BaltAnestIC 2023

I see you patients with BLOOD CANCER

Šarūnas Judickas

Vilnius university

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3rd Intensive Care Unit

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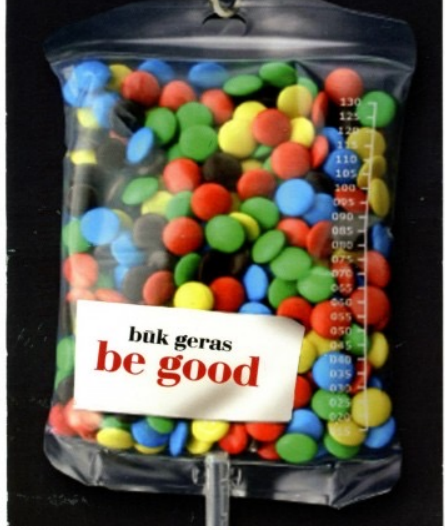
Conflict of interest

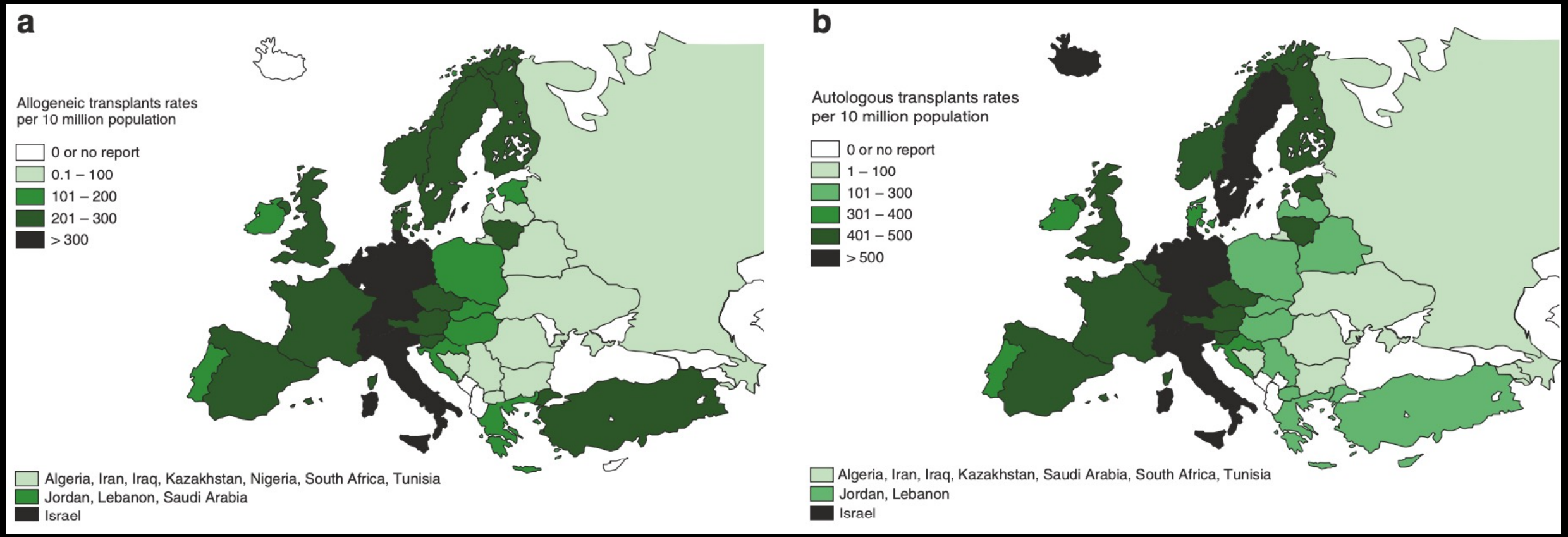
Hematology (almost 2 years)

