Journal Club, 21 Aprile 2006

Fattori prognostici in SICU

Alessandro Morandi

Il trattamento di cura subintensivo è compito del geriatra o dell’intensivista?

SICU in Geriatria 2003

Model of Care

….e allora il geriatra oltre all’assessment (Bianchetti- Folgaria, 2006)…. deve acquisire specificità proprie di altre specialità, perché la criticità si è spostata dall’adulto robusto all’anziano robusto, fragile e demente.

Seminario di Natale 2005

Prepare fellow for leadership positions, with training in fundraising, media, public relations and advocacy as well as in the laboratory, the clinic and program management.

Train geriatricians to serve on the faculties and academic institutions, as medical directors of NH, assisted living and retirement communities, and home care services.

Encourage and train dual specialists who could teach part time. These physicians would have sophistication in geriatrics and expertise in another specialty. Two examples are geriatric psychiatrists and gynecologists with expertise in treating older women.

R. Butler 2005

La prima regola è la definizione del targeting dei pazienti!

“ Acute ill elderly are often medically complicated patients with premorbid cognitive impairment, disability and comorbidity that are affecting the outcome from the acute disease. Such patients are believed to get the best treatment in dedicated hospital settings, i.e. an Acute Care of the Elderly medical unit (ACE-unit). However, for the more critically ill elderly a higher and more technically advanced level of care is needed.”

A.H Ranhoff Internal and Emergency Medicine, Submitted 2006

Alla ricerca di un metodo per la definizione dei fattori prognostici

A New Conceptual Framework for ICU Performance Appraisal and Improvement

Armando J. Rotondi, Carl A. Sirio, Derek C. Angus, and Michael R. Pinsky

Journal of Critical Care, Vol 17, No 1 (March), 2002: pp 16-28

This approach to ICU performance assessment and improvement makes a distinction between performance variables and outcome variables, and emphasizes the process involved in providing care as a means for improvement.

Performance Variables

Outcomes Variables

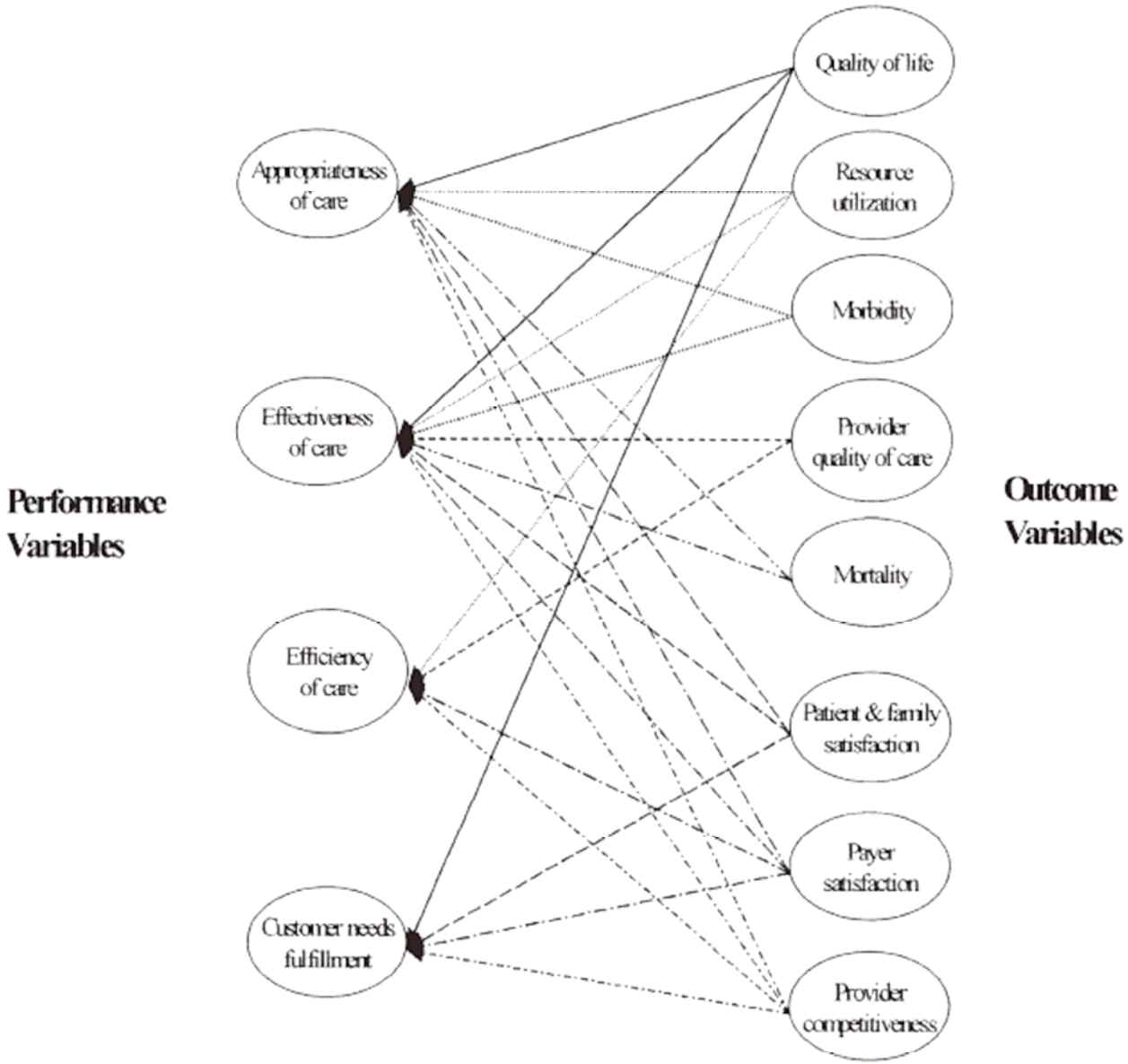
Causal determinants

Performance variables

- **Appropriateness of care**
- **Effectiveness of care**
- **Efficiency of care**
- **Customer need fulfillment**

Outcome variables

- **Quality of life**
- **Resource use**
- **Morbidity**
- **Provider quality of care measures**
- **ICU return rate**
- **ICU rescue rate**
- **Mortality**
- **Patient and family satisfaction**
- **Provider profitability and competitiveness**


Performance Variables
Appropriateness of care
Effectiveness of care
Efficiency of care
Customer needs fulfillment
Outcome Variables
Quality of life
Resource utilization
Morbidity
Provider quality of care
Mortality
Patient & family satisfaction
Payer satisfaction
Provider competitiveness

Causal determinants

To improve outcome

- **Treatment timeliness**
- **Quality of critical care physicians**
- **Quality of critical care nurses**
- **Quality of respiratory therapy**
- **Progressive care beds**
- **Number of ICU and receiving beds**
- **Termination of life decisions**
- **ICU care model**

Outcomes alone do not define performance, and outcomes assessment alone cannot adequately evaluate the performance of systems to manage critically ill patients.

