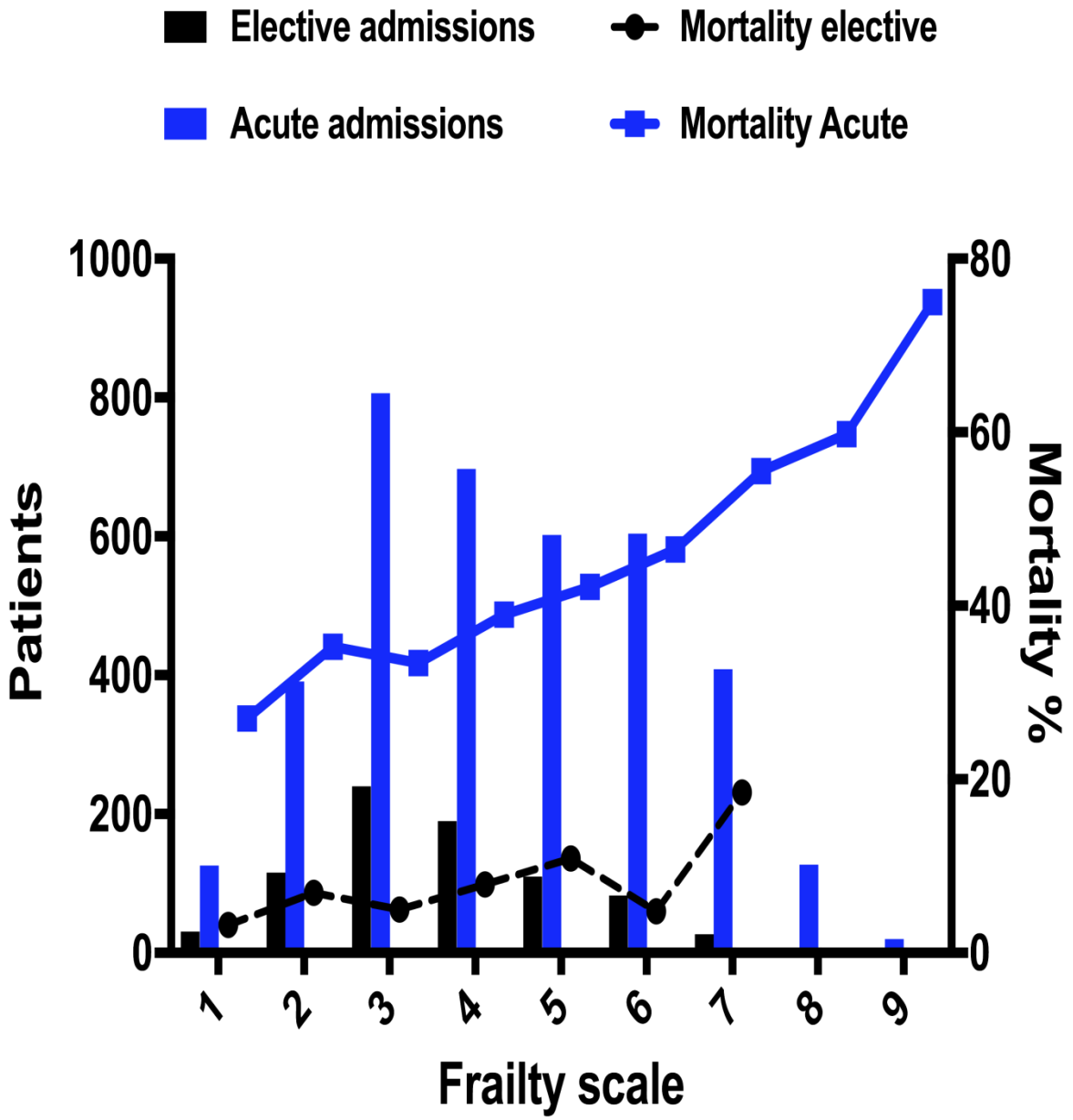
The impact of frailty on ICU and 30-day mortality and the level of care in very elderly patients (≥ 80 years)

Hans Flaatten[1,2*], Dylan W. De Lange[3], Alessandro Morandi[4,5], Finn H. Andersen[6,7], Antonio Artigas[8], Guido Bertolini[10], Ariane Boumendil[11], Maurizio Cecconi[12], Steffen Christensen[9], Loredana Faraldi[13], Jesper Fjølner[9], Christian Jung[14], Brian Marsh[15], Rui Moreno[16], Sandra Oeyen[17], Christina Agwald Öhman[18], Bernardo Bollen Pinto[19], Ivo W. Soliman[20], Wojciech Szczeklik[21], Andreas Valentin[22], Ximena Watson[12], Tilemachos Zaferidis[23], Bertrand Guidet[24,25,26] on behalf of the VIP1 study group

21 countries; 311 ICUs
5132 patients ≥ 80y
1 month FU



Frailty and one-month mortality



Multivariate analysis

		HR (95%CI)	p
CFS	Pre vs fit	1.19 (1-03-1.38)	0.021
	Frail vs fit	1.54 (1.38-1.73)	<0.001
Age	Per 5 years	1.2 (1.12-1.28)	<0.001
Gender	male vs female	1.17 (1.06-1.29)	<0.001
SOFA	Per point	1.13 (1.12-1.14)	<0.001
Admission	Urgent vs planned	4.72 (3.65-6.10)	<0.001

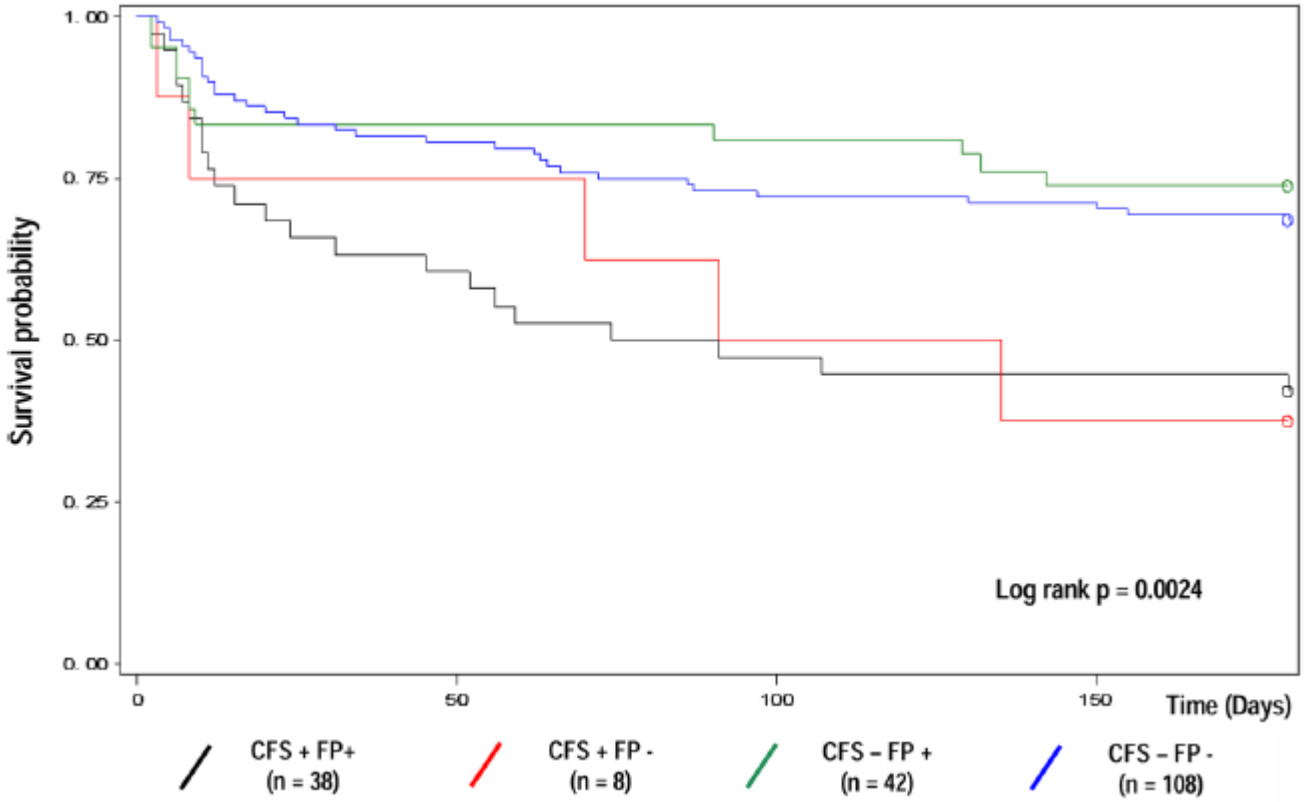
Intensive Care Med (2014) 40:674–682
DOI 10.1007/s00134-014-3253-4

ORIGINAL

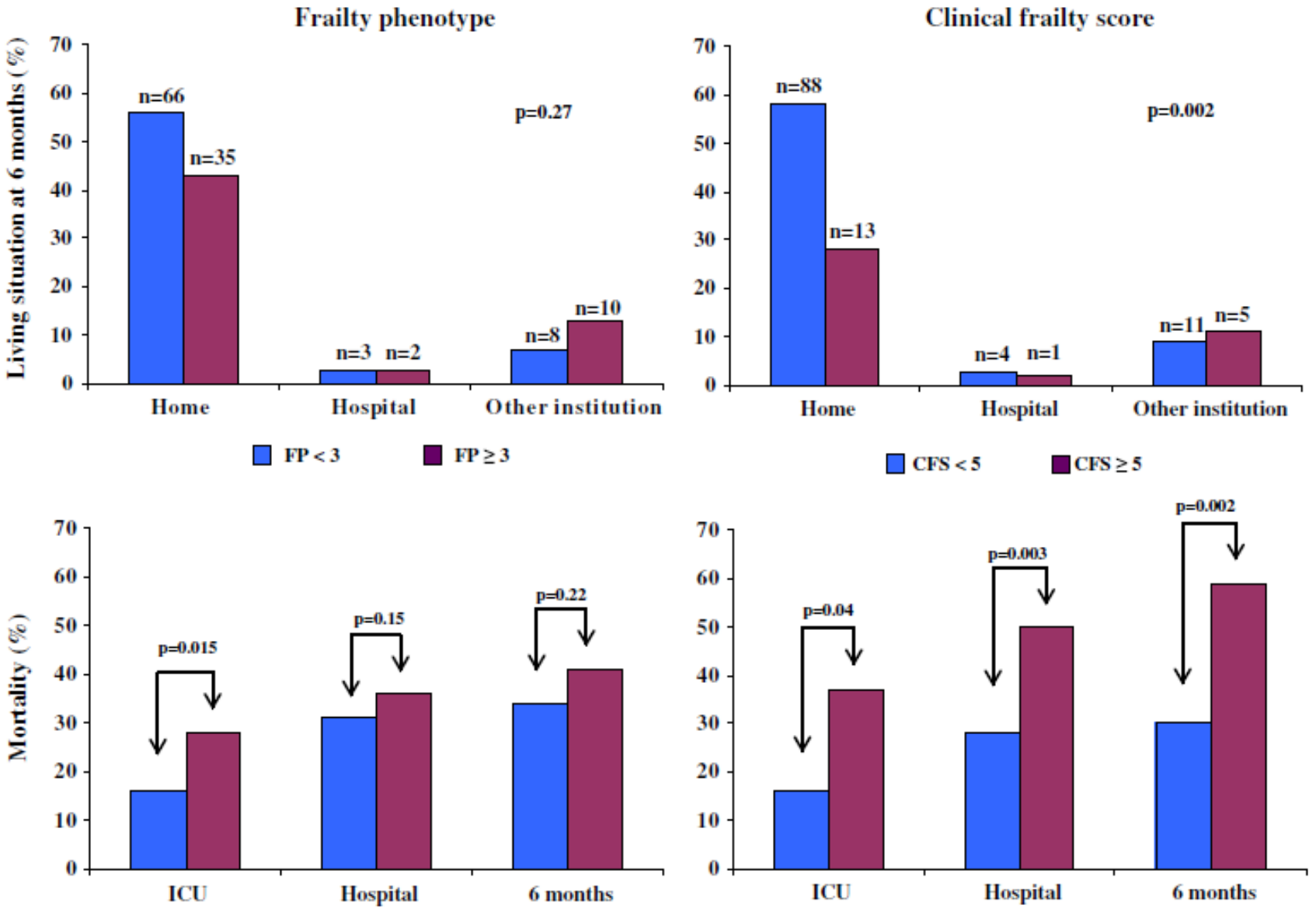
Pascale Le Maguet
Antoine Roquilly
Sigismond Lasocki
Karim Asehnoune
Elsa Carise