Bone Marrow Donation Campaign “Be good” coordinator

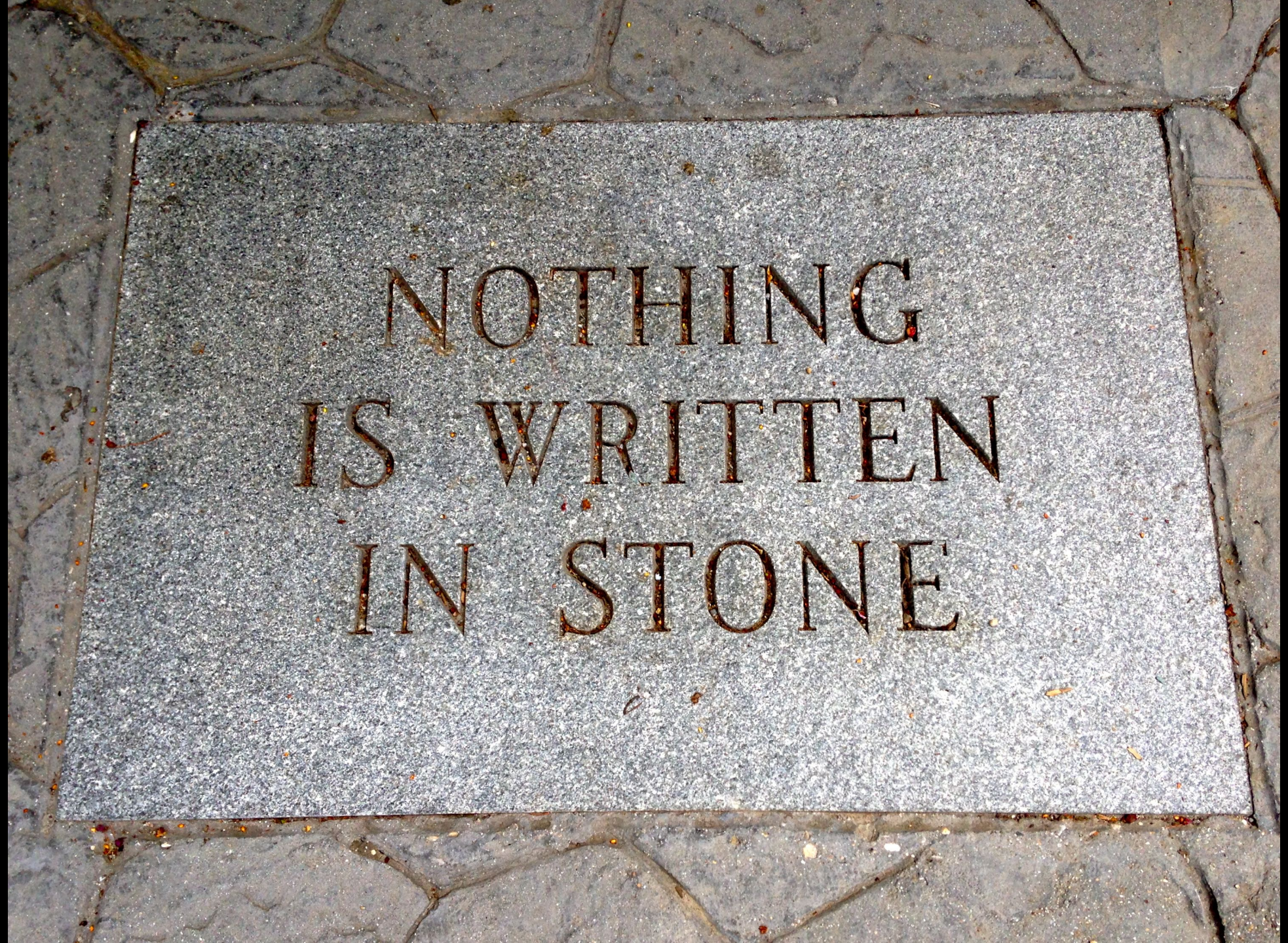
Bone marrow curier



Vilnius university Hospital Santaros klinikos

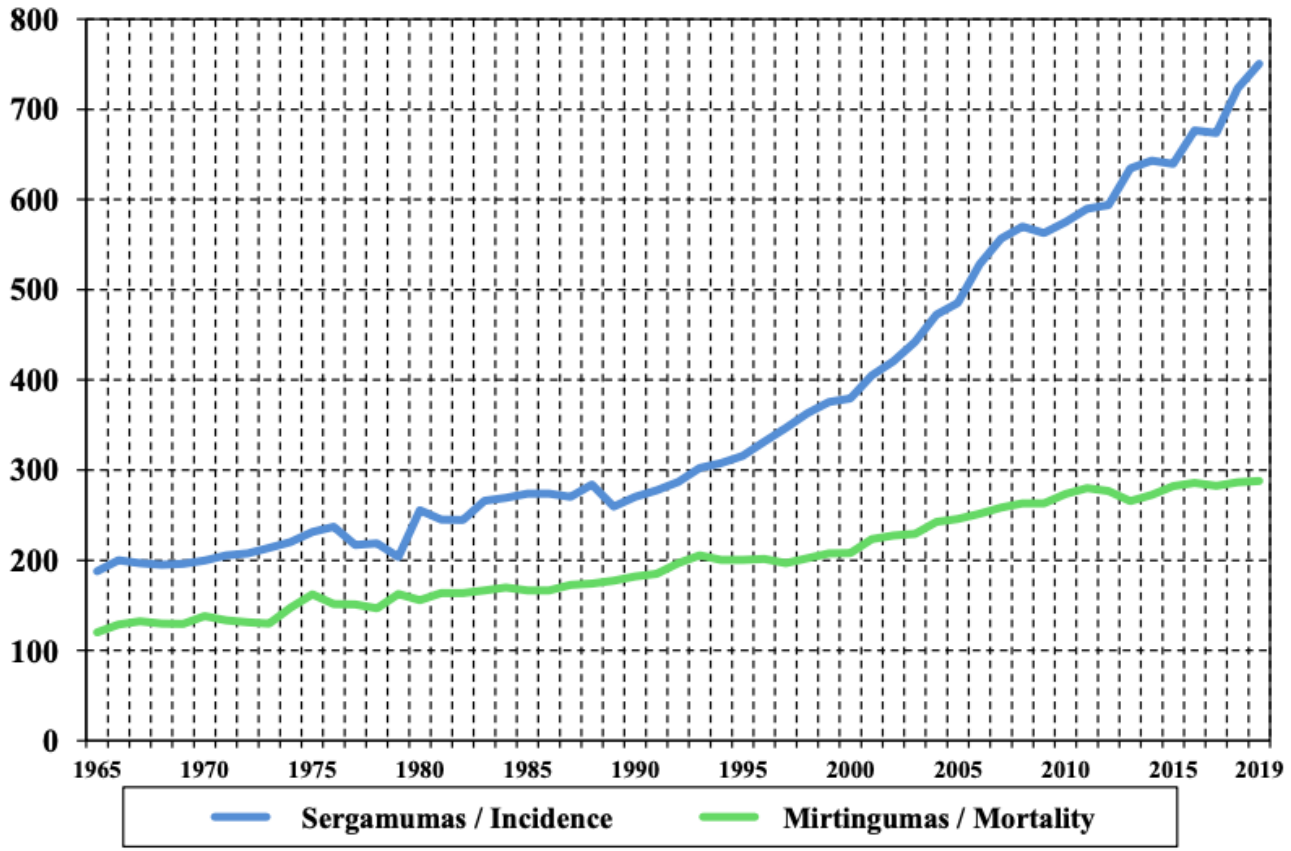


Passweg, J.R.; Baldomero, H.; Chabannon, C.; Basak, G.W.; Corbacioglu, S.; Duarte, R.; Dolstra, H.; Lankester, A.C.; Mohty, M.; Montoto, S.; et al. The EBMT activity survey on hematopoietic-cell transplantation and cellular therapy 2018: CAR-T's come into focus. *Bone Marrow Transplant.* **2020**, *55*, 1604–1613, doi:10.1038/s41409-020-0826-4.