Intensive Care Med (2003) 29:2137–2143
DOI 10.1007/s00134-003-1929-2

ORIGINAL

Dominique Somme
Jean-Michel Maillet
Mathilde Gisselbrecht
Ana Novara
Catherine Ract
Jean-Yves Fagon

Critically ill old and the oldest-old patients in intensive care: short- and long-term outcomes

Characteristics	75–79 years (*n*=182)	80–84 years (*n*=137)	≥85 years (*n*=91)
Age, years, *m*±SE	77.1±0.1	81.9±0.2	87.7±0.2
Men, *n* (%)	111 (61.0)*	65 (47.4)*	38 (41.8)*
Previous health status, *n* (%)			
No limitation of activity	34 (18.7)	34 (24.8)	19 (20.9)
Moderate limitation of activity	80 (44.0)	49 (35.8)	39 (42.9)
Severe limitation of activity	64 (35.2)	49 (35.8)	26 (28.6)
Bedridden or institutionalized	4 (2.2)	5 (3.6)	7 (7.7)
McCabe or Jackson score, *n* (%)			
No fatal underlying disease	104 (57.1)	80 (58.4)	47 (51.7)
Ultimately fatal underlying disease	66 (36.3)	50 (36.5)	39 (42.9)
Rapidly fatal underlying disease	12 (6.6)	7 (5.1)	5 (5.5)
APACHE II score, *m*±SE	20.5±0.7	19.8±0.8	20.5±1.0
md [range]	19 [7–57]	18 [6–57]	19 [7–57]
Organ dysfunction†, *n* (%)			
Cardiac	88 (48.4)	53 (38.7)	35 (38.5)
Respiratory	126 (69.2)	91 (66.4)	56 (61.5)
Renal	37 (20.3)	22 (16.1)	23 (25.3)
Hepatic	2 (1.1)	0	1 (1.1)
Neurologic	57 (31.3)	38 (27.7)	35 (38.5)
Hematologic	7 (3.9)	3 (2.2)	1 (1.1)
Primary diagnosis			
Heart failure	44 (24.2)	48 (35.0)	29 (31.9)
Respiratory failure	60 (33.0)	29 (21.2)	22 (24.2)
Shock	12 (6.5)	10 (7.3)	10 (11.0)
Cardiac arrest	12 (6.6)	8 (5.8)	4 (4.4)
Post-surgical period	7 (3.8)	12 (8.8)	5 (5.5)
Coma	12 (6.6)	9 (6.6)	6 (6.6)
Other neurological disorders	7 (3.8)	12 (8.8)	3 (3.3)
Infectious disease	12 (6.6)	1 (0.7)	2 (2.2)
Others	16 (8.8)	8 (5.8)	10 (11.0)

Table 2 Characteristics of ICU non-survivors and survivors

Variables	Non-survivors (n=119)	Survivors (n=291)	P value
Age group, n (%)			0.385
75–79 years	58 (31.9)	124 (68.1)	
80–84 years	34 (24.8)	103 (75.2)	
≥85 years	27 (29.7)	64 (70.3)	
Sex, n (%)			0.397
Men	66 (30.8)	148 (69.2)	
Women	53 (27.6)	143 (72.4)	
McCabe and Jackson score, n (%)			0.066
No fatal underlying disease	64 (27.7)	167 (72.3)	
Ultimately fatal underlying disease	43 (27.7)	112 (72.3)	
Rapidly fatal underlying disease	12 (50.0)	12 (50.0)	
APACHE II score, m±SE	28.6±1.0	16.9±0.4	<0.001
Median [range]	19 [7–57]	18 [6–50]	
Previous health status, n (%)			0.842
No limitation of activity	26 (29.9)	61 (70.1)	
Limitation of activity	93 (28.8)	230 (71.2)	

Table 3 Use of ICU resources

ICU resource utilization	75–79 years (*n*=182)	80–84 years (*n*=137)	≥85 years (*n*=91)	*P* value
ICU length of stay, days, *m*±SE	9.9±0.7	8.1±0.9	6.0±1.0	0.008
Median [range]	6 [1–61]	5 [1–82]	4 [1–54]	
Mean OMEGA score, *m*±SE	115.7±10.5	88.0±12.2	67.1±14.9	0.022
Median [range]	54 [9–1,017]	41 [5–1,091]	29 [5–1,011]	
Mean, OMEGA score/days, *m*±SE	12.2±0.6	10.3±0.6	10.4±0.8	0.051
Median [range]	9.7 [3.5–51.0]	7.3 [4.0–44.0]	7.3 [4.2–46.0]	
Use of mechanical ventilation, *n* (%)	98 (53.9)	58 (42.3)	28 (30.8)	0.001

Age does not markedly influence ICU mortality, which is predominantly linked to disease severity.

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
© 2005 by the American Geriatrics Society

Table 1. Matching of Oldest-Old (80) and Young-Old Patients (65–79)

Matching Criteria	Young Old (n = 3,175)	Oldest Old (n = 3,175)	*P*-value*
Female, n (%)	1,662 (52.3)	1,662 (52.3)	—
Surgical status, n (%)	207 (6.5)	207 (6.5)	—
Charlson Comorbidity Index, n (%)			—
No chronic illness	2,186 (68.9)	2,186 (68.9)	
Minor comorbidity	752 (23.7)	752 (23.7)	
Severe comorbidity	237 (7.5)	237 (7.5)	
Corrected Simplified Acute Physiology Score II‡, mean ± standard deviation (range)	23.2 ± 14 (2–135)	23.3 ± 14 (4–135)	.27

Table 2. Comparisons of Admission and Intensive Care Unit (ICU) Stay Characteristics and Outcome of Oldest-Old (80) and Matched Young-Old Patients (65–79)

Characteristic	Young Old (n = 3,175)	Oldest Old (n = 3,175)	*P*-value*
Age, mean ± SD (range)	72.4 ± 4.2 (65–79)	85.1 ± 3.8 (80–98)	< .001
Functional status (Knaus Classification), n (%):			< .001
A - No limitation	628 (22.7)	431 (15.5)	
B - Moderate limitations	1,151 (41.5)	1,206 (43.4)	
C - Strong limitations	877 (31.7)	988 (35.6)	
D - Severe limitations	115 (4.2)	153 (5.5)	
Life expectancy (McCabe Classification), n (%):			.055
1 - None or nonfatal underlying disease	1,999 (67.7)	1,913 (64.8)	
2 - Ultimately fatal disease (death ≤ 5 years)	760 (25.7)	829 (28.1)	
3 - Rapidly fatal disease (death ≤ 1 year)	195 (6.6)	209 (7.1)	
Support and ICU stay characteristics, n (%)			
Circulatory support	1,188 (37.4)	1,233 (38.8)	.19
Mechanical ventilation	1,249 (39.3)	1,064 (33.5)	< .001
Renal support	214 (6.7)	123 (3.9)	< .001
Tracheostomy	172 (5.4)	70 (2.2)	< .001
Length of ICU stay, days, mean ± SD (range)	7.7 ± 13.2 (1–220)	6 ± 12.04 (1–450)	< .001†
Daily workload (Omega per day), mean ± SD (range)	11.21 ± 6.9 (4–56)	10.6 ± 6.9 (4–64)	< .001†
Cost of ICU stay in U.S. Dollars, mean ± SD (range)	4,574 ± 8,741 (373–1,51,892)	3,292 ± 6,001 (373–1,51,814)	< .001†
ICU mortality, %	14.4	17.1	< .001
Length of post-ICU stay in days, mean ± SD (range)	11 ± 18 (0–231)	9.5 ± 13 (0–161)	.421†
Hospital mortality, %	21.8	28	< .001

Lower utilization of treatment for the oldest-old might reflect a policy for stopping active treatment.