Prevalence and impact of frailty on mortality in elderly ICU patients: a prospective, multicenter, observational study

- 4 ICUs
- Age > 65
- Frailty:
  - FP: 41%
  - CFS: 23%



Living situation and mortality at 6 months



Multidimensional Frailty Score for the Prediction of Postoperative Mortality Risk

Sun-wook Kim, MD; Ho-Seong Han, MD, PhD; Hee-won Jung, MD; Kwang-il Kim, MD, PhD; Dae Wook Hwang, MD, PhD; Sung-Bum Kang, MD, PhD; Cheol-Ho Kim, MD, PhD

Component	Mortality Outcome		*P* Value
	Survival (n = 250)	Death (n = 25)	
Demographic			
Age, y	75.2 (5.15)	77.6 (7.16)	.10
Sex, male/female, No.	134/116	17/8	.21
Weight, kg	59.6 (10.21)	51.9 (8.59)	<.001
Body mass index[b]	23.4 (3.24)	20.7 (3.01)	<.001
Cancer, No. (%)	129 (51.6)	19 (76.0)	.02
ASA class, 1/2/3/4, No.	29/194/27/0	1/15/8/1	<.001
Laparoscopic/open surgery, No.	186/64	6/19	<.001

JAMA Surg. 2014;149(7):633-640.

Comprehensive Geriatric Assessment

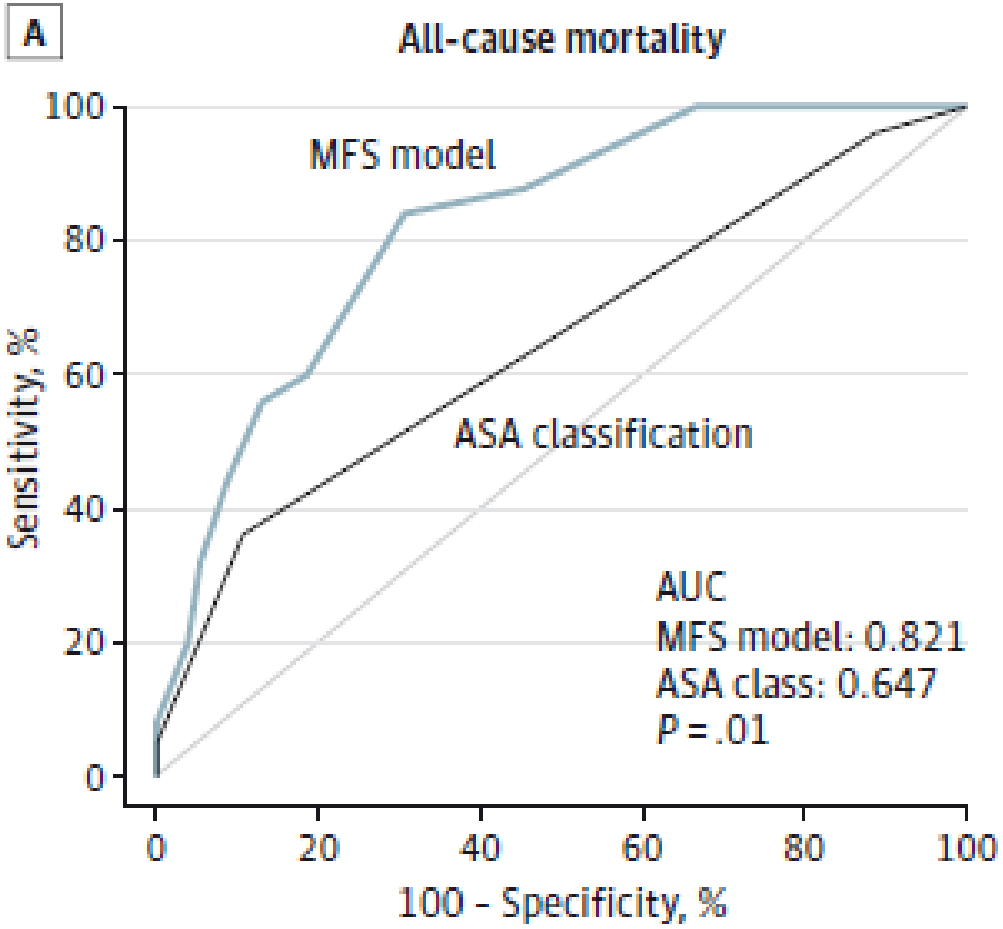
Component	Mortality Outcome		*P* Value
	Survival (n = 250)	Death (n = 25)	
Comprehensive Geriatric Assessment			
Charlson Comorbidity Index	2.2 (1.7)	3.5 (2.3)	<.001
Polypharmacy, No. (%)	122 (48.8)	11 (44.0)	.68
Inappropriate medication, No. (%)	47 (18.8)	5 (20.0)	.80
Dependence, No. (%)			
ADLs (partial and full)	28 (11.2)	8 (32.0)	.01
IADLs	21 (8.4)	7 (28.0)	.01
MMSE-KC score[c]	23.3 (6.3)	19.1 (8.2)	.003
SGDS-K score[d]	3.9 (3.9)	4.2 (4.3)	.69
Risk of delirium, No. (%)[e]	21 (8.4)	7 (28.0)	.008
MNA score[f]	24.1 (4.0)	20.3 (5.0)	<.001
Midarm circumference, cm[g]	26.0 (2.8)	24.3 (2.0)	.003

MMSE : mental score; SGDS : Depression score; MNA : Nutritional score

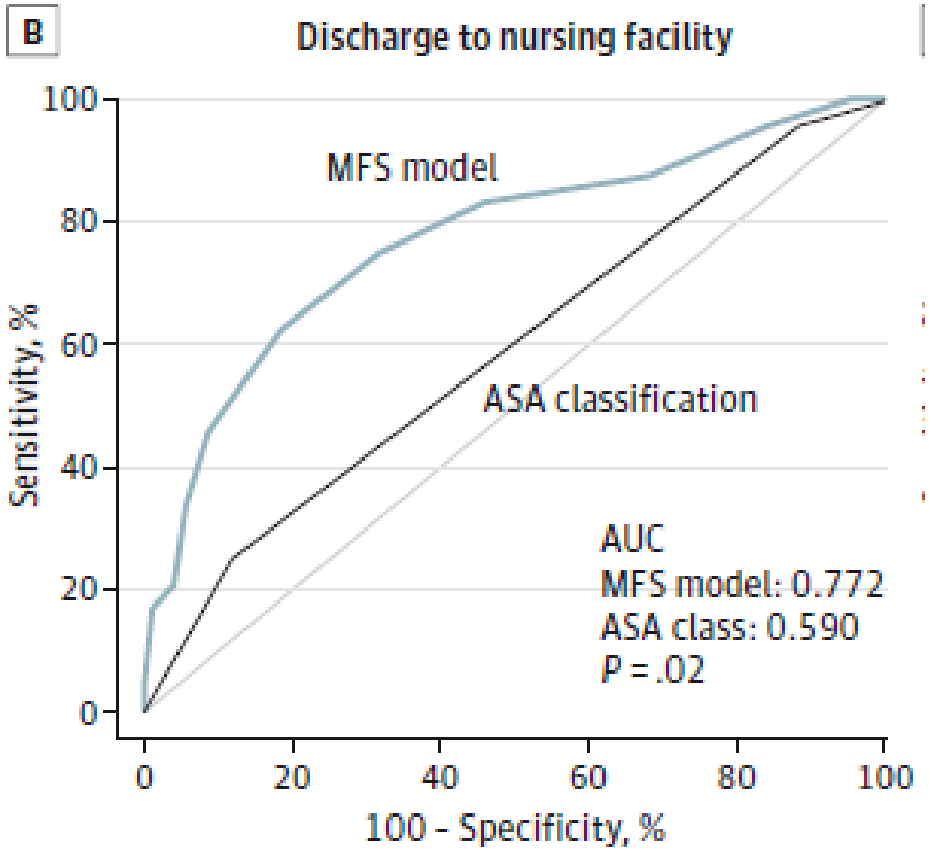
Composition of Multidimentional frailty score (MFS)

Item	Score		
	0	1	2
Malignant disease	Benign disease	Malignant disease	NA
Charlson Comorbidity Index	0	1-2	>2
Albumin, g/dL	>3.9	3.5-3.9	<3.5
ADLs (modified Barthel Index)	Independent	Partially dependent	Fully dependent
IADLs (Lawton and Brody Index)	Independent	Dependent	NA
Dementia (MMSE-KC)	Normal	Mild cognitive impairment	Dementia
Risk of delirium (Nu-DESC)	0-1	≥2	NA
MNA	Normal	Risk of malnutrition	Malnutrition
Midarm circumference, cm	>27.0	24.6-27.0	<24.6

Multidimensional frailty score vs ASA : Prediction of mortality



Multidimensional frailty score vs ASA Prediction discharge to nursing facility



Optimal Preoperative Assessment of the Geriatric Surgical Patient: A Best Practices Guideline from the American College of Surgeons National Surgical Quality Improvement Program and the American Geriatrics Society

Warren B Chow, MD, MS, MSHSOR, Ronnie A Rosenthal, MD, MS, FACS, Ryan P Merkow, MD, MSHSOR, Clifford Y Ko, MD, MS, MSHS, FACS, Nestor F Esnaola, MD, MPH, MBA, FACS

J Am Coll Surg 2012, 215: 453-466

Table 1. Checklist for the Optimal Preoperative Assessment of the Geriatric Surgical Patient

In addition to conducting a complete history and physical examination of the patient, the following assessments are strongly recommended:

- ☐ Assess the patient's **cognitive ability** and **capacity** to understand the anticipated surgery.
- ☐ Screen the patient for **depression**.
- ☐ Identify the patient's risk factors for developing postoperative **delirium**.
- ☐ Screen for **alcohol** and other **substance abuse/dependence**.
- ☐ Perform a preoperative **cardiac** evaluation according to the American College of Cardiology/American Heart Association algorithm for patients undergoing noncardiac surgery.
- ☐ Identify the patient's risk factors for postoperative **pulmonary** complications and implement appropriate strategies for prevention.
- ☐ Document **functional status** and history of **falls**.
- ☐ Determine baseline **frailty** score.
- ☐ Assess patient's **nutritional status** and consider preoperative interventions if the patient is at severe nutritional risk.
- ☐ Take an accurate and detailed **medication history** and consider appropriate perioperative adjustments. Monitor for **polypharmacy**.
- ☐ Determine the patient's **treatment goals** and **expectations** in the context of the possible treatment outcomes.
- ☐ Determine patient's **family** and **social support system**.

ICE-CUB1 - Multivariate analysis

	In-hospital death	Death at 6 months
Age (grand mean centered) per year		1.04 (1.02-1.06)
ADL per point	0.79 (0.75-0.84)	0.85 (0.8-0.91)
Demented (yes vs. no)	0.61 (0.44-0.85)	
Cancer (yes vs. no)		2.59 (1.74-3.9)
Normal appearance vs. emaciated		0.82 (0.54-1.24)
Somewhat malnourished appearance vs. emaciated		0.48 (0.33-0.7)
Decubitus ulcer (yes vs. no)	1.53 (0.97-2.26)	

3 – Prise en charge en réanimation?