NOTHING
IS WRITTEN
IN STONE

1. We will meet patients with blood cancer

Incidence and Mortality from Malignant Neoplasms per 100 000 population



[1] 2013-2015 m. rodikliai apskaičiuoti pagal 8 apskričių duomenis.

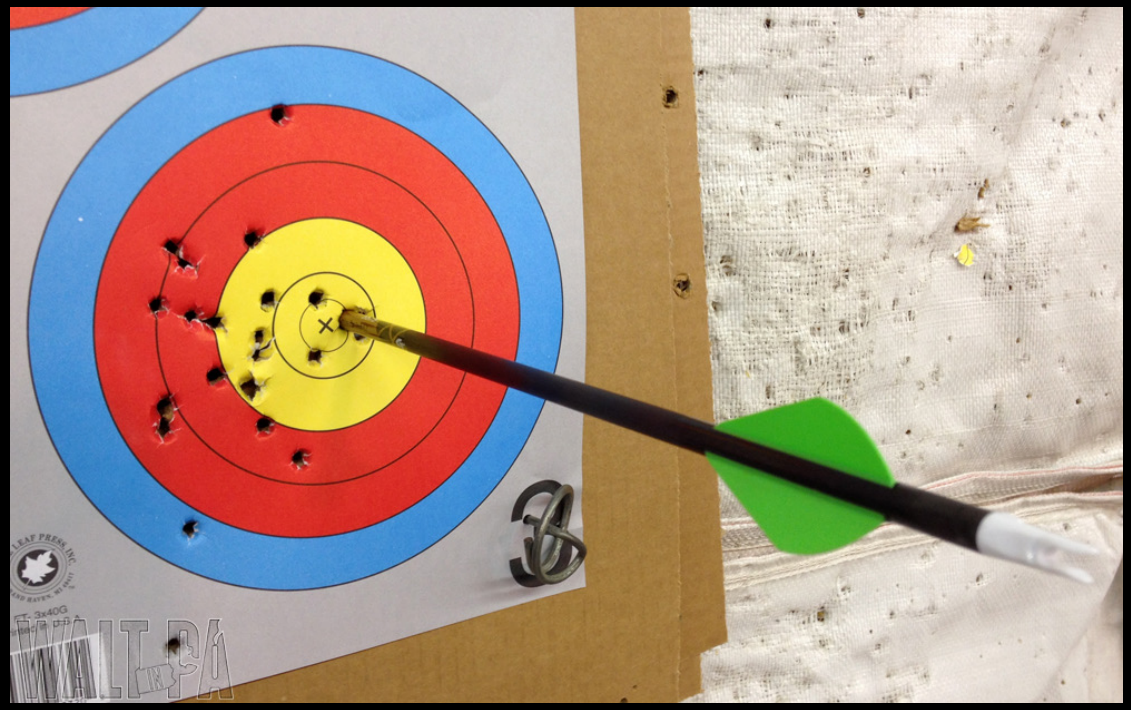
[2] Sergamumas – Privalomojo sveikatos draudimo informacinės sistemos duomenys (atliktas 2 metų atgal patikrinimas dėl naujo atvejo); mirtingumas – Mirties priežasčių registro duomenys.