To avoid underutilization and overutilization of ICUs for the oldest-old patients, admission policies must be better defined.

La comunicazione può essere un fattore utile a migliorare gli outcome?

Improving Communication in the ICU Using Daily Goals

Peter Pronovost, Sean Berenholtz, Todd Dorman, Pam A. Lipsett, Terri Simmonds, and Carol Haraden

Journal of Critical Care, Vol 18, No 2 (June), 2003: pp 71-75

Comunication failure lead to increased patient harm, length of stay and resource use and caregiver dissatisfaction and turnover.

Room Number ____ Date ____/____/____

____ Attending initials: —Initial as goals are reviewed—

	0700-1500	1500-2300	2300-0700
What needs to be done for the patient to be discharged from the ICU?			
What is this patient's greatest safety risk? How can we reduce that risk			
Pain mgt/sedation			
Cardiac/volume status			
Pulmonary/ventilator (PP, elevate HOB)			
Mobilization			
ID, cultures, drug levels			
GI/Nutrition			
Medication changes (can any be discontinued?)			
Tests/procedures			
Review scheduled labs; morning labs and CXR			
Consultations			
Communication with primary service			
Family communication			
Can catheters/tubes be removed?			
Is this patient receiving DVT/PUD prophylaxis?			

Mgt, management; PP, plateau pressure; HOB, head of bed; ID, infectious disease; GI, gastrointestinal; labs, laboratory tests; CXR, Chest radiograph; DVT, deep venous thrombosis; PUD, peptic ulcer disease.

Use of this daily or short-term goals sheet in ICU was associated with improved communication and a 50% reduction in ICU LOS.

La comunicazione non solo intesa come rapporto del medico con il familiare, ma anche il continuo rapporto del paziente con il familiare.

Reduced Cardiocirculatory Complications With Unrestrictive Visiting Policy in an Intensive Care Unit: Results From a Pilot, Randomized Trial

Stefano Fumagalli, Lorenzo Boncinelli, Antonella Lo Nostro, Paolo Valoti, Giorgio Baldereschi, Mauro Di Bari, Andrea Ungar, Samuele Baldasseroni, Pierangelo Geppetti, Giulio Masotti, Riccardo Pini and Niccolò Marchionni

Circulation 2006;113;946-952

Circulation

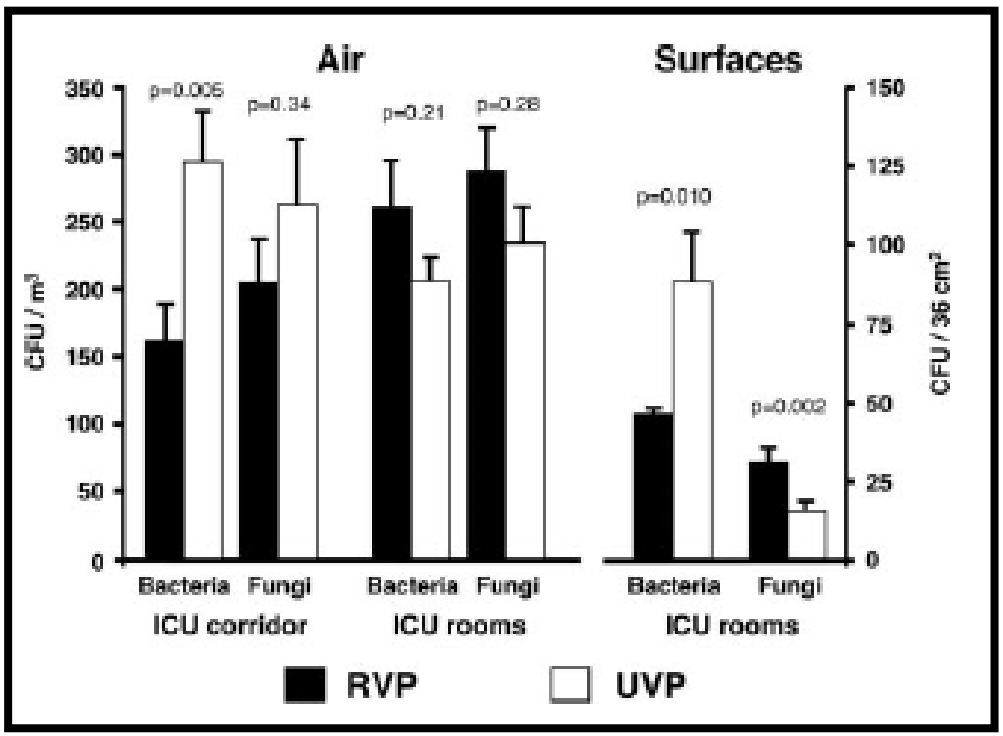
JOURNAL OF THE AMERICAN HEART ASSOCIATION

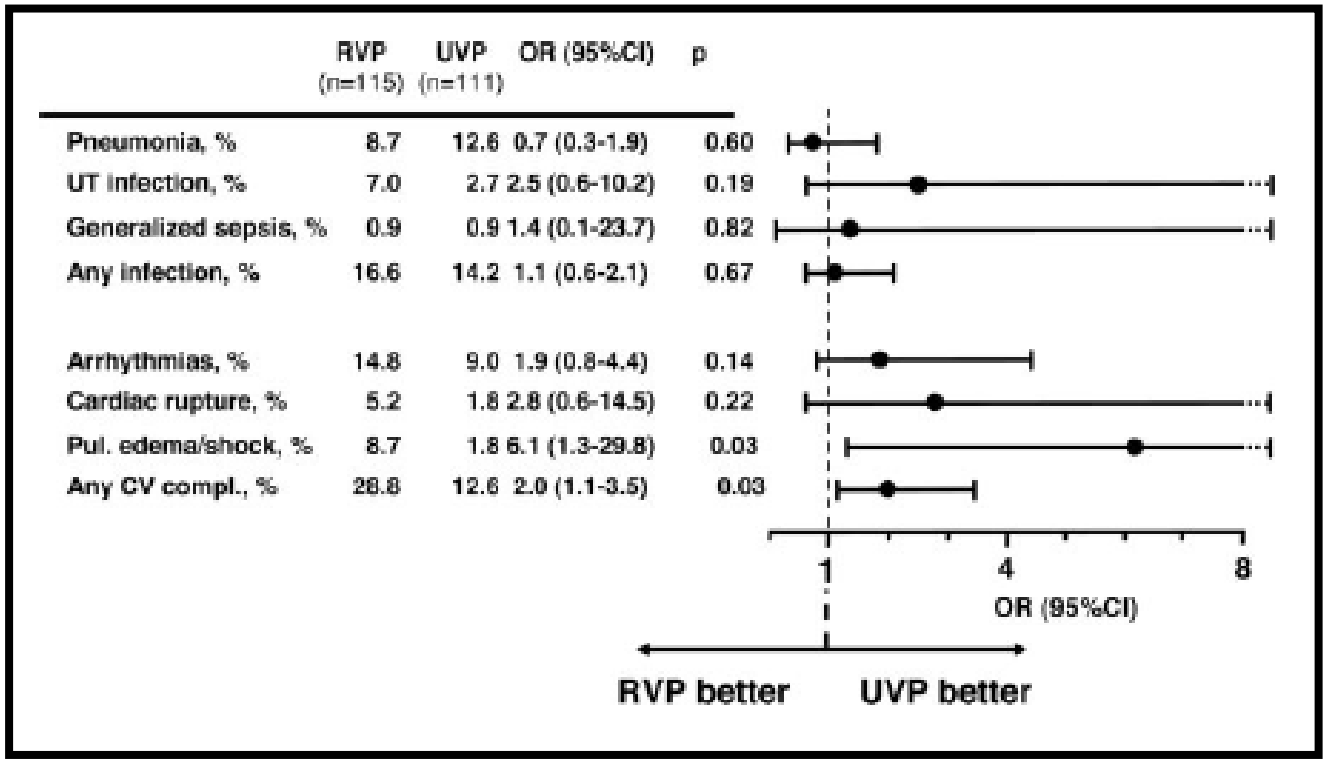
Observational study suggests that open visiting policies are preferred by most patients and visitors in ICU, but no trial has compared the safety and health outcomes of unrestrictive and restrictive visiting policies.