Intensité et limitation des soins

Treatment Intensity and Outcome of Patients Aged 80 and Older in Intensive Care Units: A Multicenter Matched-Cohort Study

Ariane Boumendil, MSc, Philippe Aegerter, PhD, MD,*† Bertrand Guidet, MD,*‡ and the CUB-Rea Network*

JAGS 53:88–93, 2005

- ✓Plus de ≥ 72 000 séjours enregistrés dans CUB-Réa entre 1997 et 2000
- ✓9,6% patients de plus de 80 ans
- ✓28,5 % patients âgés entre 65 et 79 ans

Existe-t-il un biais de sélection ?

Plus graves

Moins autonomes

Moins de maladies fatales

Moins de comorbidités

	Plus de 80 ans	65-79 ans	*P*
IGS II « dépouillé »	31,8	29,8	< 0,001
Pas de limitation fonctionnelle	15,5%	18,7%	< 0,001
Maladie sous-jacente fatale	3,2%	8,5%	< 0,001
Nombre de diagnostics associés	4,8	5,2	< 0,001

JAGS 53:88–93, 2005

Actes marqueurs et mortalité

Table 3. Age-Related Differences in Hospital Care with and Without Adjustment for Matching Criteria

Support and Outcome	Risk Ratio (Miettinen 95% CI)	*P*-value*	Adjusted Odds Ratio (95% CI)	*P*-value†
Circulatory support	1.04 (0.98–1.1)	.19	1.08 (0.96–1.21)	.19
Mechanical ventilation	0.85 (0.81–0.90)	<.001	0.69 (0.61–0.78)	<.001
Renal support	0.57 (0.47–0.7)	<.001	0.52 (0.41–0.66)	<.001
Tracheostomy	0.41 (0.31–0.53)	<.001	0.37 (0.28–0.50)	<.001
ICU mortality	1.19 (1.08–1.31)	<.001	1.32 (1.13–1.54)	<.001
Hospital mortality	1.27 (1.17–1.38)	<.001	1.52 (1.31–1.76)	<.001

JAGS 53:88–93, 2005

Limitation des soins

Withholding or withdrawing of life-sustaining therapy in older adults (≥ 80 years) admitted to the intensive care unit

Bertrand Guidet[1,2*], Hans Flaatten[3,4], Ariane Boumendil[1*], Alessandro Morandi[5,6], Finn H. Andersen[7,8], Antonio Artigas[9], Guido Bertolini[10], Maurizio Cecconi[11], Steffen Christensen[12], Loredana Faraldi[13], Jesper Fjølner[12], Christian Jung[14], Brian Marsh[15], Rui Moreno[16], Sandra Oeyen[17], Christina Agwald Öhman[18], Bernardo Bollen Pinto[19], Ivo W. Soliman[20], Wojciech Szczeklik[21], Andreas Valentin[22], Ximena Watson[11], Tilemachos Zafeiridis[23] and Dylan W. De Lange[20] on behalf of The VIP1 study group.

Intensive Care Med (2018) 44:1027–1038

VIP1 study

- 21 countries
- 309 ICUs
- 5021 patients over 80y

B Guidet et al. Intensive Care Medicine; 2018; 44(7):1027-1038

Caracteristiques des patients

LAT chez 27.2% des patients:

15% non escalade

12.2%déescalade

		All	No treatment limitation	Withholding alone	Withdrawing +/- withholding	p-value
	N	5021	3656	753	612	
	%	100	72,8	15,0	12,2	
Age	median	84	83	85	84	<0.0001
Frailty	median	4	4	5	5	<0.0001
SOFA score	median	7	6	7	10	<0.0001
ICU length of stay (days)	median	2.33	2.29	2.12	2.92	0.0406
Patient's sex	Female	2404 (47.9%)	1737 (47.5%)	395 (52.5%)	272 (44.4%)	0.009
	Male	2617 (52.1%)	1919 (52.5%)	358 (47.5%)	340 (55.6%)	
Type of ICU admission	Elective	906 (18%)	853 (23.3%)	38 (5%)	15 (2.5%)	<0.0001
	Acute	4115 (82%)	2803 (76.7%)	715 (95%)	597 (97.5%)	

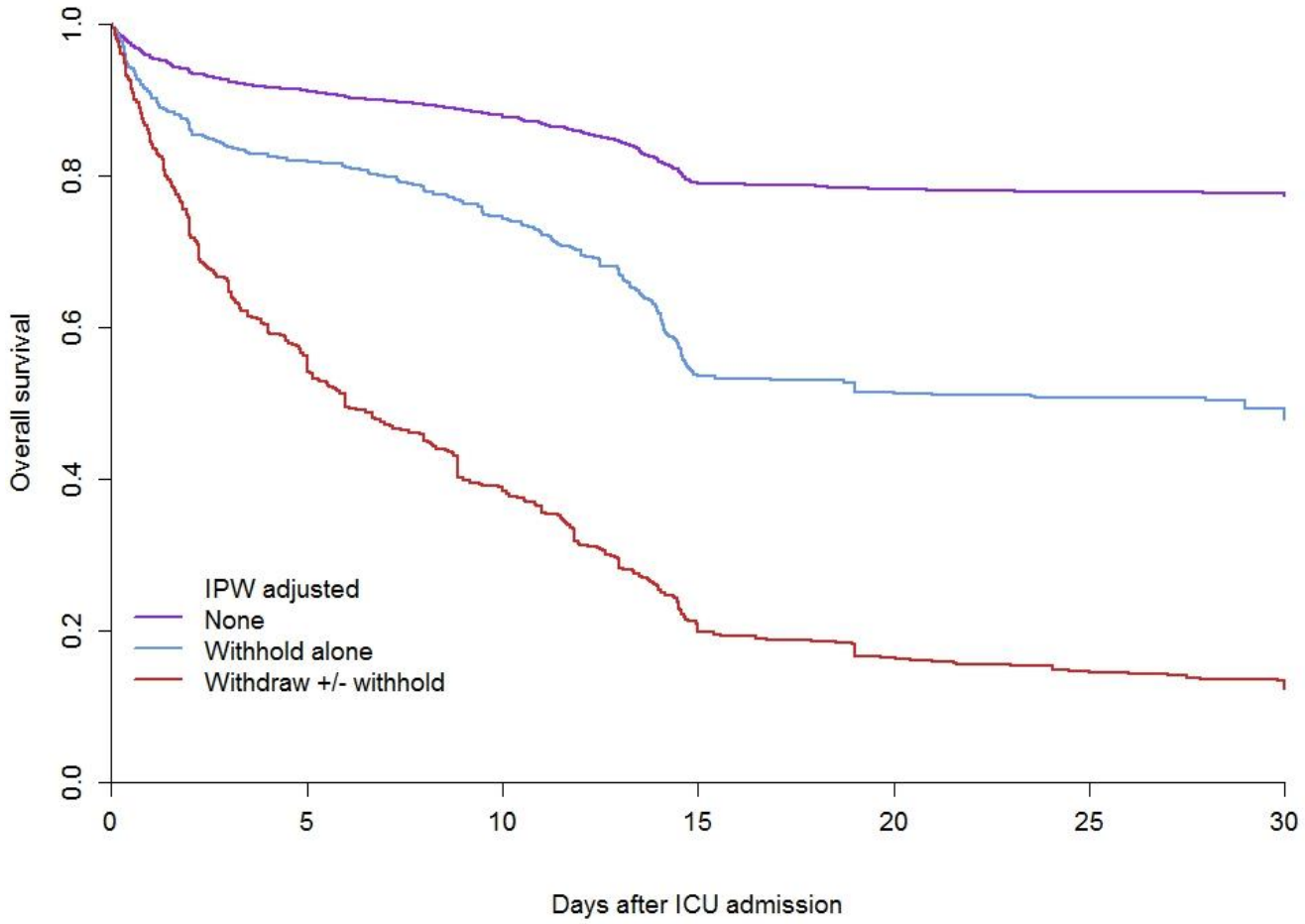
Traitements, fragilité, mortalité

		All	No treatment limitation	Withholding alone	Withdrawing +/- withholding	p-value
		5021	3656	753	612	
Non invasive mechanical ventilation	Yes	1148 (22.9%)	745 (20.4%)	243 (32.4%)	158 (26%)	<0.0001
Invasive mechanical ventilation	Yes	2519 (50.2%)	1763 (48.2%)	292 (38.9%)	462 (75.7%)	<0.0001
Vasoactive drugs	Yes	2612 (52%)	1761 (48.2%)	392 (52.2%)	457 (74.8%)	<0.0001
Renal replacement therapy	Yes	461 (9.2%)	300 (8.2%)	70 (9.4%)	89 (14.7%)	<0.0001
Frailty level	Fit	1893 (37.7%)	1545 (42.3%)	161 (21.4%)	187 (30.6%)	<0.0001
	Vulnerable	972 (19.4%)	726 (19.9%)	140 (18.6%)	106 (17.3%)	
	Frail	2156 (42.9%)	1385 (37.9%)	452 (60%)	319 (52.1%)	
Death in ICU	Yes	1109 (22.1%)	387 (10.6%)	218 (29.1%)	502 (82.2%)	<0.0001
Death at day 30	Yes	1647 (32.8%)	677 (18.5%)	399 (53.1%)	569 (93.1%)	<0.0001

LAT et devenir

		Alive at day 30	Dead at day 30	Test p-value
	N	3373	1648	<0.0001
Age	median	83	84	
Treatment limitation	None	2978 (88.3%)	678 (41.1%)	<0.0001
	withholding or withdrawing	395 (11.7%)	970 (58.9%)	
Treatment limitation	None	2978 (88.3%)	678 (41.1%)	<0.0001
	Withholding alone	353 (10.5%)	400 (24.3%)	
	Withdrawing +/- withholding	42 (1.2%)	570 (34.6%)	