Lithuanian Ministry of Health Health Information Centre of Institute of Hygiene. Health Statistics of Lithuania 2019. Available online: https://www.hi.lt/uploads/pdf/leidiniai/Statistikos/LT_sveik_stat_health/la_2019.pdf

Check for updates

Clinical Cancer Advances 2020: Annual Report on Progress Against Cancer From the American Society of Clinical Oncology

Merry Jennifer Markham, MD[1]; Kerri Wachter, BS[2]; Neeraj Agarwal, MD[3]; Monica M. Bertagnolli, MD[4]; Susan Marina Chang, MD[5]; William Dale, MD, PhD[6]; Catherine S. M. Diefenbach, MD[7]; Carlos Rodriguez-Galindo, MD[8]; Daniel J. George, MD[9]; Timothy D. Gilligan, MD[10]; R. Donald Harvey, PharmD[11]; Melissa L. Johnson, MD[12]; Randall J. Kimple, MD, PhD[13]; Miriam A. Knoll, MD, DABR[14]; Noelle LoConte, MD[13]; Robert G. Maki, MD, PhD[15]; Jane Lowe Meisel, MD[11]; Jeffrey A. Meyerhardt, MD, MPH[16]; Nathan A. Pennell, MD, PhD[10]; Gabrielle B. Rocque, MD, MSPH[17]; Michael S. Sabel, MD[18]; Richard L. Schilsky, MD[2]; Bryan James Schneider, MD[18]; William D. Tap, MD[19]; Robert G. Uzzo, MD, MBA[20]; and Shannon Neville Westin, MD[21]



Due in large part to the nation's investment in cancer research, we have seen tremendous progress over the past few decades:

- 27% decline in cancer death rates (since peak in 1991)[1]
- 2.6 million+ cancer deaths have been averted in the United States in the past two decades[2]
- 150+ new cancer drugs or indications approved by the US Food and Drug Administration (FDA) since 2006[3]
- 2 out of 3 people with cancer now live at least 5 years after diagnosis[4]

Oncologic Emergencies: Immune-Based Cancer Therapies and Complications

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DOI: 10.5811/westjem.2020.1.45898

Cancer therapies have undergone several recent advancements. Current cancer treatments include immune-based therapies comprised of checkpoint inhibitors, and adoptive immunotherapy; each treatment has the potential for complications that differ from chemotherapy and radiation. This review evaluates immune-based therapies and their complications for emergency clinicians. Therapy complications include immune-related adverse events (irAE), cytokine release syndrome (CRS), autoimmune toxicity, and chimeric antigen receptor (CAR) T-cell-related encephalopathy syndrome (CRES). Immune-related adverse events are most commonly encountered with checkpoint inhibitors and include dermatologic complications, pneumonitis, colitis/diarrhea, hepatitis, and endocrinopathies. Less common irAEs include nephritis, myocardial injury, neurologic toxicity, ocular diseases, and musculoskeletal complications. CRS and CRES are more commonly associated with CAR T-cell therapy. CRS commonly presents with flu-like illness and symptoms resembling sepsis, but severe myocardial and pulmonary disease may occur. Critically ill patients require resuscitation, broad-spectrum antibiotics, and hematology/oncology consultation. [West J Emerg Med. 2020;21(3)566-580.]