Demographic and Clinical Characteristics by Visiting Policy

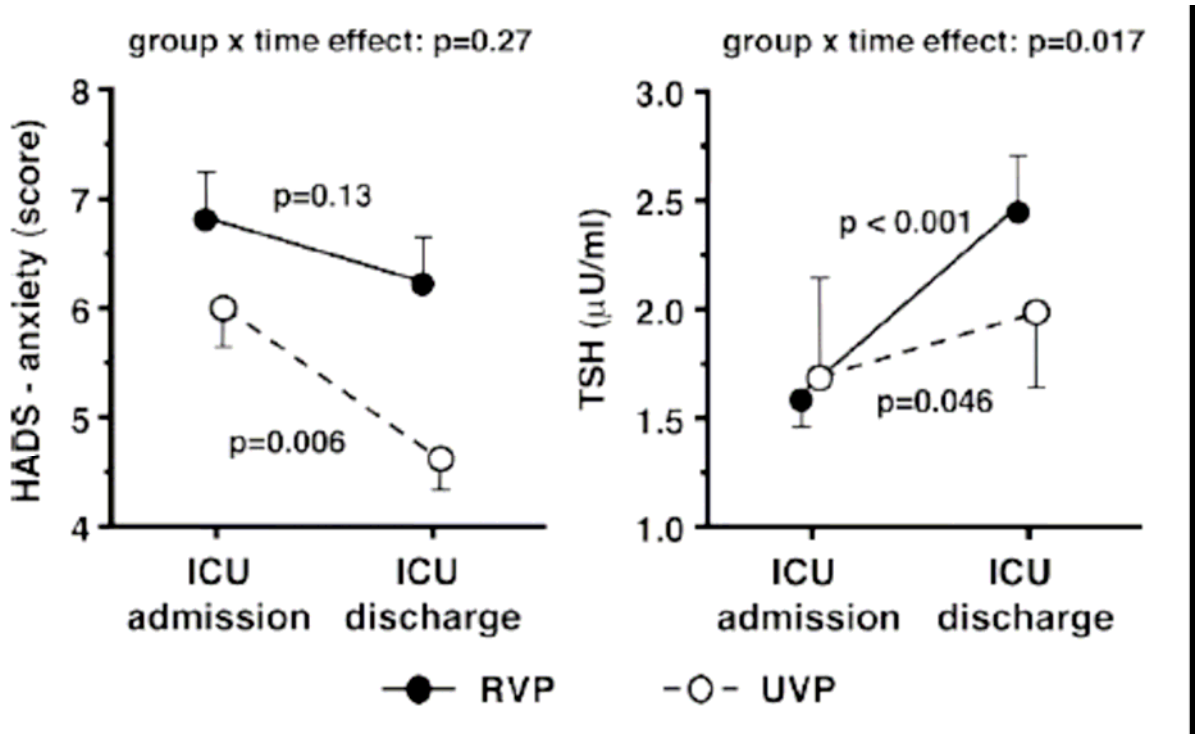
	RVP (n=115)	UVP (n=111)	*P*
Age, y	67±1	68±1	0.63
Aged ≥75 y, %	26.1	27.9	0.76
Male gender, %	69.0	74.8	0.31
Living alone, %	9.0	13.9	0.30
Marital status (married), %	66.1	66.7	1.00
Social network,* n	3.9±0.8	3.8±0.9	0.89
Formal education >8 y, %	21.7	21.3	1.00
Wine consumption >0.5 L/d, %	13.9	16.2	0.40
Body mass index, kg/m^2	25.2±0.4	25.8±0.4	0.25
Mini Mental State Examination score	26.6±0.2	26.7±0.2	0.78
Cardiovascular risk factors, %			
Current smoking	37.4	34.2	0.30
Diabetes	11.3	17.1	0.25
Dyslipidemia	14.8	21.6	0.23
Hypertension	37.4	33.3	0.58
Admission diagnosis, %			
Acute myocardial infarction	69.6	68.5	
Unstable angina	19.1	20.7	
Decompensated heart failure	4.3	4.5	0.96
Arrhythmias	2.6	3.6	
Other	4.3	2.7	
APACHE II			
Acute Physiology score	2.3±0.2	2.6±0.3	0.51
Chronic Health Evaluation score	0.2±0.1	0.1±0.1	0.36
Sensory impairments, %			
Hearing loss	0.9	1.8	0.62
Visual loss	4.3	1.8	0.45
Invasive procedures,† n	2.9±0.2	2.5±0.2	0.19

Microbal contamination of air and surfaces in the ICU during the RVP and UVP periods.





Incidence of septic and major cardiovascular complications in RVP and UVP.



Changes in anxiety score and in TSH.

Beyond being neither caring nor compassionate, restricting visiting hours might be unjustified and unnecessary for protecting the sickest patients in ICU because it does not reduce the rate of infectious complications. Liberalizing the visiting hours seems to be more protecting, because is associated with a reduction of cardiovascular complications.

Il medico “intensivista” non può e non deve prescindere dalla “compassione”, ma, ancor più, non può trascurare gli aspetti clinici.

- **Long-term mortality and prolonged admission**
- **Early enteral feeding in ventilated patients**
- **Intensive insulin treatment**
- **Delirium**

- **Long-term mortality and prolonged admission**
- **Early enteral feeding in ventilated patients**
- **Intensive insulin treatment**
- **Delirium**

Long-term Mortality Outcome Associated With Prolonged Admission to the ICU

Kevin B. Laupland, Andrew W. Kirkpatrick, John B. Kortbeek and Danny J. Zuege

Chest 2006;129;954-959

AMERICAN COLLEGE OF CHEST PHYSICIANS

Prolonged ICU admission, commonly defined by lengths of ICU stay >2 to 3 weeks, have been associated with increased risk for infectious complications and adverse outcomes.