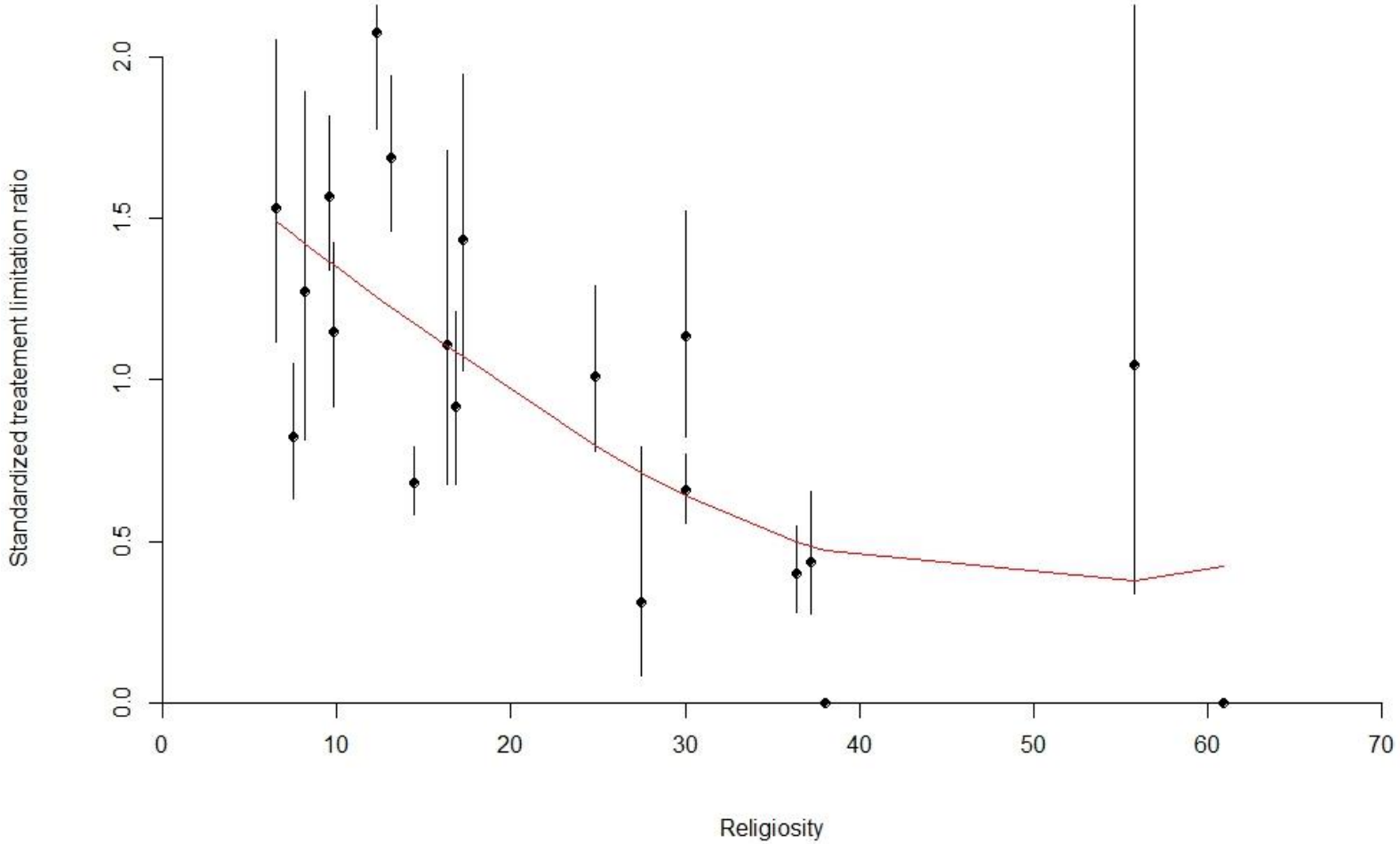
Courbes de survie ajustées



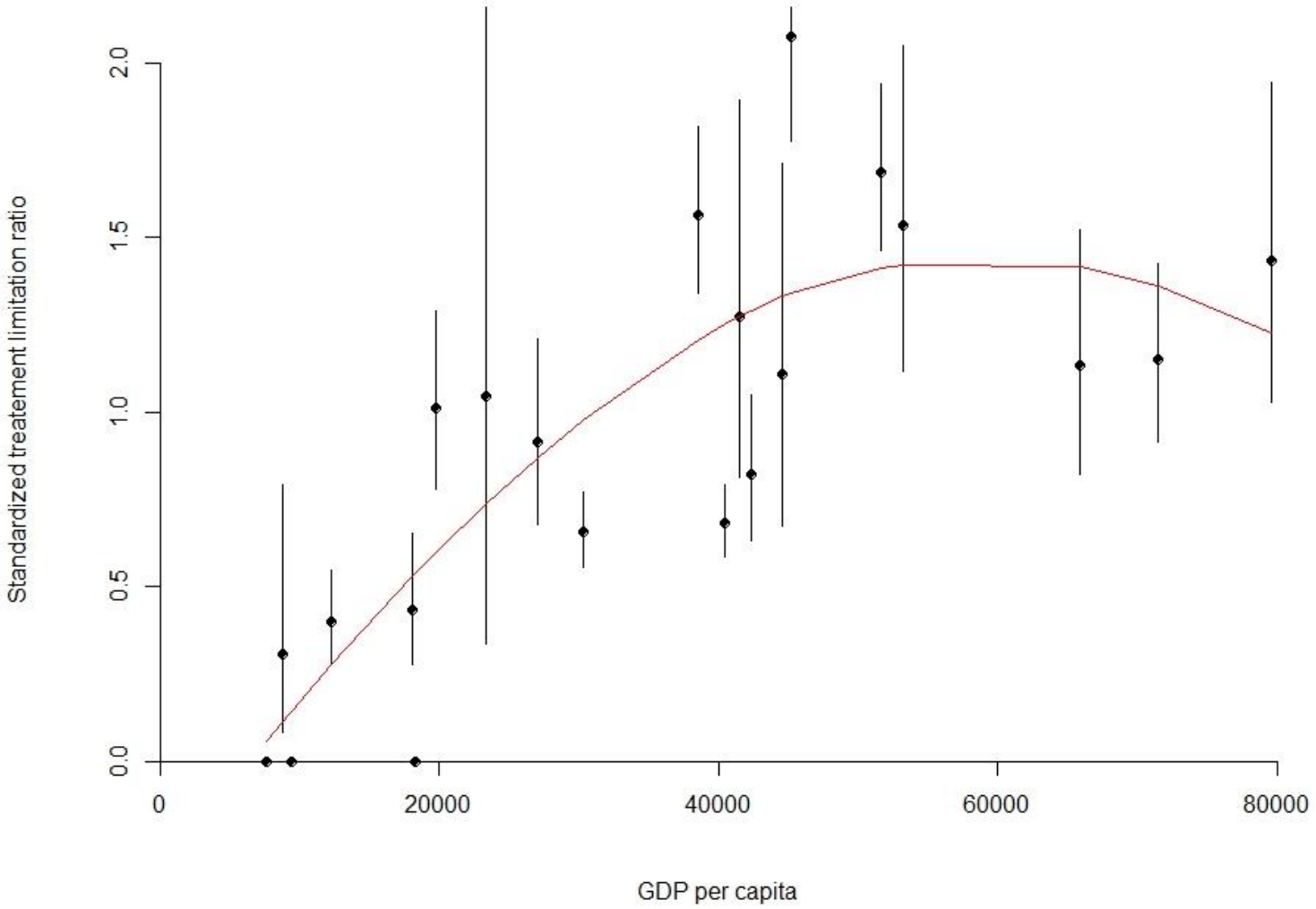
Analyse multivariée des facteurs impliqués dans la décision de LAT

	Empty model	Patients characteristics		Patients and countries characteristics	
		OR (95% CI)	p value	OR (95% CI)	p value
Frailty 4 vs 1–3		1.59 (1.3–1.95)	< 0.0001	1.59 (1.3–1.95)	< 0.0001
Frailty 5–9 vs 1–3		2.33 (1.98–2.75)	< 0.0001	2.33 (1.98–2.74)	< 0.0001
Age (5 years increase)		1.23 (1.11–1.35)	< 0.0001	1.22 (1.11–1.35)	< 0.0001
Male vs female patient		1.02 (0.89–1.18)	0.754	1.03 (0.89–1.18)	0.7305
Acute vs elective admission		5.61 (4.13–7.62)	< 0.0001	5.59 (4.12–7.59)	< 0.0001
Sofa score (one point increase)		1.12 (1.1–1.14)	< 0.0001	1.12 (1.1–1.14)	< 0.0001
GDP per capita (one point increase)				1 (1–1)	0.01976
Religiosity (one point increase)				0.96 (0.94–0.99)	0.00498

Impact de la religiosité du pays



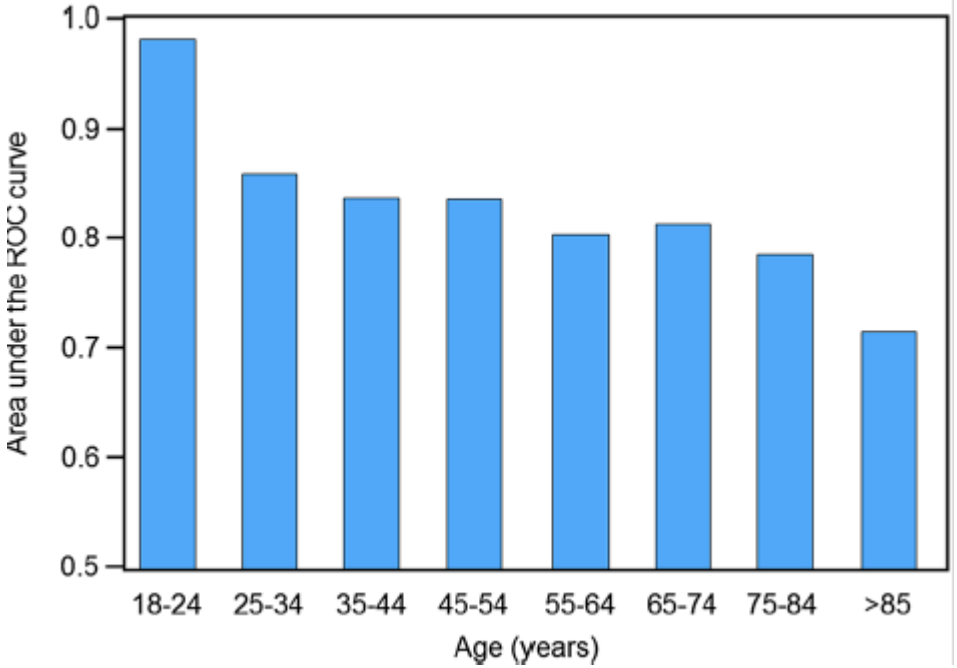
Impact du PNB du pays



Applicabilité des recommandations

Scores de sévérité

Discrimination of SAPS2 according to age (Euricus data)



Age of patients included in severity scores

Severity score	Mean age	Year of publication
Apache II	Patients >65 years: 24–54%	1985
SAPS II	57.2	1993
APACHE II in UK	56.3	1993
MPM II	Survivors 55.4; non survivors 62.9	1993
APACHE III	59.6	1991
SAPS II revisited	57.3	2005
SAPS III	60.7	2005
APACHE IV	61.5	2006

Claessens *et al. Critical Care* 2013, **17**:R89
http://ccforum.com/content/17/3/R89

CRITICAL CARE

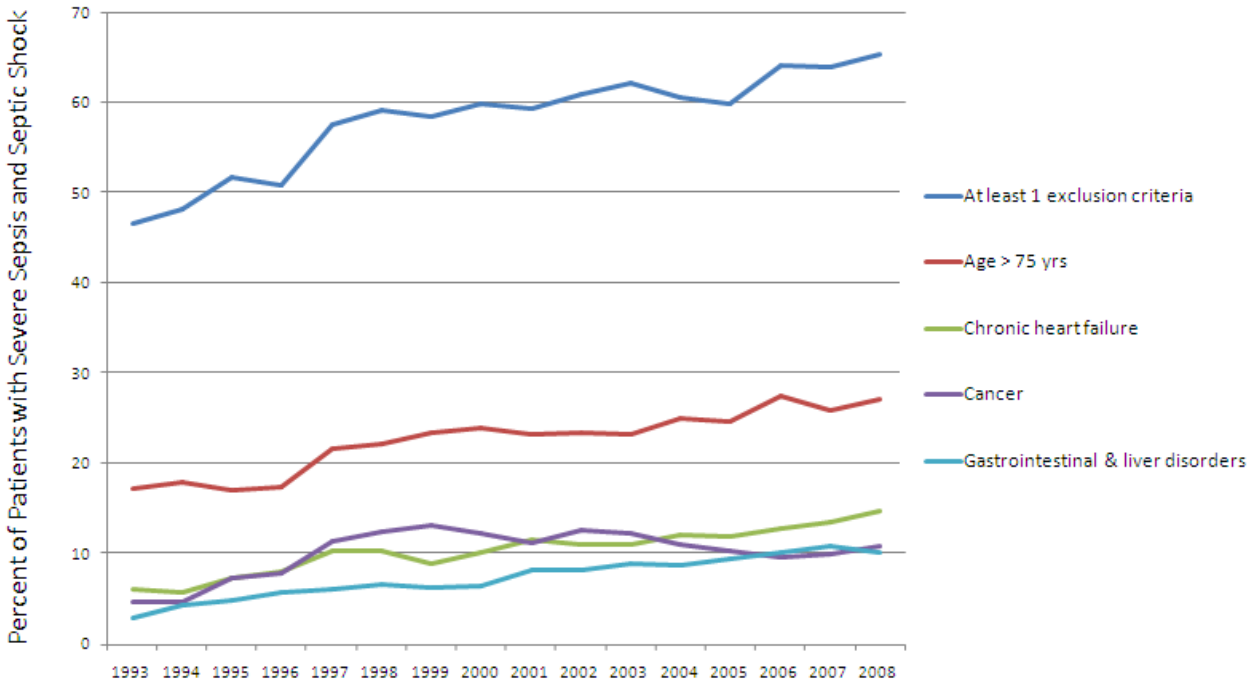
RESEARCH Open Access

Are clinical trials dealing with severe infection fitting routine practices? Insights from a large registry

Yann-Erick Claessens[1,2,3*], Philippe Aegerter[4,5], Hamdi Boubaker[2,6], Bertrand Guidet[7,8], Alain Cariou[3,9] and for Cub-Rea Network

- Exclusion des patients > 75ans des études
  - Vasopressors : 1/37
  - Fluid loading: 1/8
  - Steroids : 1/8
  - Modulation immunity : 1/28
  - Modulation coagulation : 0/11

Time Trends of Main Non Inclusion Criteria in Septic Patients from the CubRea Database (1993-2008).