Vilniaus universiteto ligoninė
SANTAROS KLINIKOS

EN

Santaros klinikose perversmą medicinoje sukelianti naujovė: genetiškai pakeistos imuninės ląstelės kovoja su vėžiu

Titulinis / Naujienos

Atgal

Rugsėjo 20, 2022

Delfi Delfi Plius RU Naujienos Video Verslas Sportas Veidai Laisvalaikis Projek

Santaros klinikose – perversmą medicinoje sukelianti naujovė: tai padeda veiksmingai kovoti su vėžiu

Santaros žinios

792

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CAR T

FOTO: SANTAROS KLINIKOS

Vilniaus universiteto ligoninėje Santaros klinikose –

CRITICAL CARE PERSPECTIVE

Critical Care Management of Chimeric Antigen Receptor T Cell–related Toxicity

Be Aware and Prepared

Elie Azoulay[1,2], Alexander Shimabukuro-Vornhagen[3,4], Michael Darmon[1], and Michael von Bergwelt-Baildon[4,5]

[1]Médecine Intensive et Réanimation, Assistan
University, Paris, France; [2]Groupe de Recherc
Care Program Department I of Internal Medici
and Oncologic Patients, Munich, Germany; and

The Effect of CART Therapy on ICUs

The effect that more widespread use of CART-based therapies will have on critical care medicine has received little attention to date. However, intensive care plays an important role in the management of patients receiving CART therapies, as 15–47% of the patients in the pivotal clinical trials required ICU admission (14). Fortunately, patients who experience life-threating complications related to CARTs have a good prognosis if they receive prompt and appropriate intensive care treatment (14). In a recent study in pediatric patients with acute lymphoblastic leukemia, 35 of 75 patients were admitted to the ICU for the management of severe CRS (15). Of these patients, 25% required high-dose vasopressors, 13% received mechanical ventilation, and 9% required renal replacement therapy. Similar findings have been reported in adults (14).