No studies have utilized a population based methodology to define the occurrence, risk factor and long-term outcome of prolonged admission to ICU.

Table 2—*Presenting Clinical and Demographic Features Associated With Intermediate and Prolonged ICU Length of Stay**

Factors	Length of Stay: Intermediate (2 to 14 d; n = 2,514)	Length of Stay: Prolonged (≥ 14 d; n = 216)	Relative Risk (95% Confidence Interval)	p Value
CVICU admission vs other ICU	766 (30)	13 (6)	0.20 (0.12–0.34)	< 0.0001
Admitted via emergency department vs other	619 (25)	69 (32)	1.30 (1.06–1.60)	0.02
Surgical vs medical	1,441 (57)	88 (41)	0.71 (0.60–0.84)	<0.0001
Median age (IQR), yr	66.3 (51.7–75.4)	64.25 (51–74.7)		0.2
Male gender	130 (60)	1,498 (60)	1.01 (0.90–1.13)	0.9
APACHE II score	25.7 ± 8.1	27.4 ± 8.5		<0.01
Therapeutic Intervention Scoring System score	44.7 ± 18.3	42.6 ± 15.2		0.1
BSI	145 (6)	36 (17)	2.89 (2.06–4.05)	<0.0001
Shock	1,496 (59)	144 (67)	1.13 (1.02–1.25)	0.03
Systemic inflammatory response syndrome	2,271 (90)	202 (94)	1.04 (1.00–1.07)	0.14
Receiving invasively ventilation at admission	1,495 (59)	138 (64)	1.07 (0.97–1.19)	0.2

*Data are presented as No. (%) or mean ± SD unless otherwise indicated.

Table 3—*Logistic Regression Modeling of Baseline Factors Predictive of Prolonged ICU Length of Stay*

Variables	Odds Ratio	95% Confidence Interval	p Value
CVICU, vs multisystem	0.122	0.068–0.219	< 0.001
Age, per yr	0.993	0.984–1.001	0.08
APACHE II score, per point	1.035	1.016–1.055	< 0.001
Shock	1.570	1.130–2.182	0.007
BSI	1.825	1.206–2.761	0.004

Patients with prolonged critical illness have high mortality rates in the acute phase, but if they survive, their acute illness has a generally good-long term outcome.

- **Long-term mortality and prolonged admission**
- **Early enteral feeding in ventilated patients**
- **Intensive insulin treatment**
- **Delirium**

Effects of Early Enteral Feeding on the Outcome of Critically Ill Mechanically Ventilated Medical Patients*

Vasken Artinian, MD, FCCP; Hicham Krayem, MD; and Bruno DiGiovine, MD, MPH, FCCP

Chest 2006; 129:960-967

AMERICAN COLLEGE OF CHEST PHYSICIANS

Table 2—*Baseline Characteristics of the Study Population (n = 4,049)**

Characteristics	Early Feeding Group (n = 2,537)	Late Feeding Group (n = 1,512)	p Value
Mean age, yr	62.3 ± 16.7	60.1 ± 18.3	0.0001
Sex			
Male	1,370 (54.0)	1,166 (46.0)	0.8
Female	820 (54.3)	691 (45.7)	
Race			
White	2,009 (80.0)	1,138 (76.1)	0.01
African American	380 (15.1)	276 (18.5)	
Hispanic	79 (3.2)	57 (3.8)	
Other	43 (1.7)	24 (1.6)	
Admission source			
Outpatient	1,404 (55.7)	937 (62.6)	0.001
General care floor	852 (33.8)	448 (29.9)	
Another ICU	221 (8.8)	89 (6.0)	
Extended care facility	45 (1.8)	23 (1.5)	
Reason for ICU admission			
Respiratory	1,486 (58.6)	653 (43.2)	0.0001
Sepsis	184 (7.3)	133 (8.8)	
Cardiac	201 (7.9)	276 (18.3)	
CNS disorder	404 (15.9)	235 (15.5)	
Others	262 (10.3)	215 (14.2)	
Severity scores			
APACHE II	20.6 ± 7.0	21.0 ± 8.0	0.1
MPM-0	0.32 ± 0.22	0.34 ± 0.25	0.004
SAPS II	45.9 ± 14.9	47.3 ± 16.2	0.01

*Data are presented as No. (%) or mean ± SD.

Table 3—*Comparison of Clinical Outcomes in Early and Late Feeding Groups**

Characteristics	Early Feeding Group (n = 2,537)	Late Feeding Group (n = 1,512)	p Value
ICU mortality	458 (18.1)	323 (21.4)	0.01
Hospital mortality	727 (28.7)	511 (33.9)	0.001
VAP	284 (11.2)	143 (9.5)	0.06
ICU length of stay, d	10.9 ± 8.1	10.2 ± 7.7	0.01
Ventilator-free days, No.†	17.0 ± 9.0	16.8 ± 9.9	0.54

*Data are presented as No. (%) or mean ± SD.

†Ventilator-free days are the number of days (among the first 28 days after intubation) that the patient spends breathing independently of the ventilator.

Early enteral feeding reduces the mortality of critically ill medical patients receiving mechanical ventilation. In subgroup analysis, this benefit seems to be limited to the sickest group of patients.

- **Long-term mortality and prolonged admission**
- **Early enteral feeding in ventilated patients**
- **Intensive insulin treatment**
- **Delirium**

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 FEBRUARY 2, 2006 VOL. 354 NO. 5

Intensive Insulin Therapy in the Medical ICU

Greet Van den Berghe, M.D., Ph.D., Alexander Wilmer, M.D., Ph.D., Greet Hermans, M.D., Wouter Meersseman, M.D., Pieter J. Wouters, M.Sc., Ilse Milants, R.N., Eric Van Wijngaerden, M.D., Ph.D., Herman Bobbaers, M.D., Ph.D., and Roger Bouillon, M.D., Ph.D.

Intensive insulin therapy reduces morbidity and mortality in patients in surgical intensive care unit, but its role in patients in medical ICUs is unknown.