Insuffisance respiratoire aiguë

Insuffisance respiratoire aigue

- The most important physiological changes in respiratory physiology are:
  - loss of elastic lung tissue,
  - increased anteroposterior diameter of the chest,
  - decreased muscle strength,
  - decrease sensitivity of respiratory centers to hypoxemia and hypercapnia
- Presenting signs and symptoms may not be primarily respiratory. Delirium and dementia may be often presenting signs of ARF
- The risk of aspiration is increased in the elderly population due to cerebrovascular disease, Parkinson´s disease or recent intubation

Janssens JP: Physiological changes in respiratory function associated with ageing. Eur Respir J 1999; 13:197–205

Ray P : Acute respiratory failure in the elderly: etiology, emergency diagnosis and prognosis. Crit Care 2006; 10:R82

Rubenfeld GD: Incidence and outcomes of acute lung injury. N Engl J Med 2005; 353:1685–93

Ventilation artificielle

- Experimental studies suggest that aging is associated with an increased susceptibility to injurious ventilation
- The ability to sustain spontaneous respiration after extubation is lower in patients older than 70 years, mainly due to the inability to clear tracheobronchial secretions and a higher incidence of nosocomial pneumonia
- Age was also associated with longer duration of mechanical ventilation, ICU length of stay and mortality in ARDSNet database

Ely EW: Recovery rate and prognosis in older persons who develop acute lung injury and the acute respiratory distress syndrome. Ann Intern Med 2002; 136:25–36

Bellani G, LUNG SAFE Investigators, ESICM Trials Group: Epidemiology, Patterns of Care, and Mortality for Patients With Acute Respiratory Distress Syndrome in Intensive Care Units in 50 Countries. JAMA 2016; 315:788–800

Chez les sujets âgés

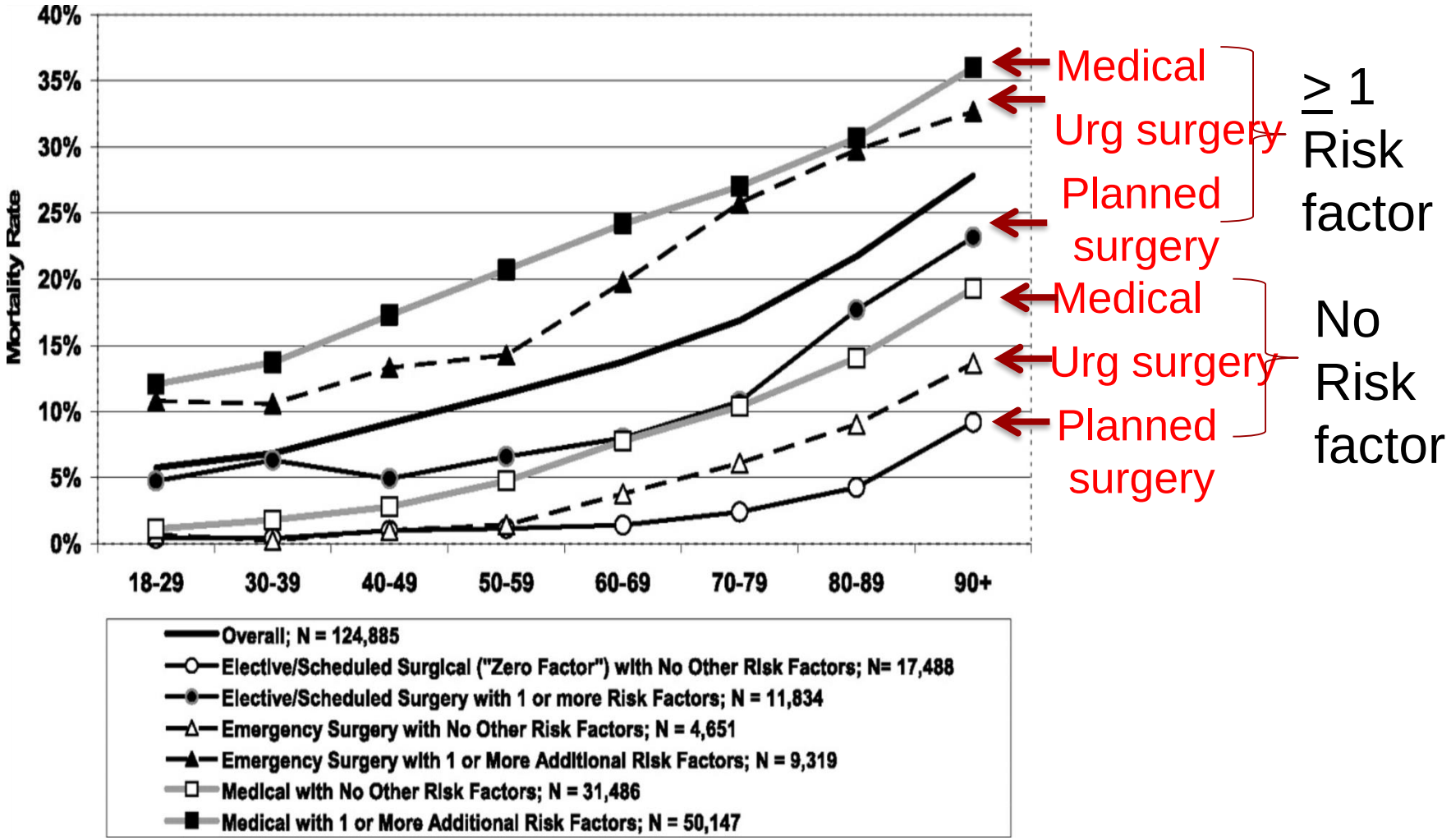
- Présentation atypique source de retard diagnostique
- Recommandations non validées
- Diminution des réserves physiologiques
- Augmentation de l'incidence
  - Insuffisance respiratoire aiguë
- Prudence dans l'utilisation des médicaments
  - Surdosage et interactions
  - Attention aux sédatifs et antipsychotiques

4 – Trajectoire hospitalière et mortalité

From: Do Elderly Patients Fare Well in the ICU?

Mortality rate by age, stratified by patient type.

Chest. 2011;139(4):825-831. doi:10.1378/chest.10-1233

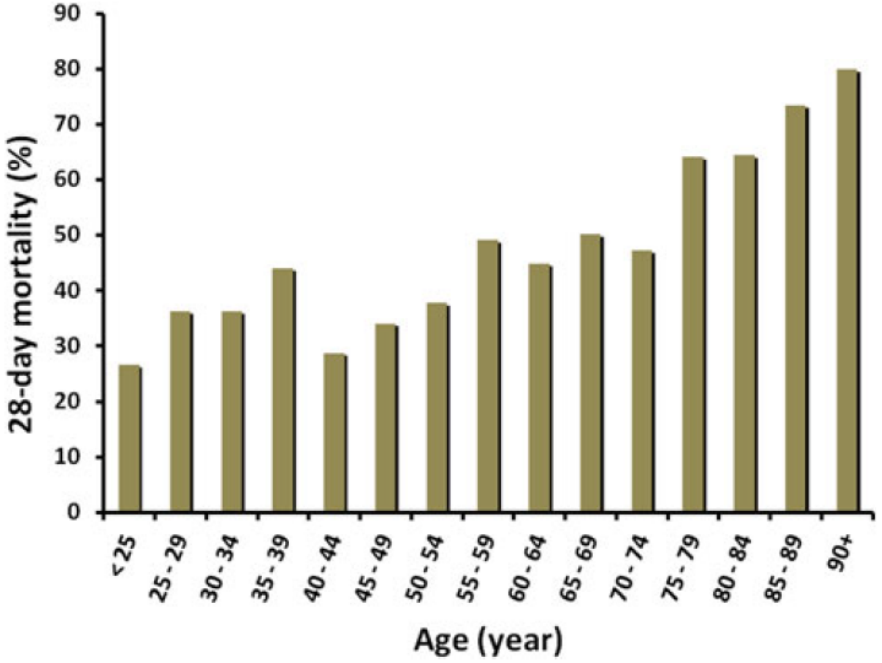


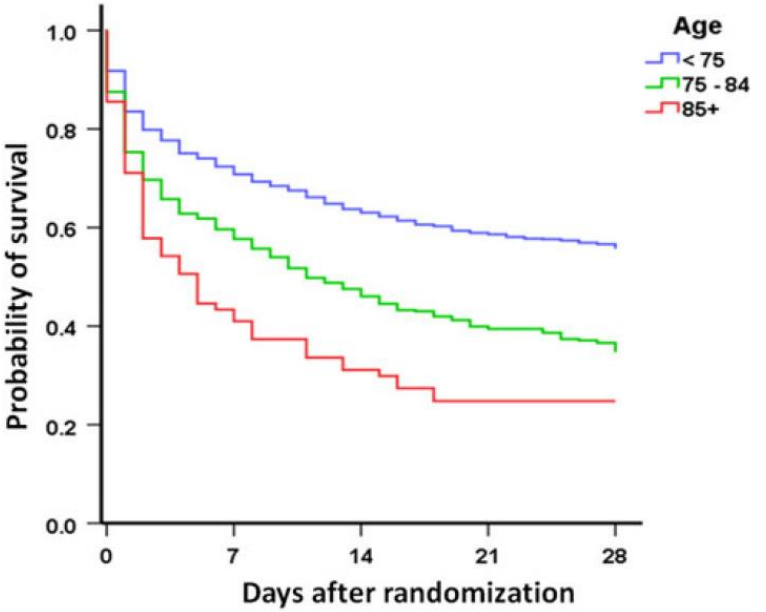
Intensive Care Med (2014) 40:50–56
DOI 10.1007/s00134-013-3121-7

ORIGINAL

Patrick Biston
Cesar Aldecoa
Jacques Devriendt
Christian Madl
Didier Chochrad
Jean-Louis Vincent
Daniel De Backer

Outcome of elderly patients with circulatory failure





	Not old (<75 years) $n = 1,157$	Old (75–84 years) $n = 410$	Very old (≥85 years) $n = 84$	p value
ICU discharge	667 (58)	164 (40)	28 (33)	<0.001
28 days	649 (56)	146 (36)	21 (25)	<0.001
Hospital discharge	546 (48)	121 (30)	19 (23)	<0.001
6-month survival	439 (41)	80 (21)	6 (8)	<0.001
12-month survival	311 (34)	57 (16)	2 (3)	<0.001

Mortality in hospital for ICU survivors

Bertrand Guidet, MD [a,b,c,*], Eric Hodgson, FCA [d], Charles Feldman, MB BCh, DSc, PhD, FRCP, FCP [e], Fathima Paruk, MBChB, FCOG, PhD [f], Jeffrey Lipman, MBBCh, MD [g], Younsuck Koh, MD, PhD [h], Jean Louis Vincent, MD, PhD [i], Elie Azoulay, MD, PhD [j], Charles L. Sprung, MD, MCCP [k]