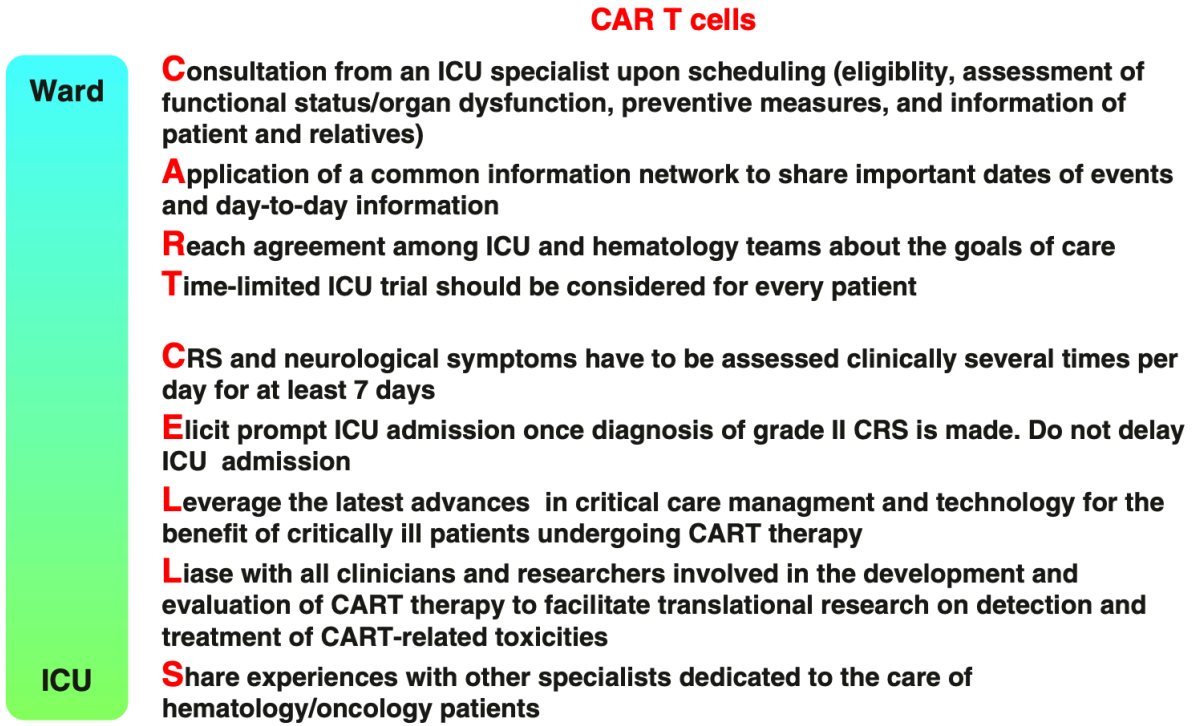


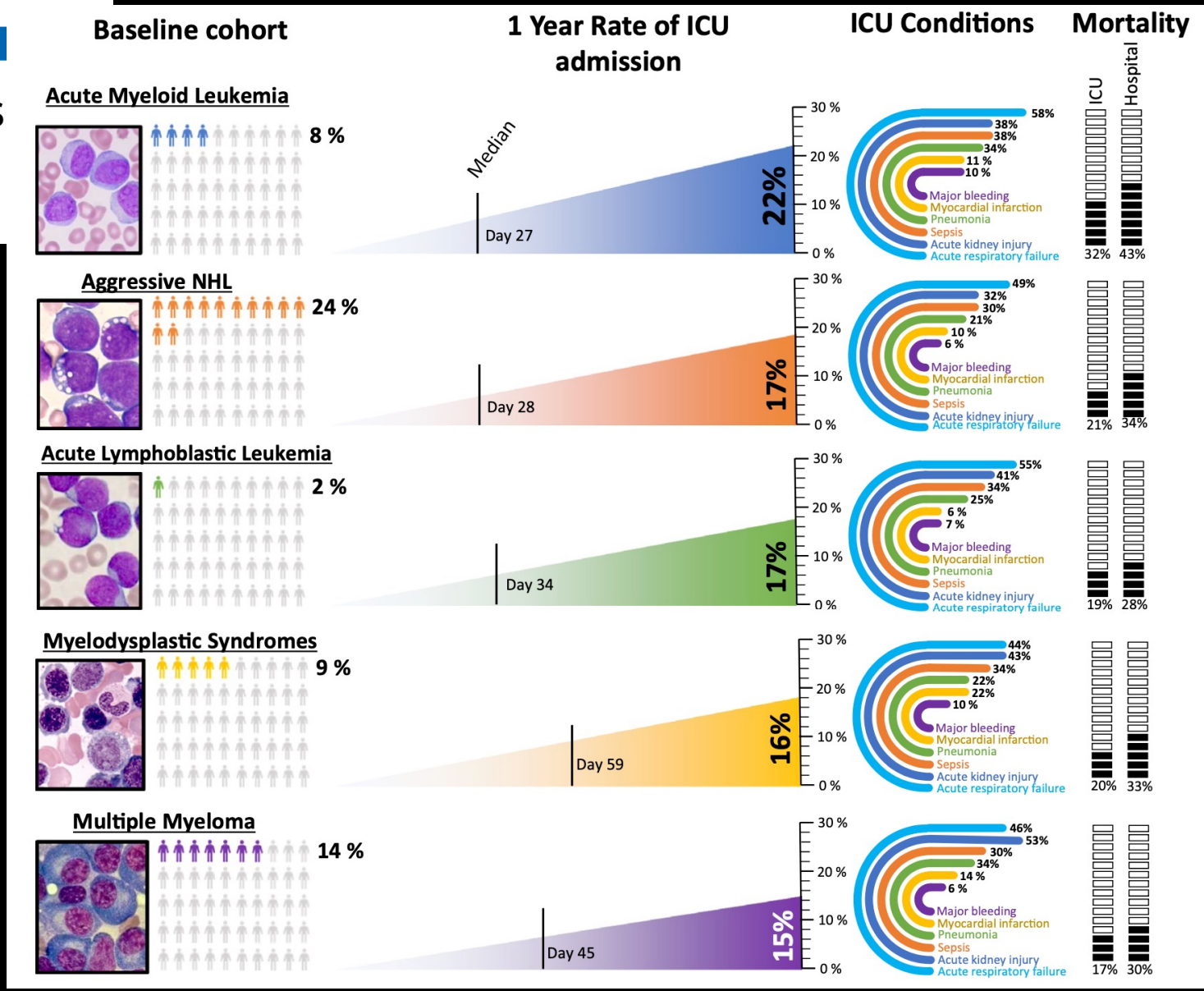
Figure 1. A critical care view of CAR (chimeric antigen receptor) T-cell therapy. CART = chimeric antigen receptor T cell; CRS = cytokine release syndrome.