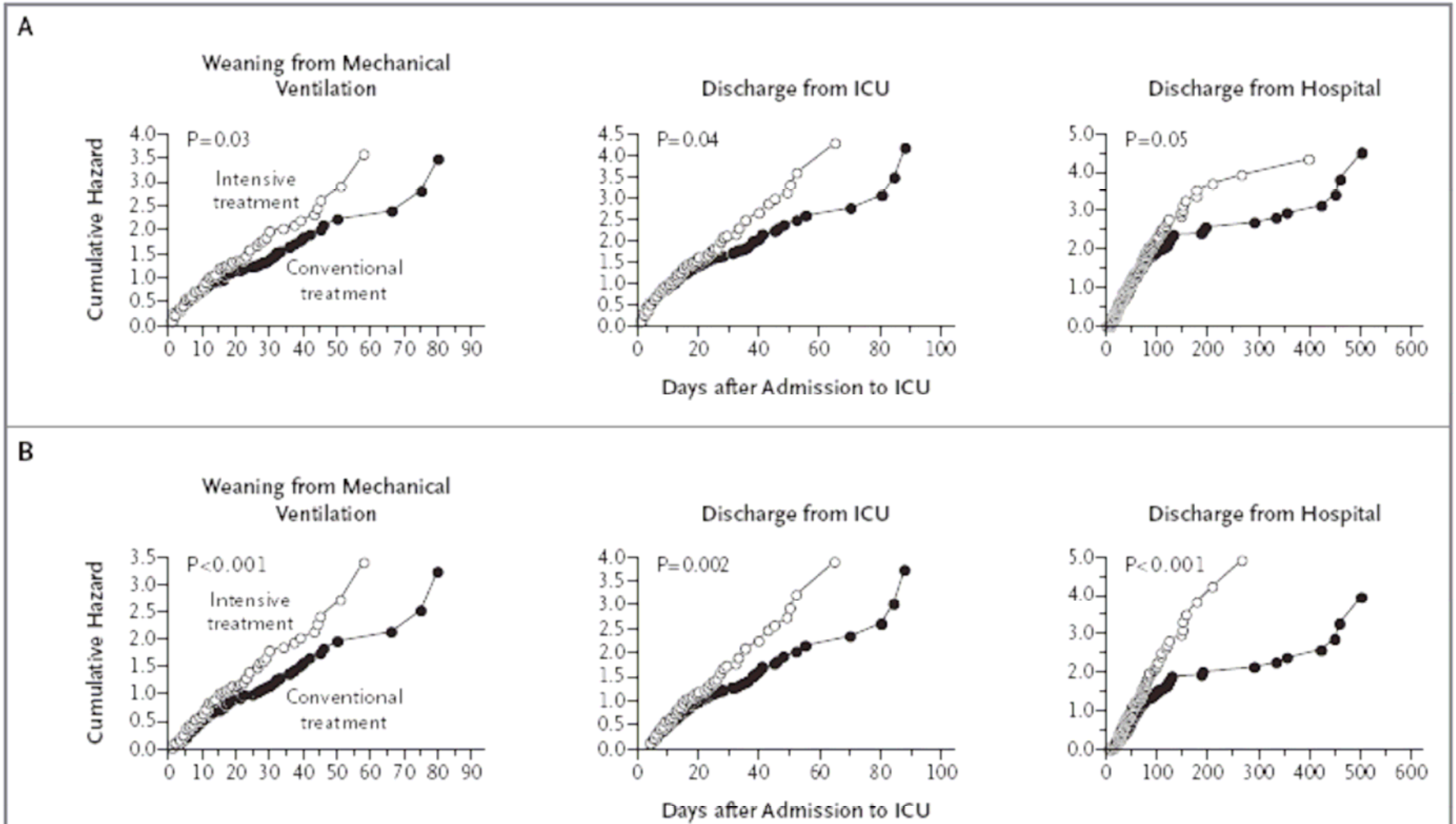


Figure 3. Effect of Intensive Insulin Therapy on Morbidity.

The effect of intensive insulin therapy on time to weaning from mechanical ventilation, time to discharge from the intensive care unit (ICU), and time to discharge from the hospital is shown for all patients (intention-to-treat analysis, Panel A) and for the subgroup of 767 patients staying in the ICU for three or more days (Panel B). P values for the comparison between the two groups were calculated by proportional-hazards regression analysis with censoring for early deaths. Circles represent patients.

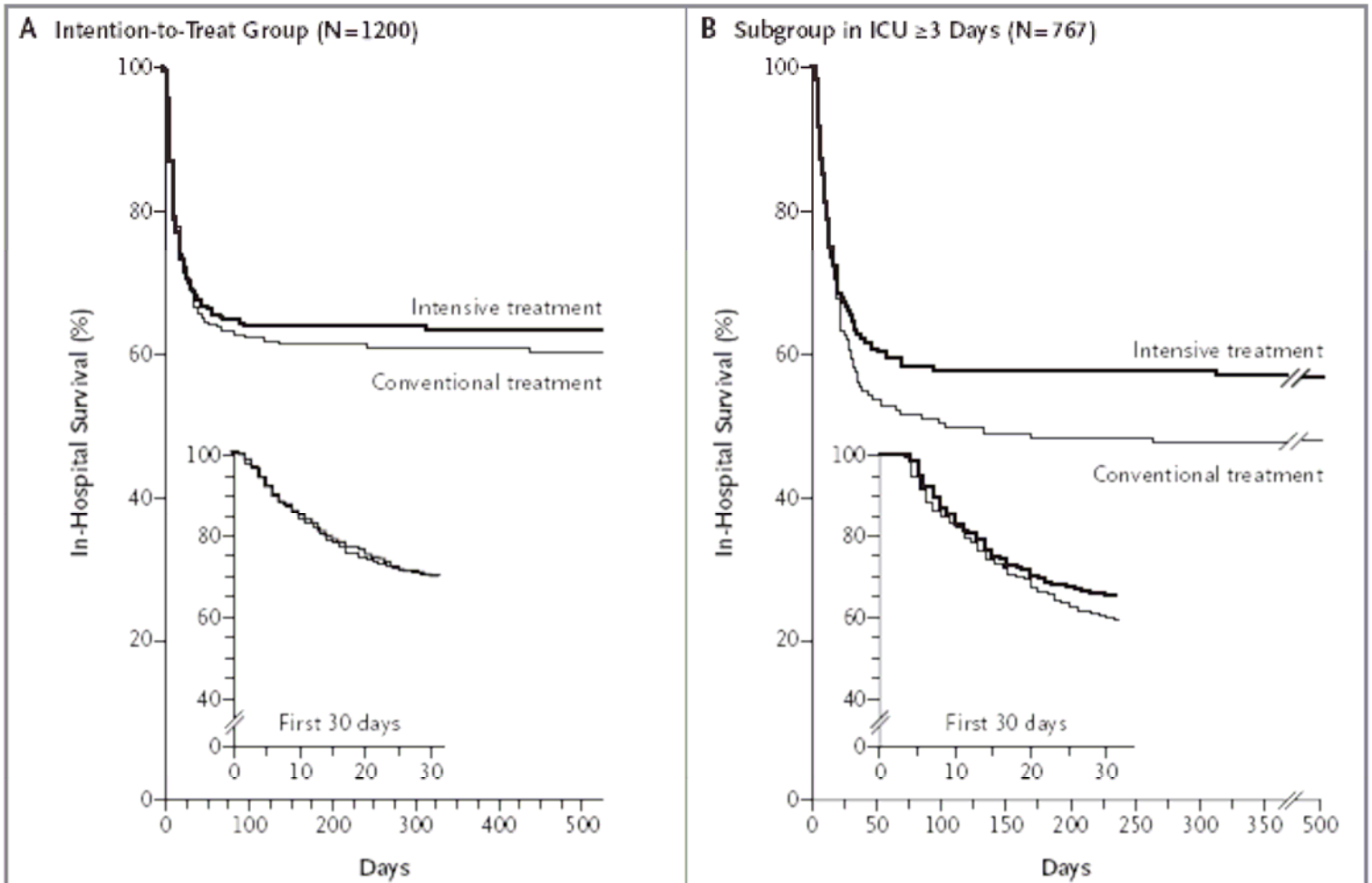


Figure 4. Kaplan–Meier Curves for In-Hospital Survival.