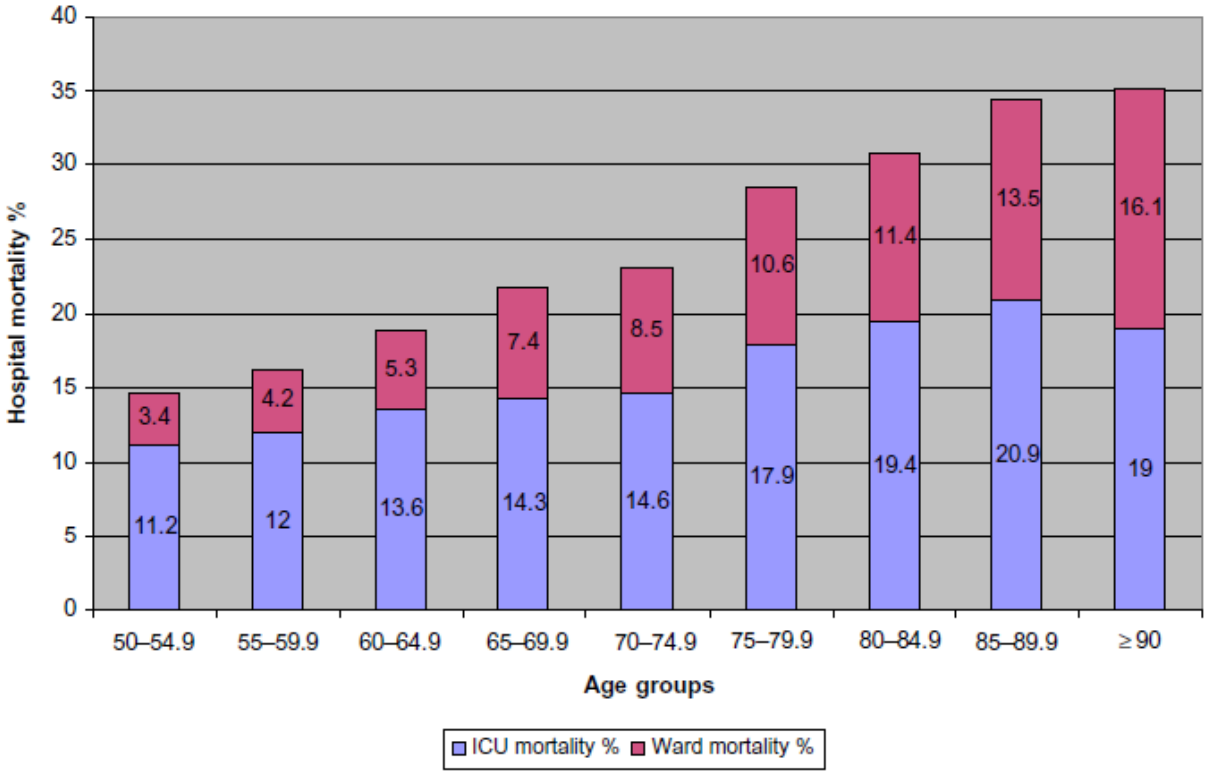
	Countries	n ICUs	<80 y	>80 y
Δ between in-hospital and in-ICU mortality (%)				
Euricus I (1994-1996)	12 European countries	89	5	11
Euricus II (1997-1999)	9 European countries	39	5.9	12
Bashaw (2000-2005) * vs (65 to 80 y)	Australia and New Zealand	57	6.8*	12
Ihra (1998-2008)	Austria	41	4.5	10.8
CUB-REA (2011)	Ile-de-France	32	4.3	8.3
Reinikainen (1998-2004)	Finland	26	6.9	15.9

Journal of Critical Care 29 (2014) 896–901

Do elderly intensive care unit patients receive less intensive care treatment and have higher mortality?

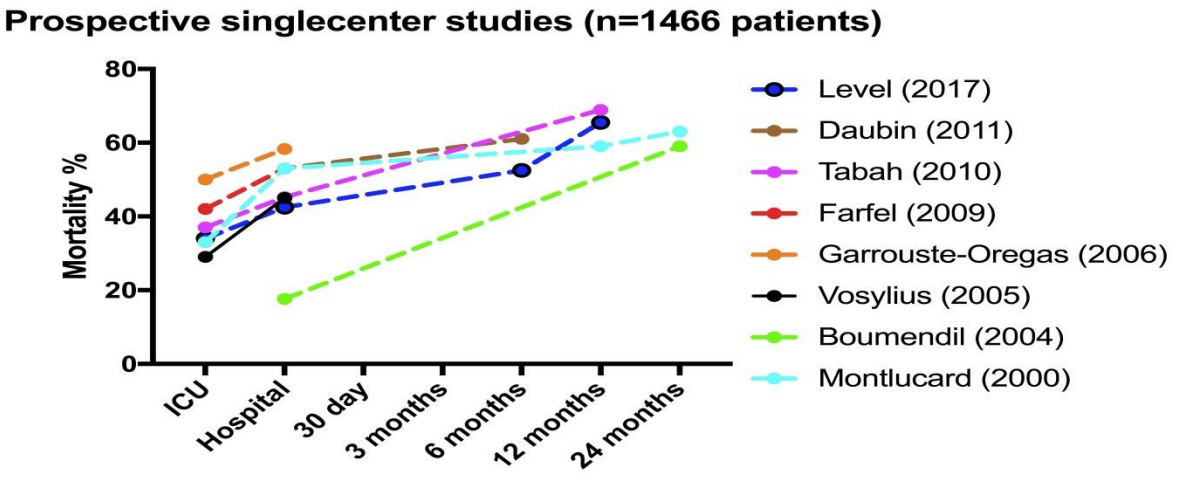
F. H. Andersen[1,2] and R. Kvåle

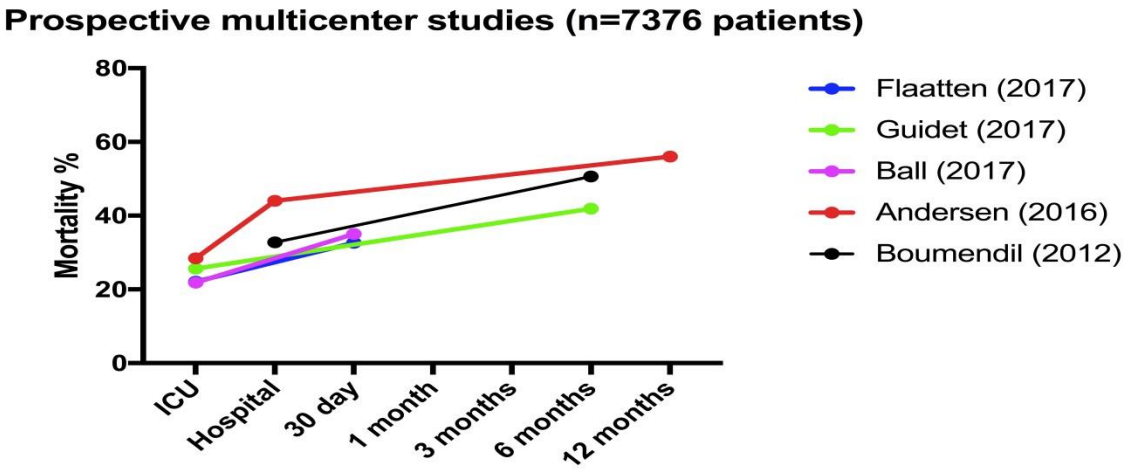
- ✓ Norway
- ✓ 31 ICUs
- ✓ 2006-2009
- ✓ N admissions:
  - ✓ 50-79: 20,320
  - ✓ ≥80y : 6643



Acta Anaesthesiol Scand 2012; **56:** *1298–1305*

Long-term mortality





5 – Pronostic à distance
« Bénéfice de la réanimation »

RESEARCH Open Access

Designing and conducting a cluster-randomized trial of ICU admission for the elderly patients: the ICE-CUB 2 study

Ariane Boumendil[1], Maguy Woimant[2], Jean-Pierre Quenot[3], François-Xavier Rooryck[4], Foued Makhlouf[5], Youri Yordanov[6], Samuel Delerme[7], Khalil Takun[8], Patrick Ray[9], Marie-Clément Kouka[10], Claire Poly[11], Maité Garrouste-Orgeas[12], Caroline Thomas[13], Tabasome Simon[14], Sylvie Azerad[15], Guillaume Leblanc[16], Dominique Pateron[6,17], Bertrand Guidet[1,17,18*] and on behalf of the ICE-CUB 2 study network

Ann Intensive Care 2016, 6: 74

Methods (1)

- Interventional open-label cluster-RCT
- Inclusion criteria
  - Elderly patients (≥ 75 years of age)
  - Presenting in Emergency Department
  - With at least one of the pre-established critical conditions
  - Preserved functional status : ADL scale ≥ 4
  - Preserved nutritional status
  - Without active cancer.
- Exclusion criteria
  - ED stay > 24h,
  - Secondary referral to the ED
  - Refusal to participate.

Methods (2)

- 2 arms :
  - Control : no specific recommendation regarding ICU admission (standard care)
  - Intervention: recommendation for a systematic ICU admission
- Clusters were hospitals with at least one ED and one ICU.
- Clusters were randomized according to
  - Number of ED annual visits,
  - Presence or absence of a geriatric ward
  - Geographical area: Paris vs other French regions

End points

- **Primary end-point:**
  - **6 month mortality**

- **Secondary end-points :**
  - Hospital mortality
  - Percentage of ICU admission
  - Outcome at 6 months
    - Place of living
    - Functional status assessed by ADL score
    - Quality of life assessed by SF12