Intensive Care Med (2021) 47:1140–1143
https://doi.org/10.1007/s00134-021-06521-z

EDITORIAL

Preempting critical care services for patients with hematological malignancies

Élie Azoulay[1*], Marcio Soares[3] and Étienne Lengliné[2]



Med Klin Intensivmed Notfmed https://doi.org/10.1007/s00063-019-0594-3

M. Kochanek · A. Shimabukuro-Vornhagen · K. Rüß · G. Beutel · C. Lueck · M. Kiehl · R. Schneider · F. Kroschinsky · T. Liebregts · S. Kluge · P. Schellongowski · M. von Bergwelt-Baildon · B. Böll

Prevalence of cancer patients in German intensive care units

Abstract

Introduction. Cancer is one of the leading causes of death worldwide. Due to increasing comorbidities, age and aggressive chemotherapy, care of cancer patients in intensive care units (ICUs) is more and more necessary. So far, little is known about the care structure of cancer patients in German ICUs. The aim of this work is to collect and evaluate the prevalence and care data of cancer patients on two reference dates.

Methods. German ICUs were invited to participate in a 2-day, prospective, multicenter point prevalence study in ICU cancer patients. Participation in the study was voluntary and the study was not funded. An ethics vote was obtained to conduct the study. The data were anonymously entered into an eCRF (electronic case report form) by the participating centers. Identification of the patients is therefore not possible.

Results. About one in four patients on the ICU/IMC ward had hematological–oncological (HO) disease ($n = 316/1319$, 24%). The proportion depended significantly on the number of beds in each hospital. The most frequent reasons for admission to the ICU/IMC station were postoperative monitoring ($n = 83/221$, 37.6%), respiratory instability ($n = 79/221$, 35.7%), circulatory instability ($n = 52/221$; 23.5%) and the severe infection with sepsis ($n = 47/221$; 21.3%). all, 66.5% ($n = 147/221$) of the patients ha a solid tumor and 21.7% ($n = 48/221$) had hematological cancer, 78.3% ($n = 173/221$ of the documented cancer patients receiv "full-code" intensive management, while 42.5% ($n = 94/221$) of the HO patients we ventilated and 40.7% ($n = 90/221$) require catecholamines. The median (mean; IQR) SAPS II score was 35 (37.79, IQR = 24–48) the median (mean, IQR) TISS score was 10 (13.26, IQR = 10–15).

Summary. Through the analysis and evaluation of the data available in the context of the prevalence study, it was possible for the first time to determine the Germany-wide cross-center prevalence and care situation of hematological cancer patients in intensive care and intermediate care stations. About one in four patients on German ICUs and IMC

1 in 4 patients in ICU have cancer

Tab. 6 Prävalenz nach Abhängigkeit der Bettenanzahl des Krankenhauses

n	ICU	IMC-Station	Summe	ICU HO	IMC-Station HO	Summe HO-Patienten	Gesamt (%)
>1000 Betten	557	217	774	163	71	234	*ICU: 29,3*
							IMC: 32,7
							Gesamt: 30,2
< 1000 Betten	408	137	545	61	21	82	*ICU: 15*
							IMC: 15,3
							Gesamt: 15
Gesamt	965	354	1319	224	92	316	*ICU: 23,2*
							IMC: 26
							Gesamt: 24

2. ZERO cells does not mean ZERO chances

Everything that *Should* Be Done—Not Everything that *Can* Be Done

1992

In this month's issue of THE REVIEW we see the problem with this suggestion. Crawford and Petersen (17) have provided us with very clear data about the chances of survival once mechanical ventilation becomes necessary after bone marrow transplantation. Of 348 patients, only 15 (4%) were discharged from the hospital, and only 10 (3%) were alive 6 months after hospitalization. This study

around the main result. The investigators calculate that the chance of surviving for 6 months after requiring mechanical ventilation after bone marrow transplantation is between 2 and 6%. Indeed, *no* sur-

seems useless and pointless. I am truly delighted for the three out of 100 patients who beat the odds and live for at least 6 more months—*but what about the other 97?* Clearly, there is an important

Intensive Care Med (2019) 45:977–987
https://doi.org/10.1007/s00134-019-05653-7

SYSTEMATIC REVIEW

Changes in critically ill cancer patients' short-term outcome over the last decades: results of systematic review with meta-analysis on individual data

Michaël Darmon[1,2,3*], Aurélie Bourmaud[2,4,5], Quentin Georges[6], Marcio Soares[7], Kyeongman Jeon[8], Sandra Oeyen[9], Chin Kook Rhee[10], Pascale Gruber[11], Marlies Ostermann[12], Quentin A. Hill[13], Pieter Depuydt[9], Christelle Ferra[14], Anne-Claire Toffart[15], Peter Schellongowski[16], Alice Müller[17], Virginie Lemiale[1], Djamel Mokart[18] and Elie Azoulay[1,2,3]