The effect of intensive insulin treatment on the time from admission to the intensive care unit (ICU) until death is shown for the intention-to-treat group (Panel A) and the subgroup of patients staying in the ICU for three or more days (Panel B). Patients discharged alive from the hospital were considered survivors. P values calculated by the log-rank test were 0.40 for the intention-to-treat group and 0.02 for the subgroup staying in the ICU for three or more days. P values calculated by proportional-hazards regression analysis were 0.30 and 0.02, respectively.

Thus targeting blood glucose levels to below 110 mg per deciliter with insulin therapy prevented morbidity but did not significantly reduce mortality among all patients in ICU.

However the intensive insulin therapy in patients who stayed in the ICU for at least three days was associated with reduced morbidity and mortality.

- **Long-term mortality and prolonged admission**
- **Early enteral feeding in ventilated patients**
- **Intensive insulin treatment**
- **Delirium**

Delirium in the Intensive Care Unit: Occurence and Clinical Course in Older Patients

McNicoll et al. JAGS 2003; 51:591-598

Characteristics of the study sample (N=118)

Baseline Characteristics (SD)	Value
Delirium related outcome	n/N(%)
Prevalent Delirium	37/118 (31.4)
Incident Delirium	14/45 (31.1)
Overall rates of delirium in specific time periods:	
During ICU periods	73/118 (61.8)
During post-ICU periods only	33/83 (39.8)
During entire hospitalization	83/118 (70.3)

Delirium is a frequent complication in older ICU patients and often persists beyond their ICU stay.

Dementia is an important predisposing factor during and after ICU stay.

Delirium is a predictor of mortality in elderly patients in SICU.

(N patients=213; follow-up: 45 days)

	Total Cohort	Died during study period	Survived the study period
	N=213	N=46	N=167
	mean(±SD) or n(%)	mean(±SD) or n(%)	mean(±SD) or n(%)
Age	78.8(±8.6)	79.1(±9.3)	78.5(±8.9)
Gender (female)	108(50.7)	22 (47.8)	86(51.5)
MMSE score (0-30)	20.5(±10.4)	10.5(±11.8)	22.8(±8.5)
Dementia	52(24.4)	21(45.7)	31(18.6)
Delirium	65(30.5)	30(65.2)	35(21.0)
ADL(Barthel Index: 0-100) prior hospitalization	75.8(±32.5)	60.8(±34.5)	80.0(±30.7)
ADL (Barthel Index: 0-100) at admission	35.8(±38.4)	10.3(±21.1)	41.8(±39.3)
No of IADLs lost prior hospitalization	3.0(±2.9)	4.6(±2.7)	2.6(±2.8)
Charlson Comorbidity Index	6.1(±1.9)	6.9(±1.9)	5.9(±1.9)
APACHE II score	13.2(±5.7)	18.0(±5.8)	11.9(±5.0)
APACHE II-APS score	7.9(±5.4)	12.6(±5.6)	6.7(±4.6)
S-Albumin (g/dl)	3.3(±0.9)	3.1(±0.7)	3.4(±0.5)
S-Cholesterol (mg/dl)	180.9(±40.7)	167.2(±54.8)	184.7(±47.8)
Ratio s-urea/s-creatinin	60.7(±25.7)	68.0(±26.5)	58.8(±25.2)
Number of drugs	7.0(±2.9)	8.3(±3.4)	6.6(±2.6)
Non-invasive mech.ventilation	40(18.8)	17(37.0)	23 (13.8)
Length of Stay	5.9(±4.4)	6.5(±5.3)	5.8(±4.1)

Delirium is a predictor of mortality also in elderly patients receiving non-invasive mechanical ventilation.

Characteristics of 401 elderly SICU patients. NIV 87 (21.7%)

Baseline Characteristics	M(SD)
Age	75.9 (±8.3)
MMSE score (0-30)	20.5 (±10.4)
Dementia	23 (24.4)
Delirium	31 (30.5)
Charlson Comorbidity Index	6.5 (±1.7)
APACHE II-APS score	7.9 (±5.4)
Length of Stay	7.1 (±6.9)

Factors associated with mortality (crude analysis)

	OR	95% CI
High age (80+ years)	2.8	1.0-7.9
Low s-albumin	3.8	1.1-12.4
Charlson Index>5	5.8	1.2-27.0
Number of drugs >9	3.7	1.2-11.4
Dementia	6.7	2.3-19.6
Delirium in SICU	7.8	2.6-23.5
APACHE II score	2.1	0.9-5.7
Bladder Catheter	5.4	0.8-43.7

Factors associated with mortality (adjusted analysis)

		Crude	*Adjusted**
	n/events	***RR (95% CI)***	***RR (95% CI)***
Dementia	**23/12**	**6.7 (2.3-19.6)**	**3.4 (1.0-11.3)**
Delirium	**31/15**	**7.8 (2.6-23.5)**	**4.7 (1.4-15.9)**

SICU vs ACE-unit

Sub-Intensive Care Unit for the elderly: a new model of care for critically ill frail elderly medical patients.

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Internal and Emergency Medicine, Submitted

Patients admitted to the SICU are compared with patients treated in the ordinary ACE unit before the SICU opened.

	A ACE-MU	B ACE-MU (severe)	C SICU	ACE-MU severe vs SICU
	n=1380	n=125	n=401	
Characteristics	M (SD)	M (SD)	M (SD)	*P**
Age	78.8 ±9.3	82.3 ±6.8	78.1 ±8.8	*P<.05*
Gender (female), n (%)	911 (66.0)	49 (56)	196 (49)	*NS*
Living alone, n (%)	52 (37.7)	37 (29.6)	102 (25.4)	*NS*
Vision impairment, n (%)	293 (21.2)	33 (26.4)	116 (29.0)	*NS*
Heavy alcohol use, n (%)	83 (6.0)	6 (4.8)	20 (5.0)	*NS*
No of IADLs lost two weeks prior	3.3 ±2.7	4.5 ±2.9	3.4 ±3.0	*NS*
B.Index (0-100) two weeks prior	84.9±24.6	65.6+33.9	72.8 33.0	*NS*
B.Index (0-100) at admission	75.0±28.2	36.6±35.9	28.8±35.2	*NS*
B.Index (0-100) at discharge	78.8±26.2	47.5±38.2	49.3±39.4	*NS*

Characteristics	A ACE-MU n=1380 M (SD)	B ACE-MU (severe) n=125 M (SD)	C SICU n=401 M (SD)	ACE-MU s VS SICU P*
MMSE score (0-30) at disch	22.6 ±7.2	17.0 ±10.7	19.1 ±11.0	*NS*
Charlson Index (0-33)	6.9 ±2.5	8.9 ±2.9	6.5 ±2.0	*P<.05*
APACHE II score (0-71)	6.7 ±2.8	17.9 ±5.7	14.5 ±6.0	*P<.05*
APACHE -APS (0-33)	2.1 ±2.6	8.8 ±3.6	9.0 ±5.7	*NS*
S-Albumin (g/dl)	4.0 +0.6	3.5 ±0.6	3.3 ±0.6	*NS*
S-Cholesterol (mg/dl)	205.2±51.4	175.8±49.8	174.2±49.7	*NS*
Max number of drugs (n)	4.2 ±3.2	5.0 ±2.2	7.6 ±3.2	*P<.05*