Flow Chart

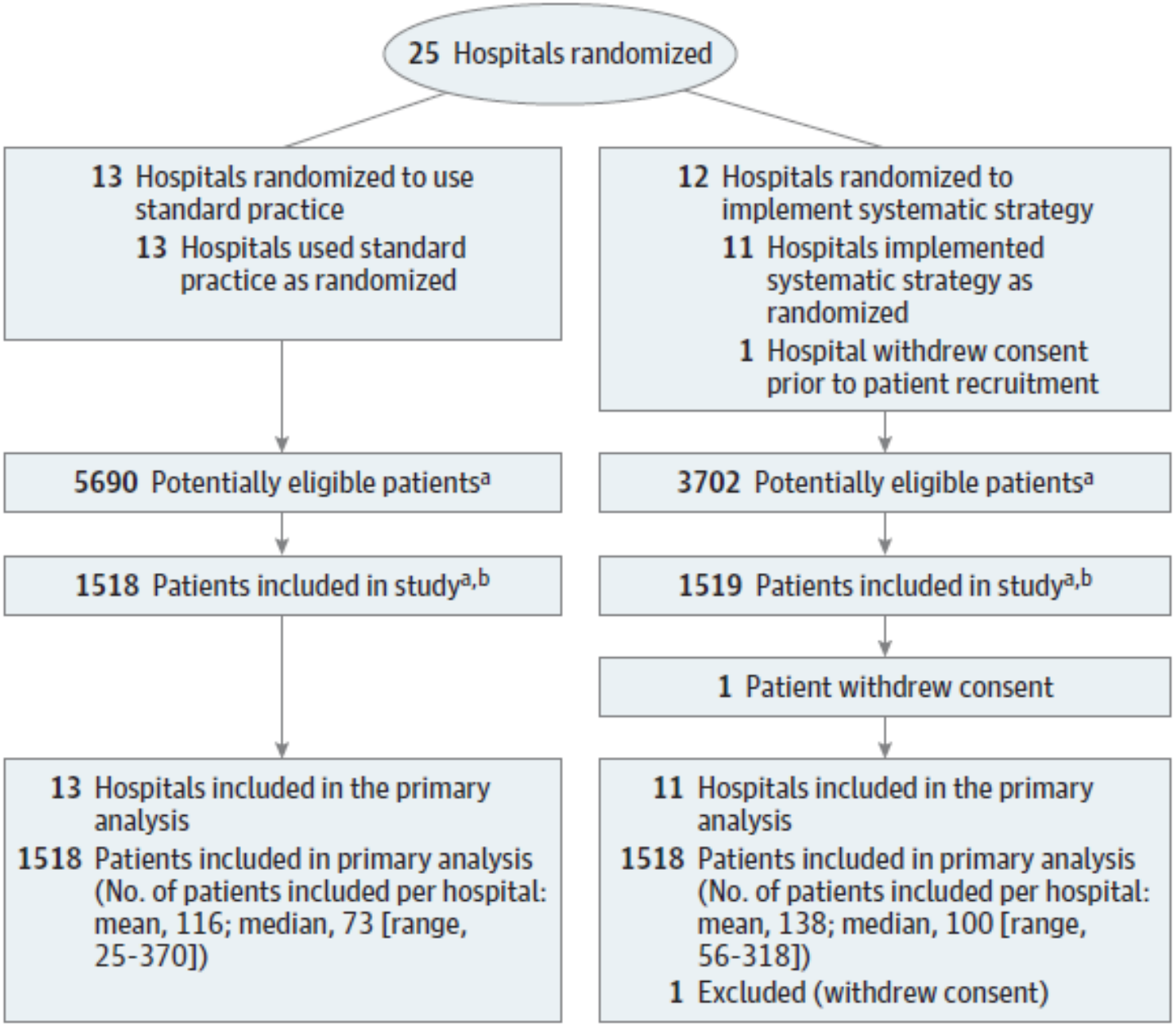

25 Hospitals randomized
13 Hospitals randomized to use standard practice
13 Hospitals used standard practice as randomized
12 Hospitals randomized to implement systematic strategy
11 Hospitals implemented systematic strategy as randomized
1 Hospital withdrew consent prior to patient recruitment
5690 Potentially eligible patients[a]
3702 Potentially eligible patients[a]
1518 Patients included in study[a,b]
1519 Patients included in study[a,b]
1 Patient withdrew consent
13 Hospitals included in the primary analysis
1518 Patients included in primary analysis (No. of patients included per hospital: mean, 116; median, 73 [range, 25-370])
11 Hospitals included in the primary analysis
1518 Patients included in primary analysis (No. of patients included per hospital: mean, 138; median, 100 [range, 56-318])
1 Excluded (withdrew consent)

Table 1. Hospital and Participant Baseline Characteristics[a]

Characteristics	Systematic Strategy	Standard Practice	Difference in Medians (95% CI)	*P* Value
Hospital characteristics	n=11	n=13		
No. of emergency department visits among patients aged >75 y during the study period, mean (SD)	12 746 (4402)	16 580 (9468)		
Location (Paris region), No.	7	9		
Geriatric ward in the hospital, No.	10	11		
Academic hospital, No.	7	10		
Type of intensive care unit (medical), No.	5	7		
Patient characteristics	n=1518	n=1518		
Age, median (IQR), y	85 (81-89)	85 (81-89)	0 (−1 to 1)	.60
Male, No. (%)	713 (47)	648 (43)		
Coexisting conditions, No./total No. (%)				
Ischemic heart disease or hypertension	397/978 (41)	456/1075 (42)		.40
Respiratory disorder	296/978 (30)	336/1074 (31)		.64
Congestive heart failure	151/978 (15)	119/1074 (11)		.004
Neurologic disorder	112/979 (11)	110/1075 (10)		.38
Cognitive impairment	100/977 (10)	153/1075 (14)		.006
Cirrhosis	16/979 (2)	16/1075 (1)		.79
SAPS 3 score at enrollment, median (IQR)[b]	64 (57-71)	59 (54-65)	5 (4 to 6)	<.001
Index of Independence in ADLs score, median (IQR)[c]	6.0 (5.0-6.0)	6.0 (5.5-6.0)	0 (0 to 0)	.19

Characteristics	Systematic Strategy	Standard Practice	Difference in Medians (95% CI)	*P* Value
Initial clinical diagnosis, No. (%)[d]				
Respiratory failure	488 (32)	491 (32)		
Shock	320 (21)	238 (16)		
Cardiac disorder	177 (12)	231 (15)		
Coma	187 (12)	132 (9)		
Gastrointestinal tract disorder	57 (4)	117 (8)		<.001
Acute kidney failure	86 (6)	61 (4)		
Surgery	26 (2)	36 (2)		
Multiple trauma without surgery	10 (1)	9 (1)		
Other	165 (11)	202 (13)		
Living situation, No./total No. (%)				
Home without assistance	1070/1516 (71)	968/1488 (65)		
Home with assistance	255/1516 (17)	307/1488 (21)		
Nursing home	108/1516 (7)	98/1488 (7)		.01
Long-term care facility	72/1516 (5)	97/1488 (7)		
Hospital	10/1516 (1)	15/1488 (1)		
Homeless	1/1516 (0.1)	3/1488 (0.2)		
Home support, No./total No. (%)				
Living alone	704/1443 (49)	784/1415 (55)		
Spouse/partner	600/1443 (42)	437/1415 (31)		<.001
Family	139/1443 (10)	194/1415 (14)		

Triage

	Systematic strategy (N=1,518)	Standard strategy (N=1,518)	P-Value
Full ICU - no./total no. (%)	241/1,276 (19)	92/492 (19)	0.98
Physicians sought patient's opinion about ICU admission - no./total no. (%)			
Yes	470/1,518 (31)	220/1,518 (14)	<0.001
No	326/1,518 (21)	155/1,518 (10)	
Patient unable to formulate opinion	438/1,518 (29)	190/1,518 (13)	
Not documented	284/1,518 (19)	953/1,518 (63)	
Patient's opinion about ICU admission - no./total no. (%)			
Favourable	414/470 (88)	145/220 (66)	<0.001
Unfavourable	21/470 (5)	32/220 (15)	
No opinion	35/470 (7)	43/220 (20)	
Decision for admission* - no./total no.			
ICU in the same hospital	856/1,513 (57)	458/1,497 (31)	<0.001
ICU in another hospital	75/1,513 (5)	58/1,497 (4)	
Intermediate care or specialized unit	242/1,513 (16)	319/1,497 (21)	
Other ward	104/1,513 (7)	369/1,497 (25)	
Post emergency department unit	189/1,513 (12)	261/1,497 (17)	
Geriatric unit	17/1,513 (1)	24/1,497 (2)	
Emergency department	30/1,513 (2)	8/1,497 (1)	

Patients Admitted to the ICU

	Systematic strategy (N=932)	Standard strategy (N=516)	Difference in mean (95%CI)	P Value
Age - median (IQR)	84 (80-88)	84 (80-88)	0.30 (-0.2 – 0.9)	0.28
SAPS 3* - median (IQR)	65 (57-72)	62 (56-68)	3.4 (2.3-4.5)	<0.001
ICU length of stay - median (IQR)**	4 (2-7)	3 (1-6.3)	-1.1 (-3.2 - 1.1)	0.32
Hospital length of stay* - median (IQR)**	12 (4-22)	11 (5-19.8)	0.03 (-2.6 - 2.6)	0.98
Male sex - no. (%)	448 (48)	236 (46)		0.43
Mechanical ventilation - no. (%)	374/884 (42)	147/470 (31)		<0.001
Non-invasive ventilation - no. (%)	251/884 (28)	170/470 (36)		0.004
Vasopressors - no. (%)	346/884 (39)	166/469 (35)		0.20
Renal replacement therapy - no. (%)	117/884 (13)	49/469 (10)		0.16
Fluid resuscitation - no. (%)	177/835 (21)	151/469 (32)		<0.001
Number of interventions - no. (%)				
At least one****	711/873 (81)	402/470 (86)		0.07
None*****	162/873 (19)	68/470 (14)		

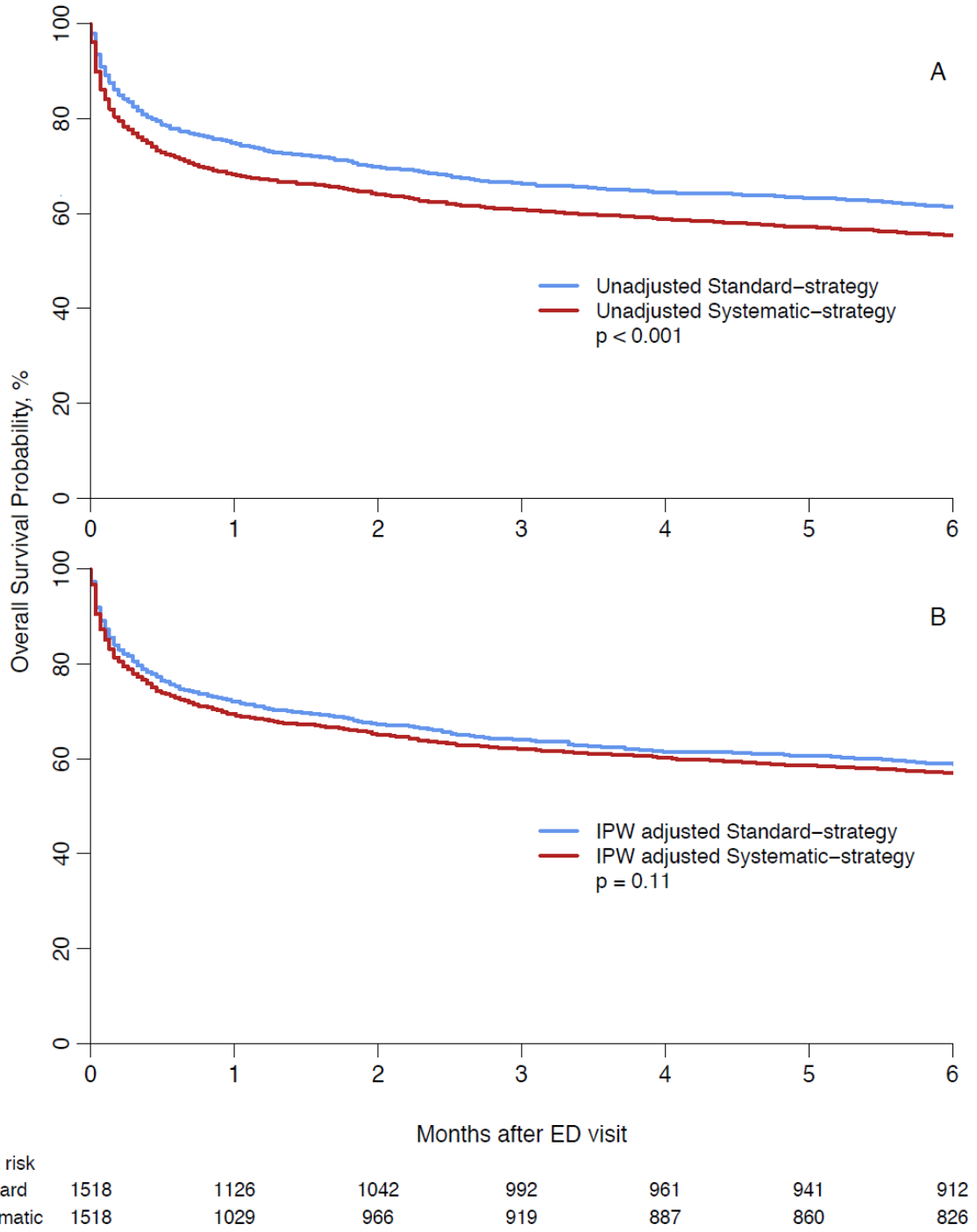
Outcomes

	Systematic strategy (N=1,518)	Standard strategy (N=1,518)	RR (95%CI)	P-value*
Death at six months - no. (%)	685 (45)	588 (39)	1.16 (1.07-1.26)	<0.001
Adjusted analysis**			1.05 (0.96-1.14)	0.28
ICU admission rate - no. (%)	932 (61)	516 (34)	1.80 (1.66-1.95)	<0.001
Adjusted analysis**			1.68 (1.54-1.82)	<0.001
In-hospital mortality - no. (%)	451 (30)	326 (21)	1.39 (1.23-1.57)	<0.001
Adjusted analysis**			1.18 (1.03-1.33)	0.03
Decrease in at least one domain of the ADL* - no./total no. (%)**	463/680 (68)	394/657 (60)	1.06 (0.99-1.13)	0.08
Adjusted analysis**			1.02 (0.99-1.05)	0.10
Mean SF-12 Physical** at 6 months (sd)**	36.7 (10.4)	36.2 (8.9)	Average Increase***** 0.95 (-0.16-2.07)	0.09
Adjusted analysis*			Average Increase***** 0.56 (-0.39-1.53)	0.24
Mean SF-12 Mental** at 6 months (sd)**	44.6 (7.3)	43.7 (7.2)	Average Increase***** 1.05 (0.21-1.90)	0.02
Adjusted analysis**			Average Increase***** 0.98 (0.15-1.81)	0.02

Survival

Unadjusted

Adjusted



A recommendation for a systematic intensive care unit admission in critically ill elderly patients led to :

- a higher intensive care unit admission rate
- had no impact on adjusted survival at 6 months.

➔These findings suggest the absence of long-term benefit of systematic intensive care unit admission in critically ill elderly patients.

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of Systematic Intensive Care Unit Triage on Long-term Mortality Among Critically Ill Elderly Patients in France
A Randomized Clinical Trial

Bertrand Guidet, MD; Guillaume Leblanc, MD; Tabassome Simon, MD, PhD; Maguy Woimant, MD; Jean-Pierre Quenot, MD; Olivier Ganansia, MD; Maxime Maignan, MD; Youri Yordanov, MD; Samuel Delerme, MD; Benoit Doumenc, MD; Muriel Fartoukh, MD; Pierre Charestan, MD; Pauline Trognon, MD; Bertrand Galichon, MD; Nicolas Javaud, MD; Anabela Patzak, MD; Maïté Garrouste-Orgeas, MD; Caroline Thomas, MD; Sylvie Azerad, PharmD; Dominique Pateron, MD; Ariane Boumendil, PhD; for the ICE-CUB 2 Study Network

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WHAT'S NEW IN INTENSIVE CARE

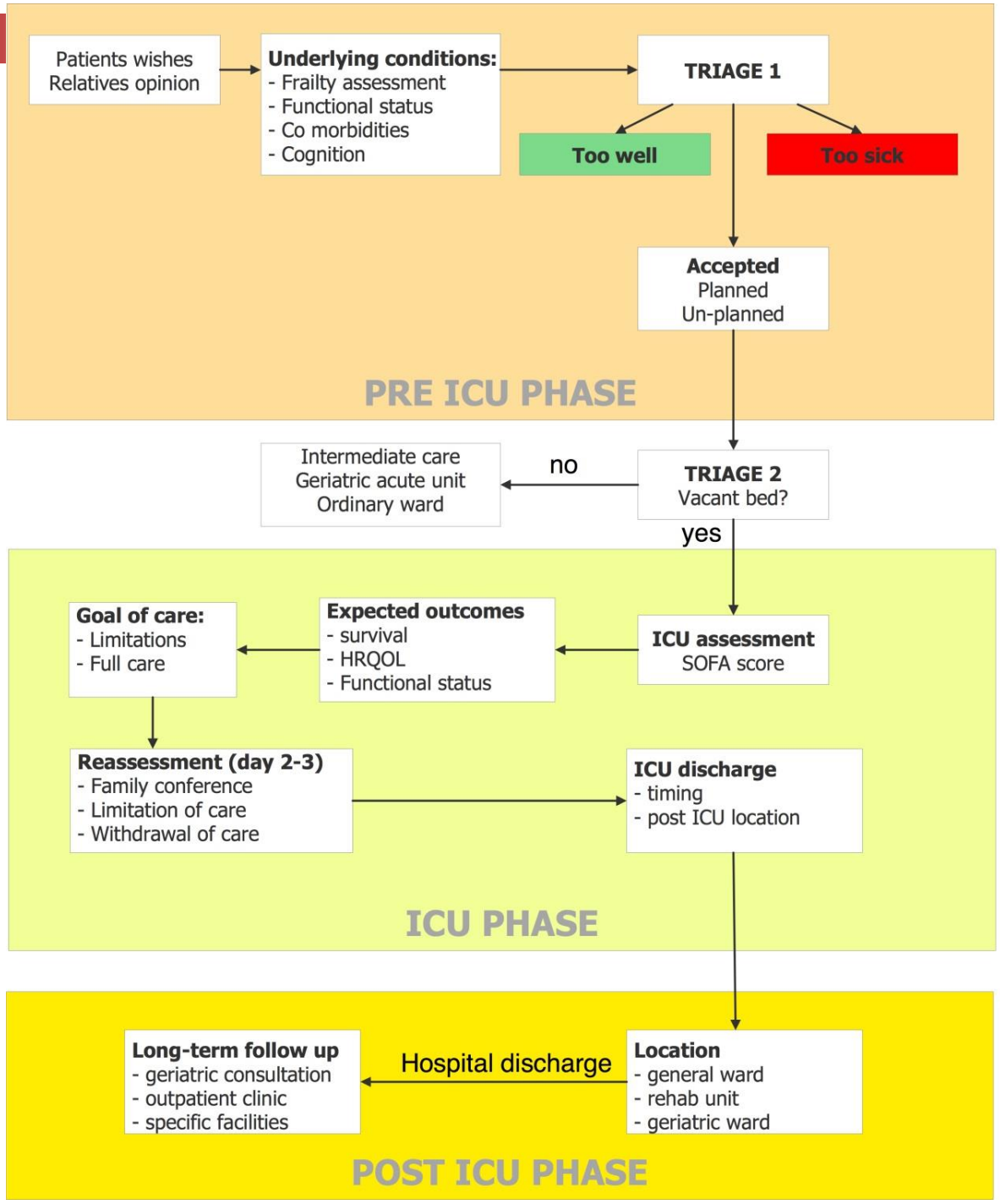
Should this elderly patient be admitted to the ICU?

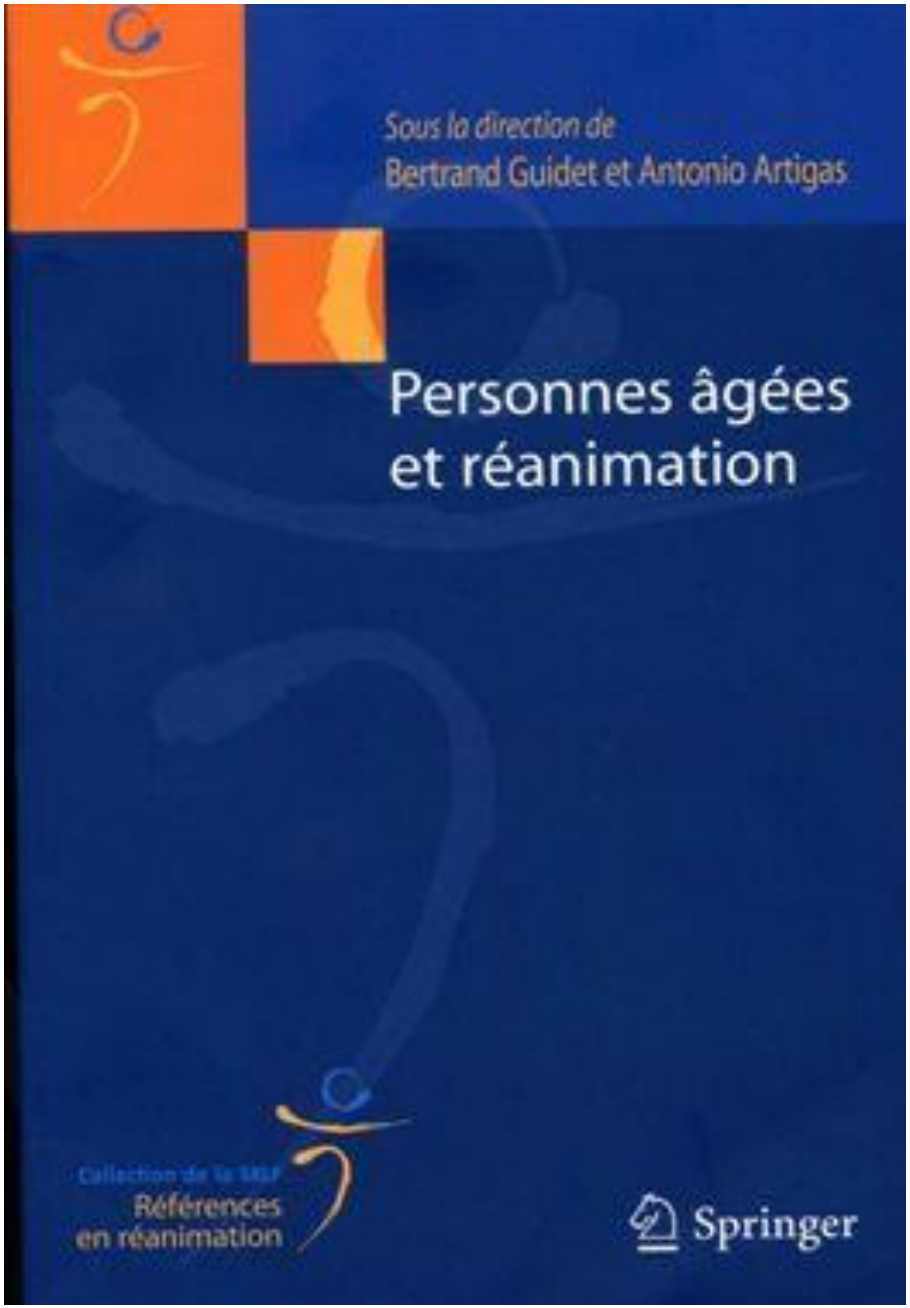
Bertrand Guidet[1,2,3*], Dylan W. de Lange[4] and Hans Flaatten[5,6]

What are the patient's and relatives' wishes?
Information to characterize a critically ill elderly patient
Comorbidities including cancer
Nutritional and functional status (ADL, IADL)
Frailty (CFS, performance status)
Cognitive and psychiatric disorders
Goal(s) of care
Probability of (long-term) survival
Probability of reaching (for the patient) an acceptable quality of life
Treatments during the ICU stay
Reassessment of the patient at days 2–3
Hospital trajectory
ICU discharge location
Hospital discharge location
Burden for the family

Conclusion

- Avis des patients et proches?
- Etat de base: plus que l'âge chronologique
  - Score de fragilité, autonomie
  - Etat nutritionnel
- Admission en réanimation pour quel type de prise en charge?
  - Support d'organe
  - ICU trial?
  - Prévention du délirium….
- Orientation à la sortie de réanimation


Patients wishes
Relatives opinion
Underlying conditions:
- Frailty assessment
- Functional status
- Co morbidities
- Cognition
TRIAGE 1
Too well
Too sick
Accepted
Planned
Un-planned
PRE ICU PHASE
Intermediate care
Geriatric acute unit
Ordinary ward
no
TRIAGE 2
Vacant bed?
yes
Goal of care:
- Limitations
- Full care
Expected outcomes
- survival
- HRQOL
- Functional status
ICU assessment
SOFA score
Reassessment (day 2-3)
- Family conference
- Limitation of care
- Withdrawal of care
ICU discharge
- timing
- post ICU location
ICU PHASE
Long-term follow up
- geriatric consultation
- outpatient clinic
- specific facilities
Hospital discharge
Location
- general ward
- rehab unit
- geriatric ward
POST ICU PHASE


Sous la direction de
Bertrand Guidet et Antonio Artigas
Personnes âgées et réanimation
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