Characteristics	A ACE-MU n=1380 M (SD)	B ACE-MU (severe) n=125 M (SD)	C SICU n=401 M (SD)	ACE-MU s VS SICU *P**
Main diagnoses, n (%)				
Respiratory failure	255 (18.5)	35 (28.0)	172 (42.9)	*P<.001*
Cardiac disease	264 (19.1)	28 (22.4)	111 (27.7)	*NS*
Stroke	171 (12.4)	15 (12.0)	44 (11.0)	*NS*
Gastrointestinal bleeding	197 (14.3)	12 (9.6)	27 (6.7)	*NS*
Cancer related problems	127 (9.2)	18 (14.4)	23 (5.7)	*P<.01*
Acute renal failure	36 (2.6)	7 (5.6)	16 (4.0)	*NS*
Others	527 (38.2)	6 (4.8)	8 (1.9)	*NS*

Characteristics	A ACE-MU n=1380 M (SD)	B ACE-MU (severe) n=125 M (SD)	C SICU n=401 M (SD)	ACE-MU s VS SICU *P**
Cumulative Delirium, n (%)	95 (6.9)	27(21.6)	128(31.2)	*P<.01*
Bladder catheter, n (%)	170(12.3)	45(36.0)	228(56.9)	*P<.01*
Non-invasive MV, n (%)	---		87 (21.7)	
LOS in SICU (hours)	---		61.8+62.4	
LOS in hospital (days)	6.1 ±3.2	7.7 ±5.2	6.0 ±4.9	*NS*
Mortality in SICU, n (%)	---		31 (7.7)	
Mortality (in hospital), n (%)	50 (3.6)	24(19.2)	50 (12.5)	*P<.05*

Comparing patients of same illness severity (APACHE-APS >/=3) (n=125), patients treated in the SICU had lower in-hospital mortality than those treated in the ordinary ward (12.5% versus 19.2%).

Low hospital mortality supports the usefulness of this model.

Quali sono le caratteristiche ed i fattori prognostici dei pazienti ricoverati in SICU dal 2003 ad oggi?

Characteristics of 734 elderly SICU patients.

Basic Characteristics	Total Cohort
	N=734
	mean(±SD) or n(%)
Age	78.78 (±8.6)
MMSE score (0-30)	20.24(±9.9)
GDS	3.56(±3.1)
Charlson Comorbidity Index	2.39(±1.9)
Number of drugs	8.13(±3.2)
IADL	3.72(±2.9)
PREBADL	71.40(±31.6)
BADL	26.85(±33.1)
POSTBADL	49.23(±38.1)
APACHE II score	14.95(±5.7)
APACHE II-APS score	9.23(±5.7)
S-Albumin (g/dl)	3.28(±0.64)
S-Cholesterol (mg/dl)	169.63(±49.9)
Ratio s-urea/s-creatinin	58.89(±24.9)
Tot H	70.41(± 65.2)
LOS	6.4 (± 4.9)

Characteristics of 734 elderly SICU patients.

Basic Characteristics	Percentage
Sex (male)	49.9%
Sex (female)	50.1%
No/moderate alcool	95%
Dementia	51.8%
NIMV	27%
Incident Delirium	13.5%
Prevalent Delirium	15.9%

Diagnosis of 734 elderly SICU patients.

Diagnosis	Percent
HF-CHD	29.9%
Respiratory	45.2%
GE	5.7%
CNS	9.7%
Neoplasm	4.5%
GU	3%
Osteo	1%

Characteristics of elderly SICU patients stratified for frailty.

Characteristics:	Percentage
Robust	29.1%
Disabled	18.9%
Disabled and demented	52%

Characteristics of elderly SICU patients (frailty model).

	Età	MMSE	GDS	CHARLSON	FARMACI	IADL
Robust	73.91±7.2	27.30±2.8	2.52±2.8	1.77±1.6	7.23±3.2	0.65±1.2
Disabled	80.22±8.9	25.91±2.8	3.32±2.3	2.22±1.8	9.10±3.2	3.89±2.7
Disabled and demented	81.08±8.5	15.91±10.3	4.47±3.2	2.80±1.9	8.28±3.1	5.38±2.2
Total	78.85±8.5	20.24±9.8	3.56±3.1	2.39±1.9	81.31±3.2	3.72±2.9

Characteristics of elderly SICU patients (frailty model).

	BADL 15 DAYS BEFORE	BADL ADMISSION	BADL DISCHARGE	S-ALBUMINA	COLESTEROLO
Robust	99.48±1.5	52.83±36.6	79.90±31.8	3.54±0.56	176.34±47.4
Disabled	57.63±31.9	20.36±26.2	34.56±37.1	3.21±0.59	159.55±52.1
Disabled and demented	60.67±30.4	14.72±23.9	37.52±31.1	3.15±0.58	169.36±50.1
Total	71.40±31.6	2.85±33.1	49.23±37.9	3.27±0.60	169.55±49.9

Characteristics of elderly SICU patients (frailty model).

	APACHE-II score	APACHE-II APS score	TOT hours	LOS
Robust	12.27±4.8	6.99±4.4	56.69±41.3	5.80±3.3
Disabled	16.63±6.1	10.70±5.9	81.13±78.1	7.31±7.5
Disabled and demented	15.87±5.7	9.97±5.8	73.92±69.9	6.52±4.4
Total	14.96±5.8	9.24±5.7	70.39±65.3	6.46±4.3

Quali sono i fattori che si associano alla mortalità in SICU?

Factors associated with mortality (crude analysis).

	p
Age	.007
MMSE score (0-30)	.000
GDS	.162
Charlson Comorbidity Index	.000
Number of drugs	.000
IADL	.000
PREBADL	.000
BADL	.000
POSTBADL	.000
APACHE II score	.000
APACHE II-APS score	.000
S-Albumin (g/dl)	.000
S-Cholesterol (mg/dl)	.007
Ratio s-urea/s-creatinin	.000
LOS	.000

Factors associated with mortality (crude analysis).

Diagnosis	OR	95% CI
Respiratory	2.27	1.23-3.9
GE	0.85	0.24-3.1
CNS	2.27	1.03-4.9
Neoplasm	1.99	0.68-5.8
Osteo	0.02	0.00-99.03
GU	0.53	0.07-4.2

In analisi multivariata

APACHE II score

APACHE-II APS score

Sono fattori predittivi di mortalità.

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ORIGINAL

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Critically ill old and the oldest-old patients in intensive care: short- and long-term outcomes

Age does not markedly influence ICU mortality, which is predominantly linked to disease severity.

“Quando si va verso un obiettivo, è molto importante prestare attenzione al Cammino. E’ il Cammino che ci insegna sempre la maniera migliore per arrivare, e ci arricchisce mentre lo percorriamo”

P. Coelho, Il Cammino di Santiago