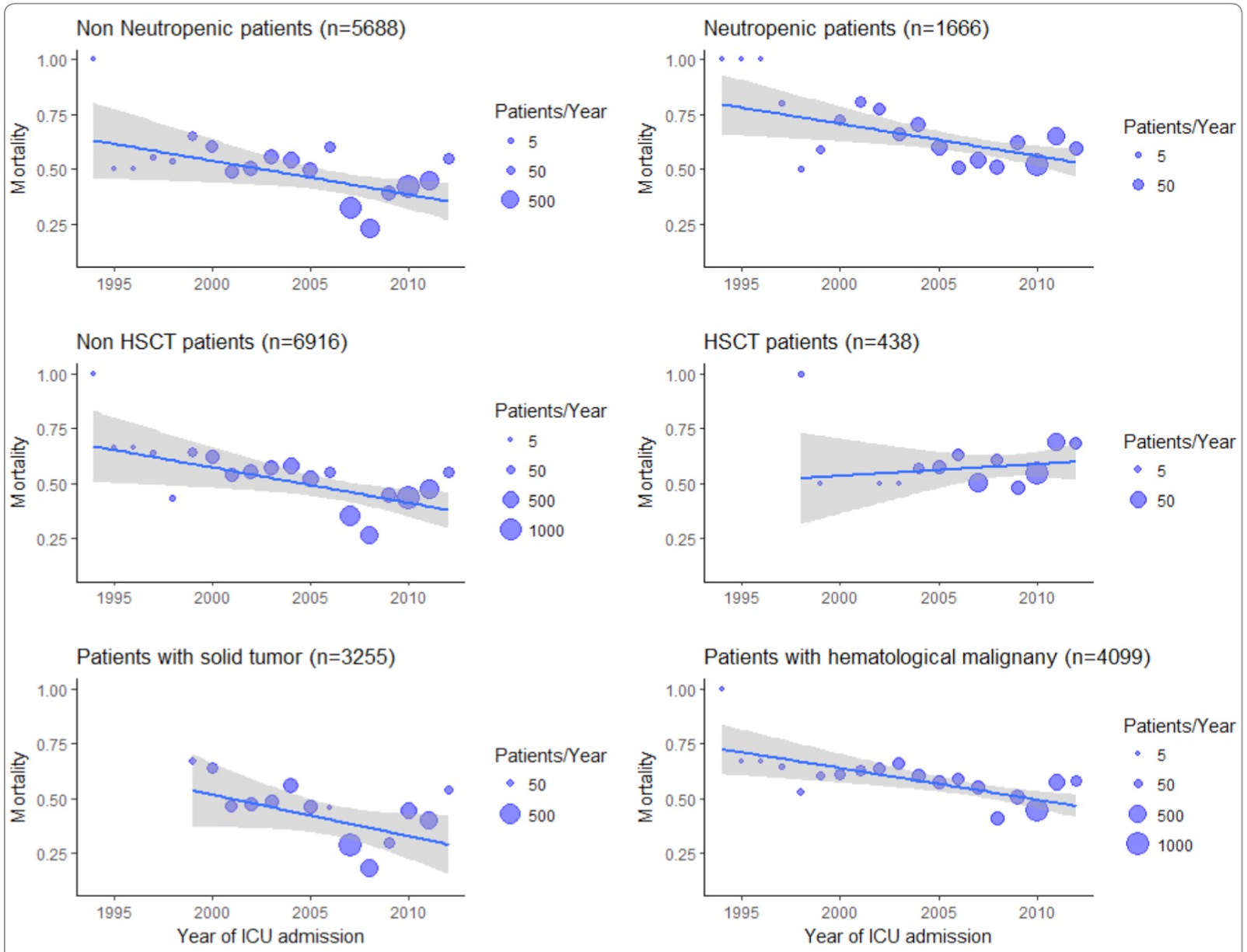


Fig. 3 Change in mortality over time in various predefined subgroup ($P < 0.001$ for every subgroup except hematopoietic stem cell transplant recipients $P = 0.21$). Blue line represents linear regression (95% CI) and points represent mean mortality each year and are weighted for number of observation each year

Intensive Care Med
https://doi.org/10.1007/s00134-018-5347-x

ORIGINAL

Improved short- and long-term outcome of allogeneic stem cell recipients admitted to the intensive care unit: a retrospective longitudinal analysis of 942 patients

Catherina Lueck[1,5], Michael Stadler[1], Christian Koenecke[1], Marius M. Hoeper[2], Elke Dammann[1], Andrea Schneider[3], Jan T. Kielstein[4], Arnold Ganser[1], Matthias Eder[1] and Gernot Beutel[1,5*]

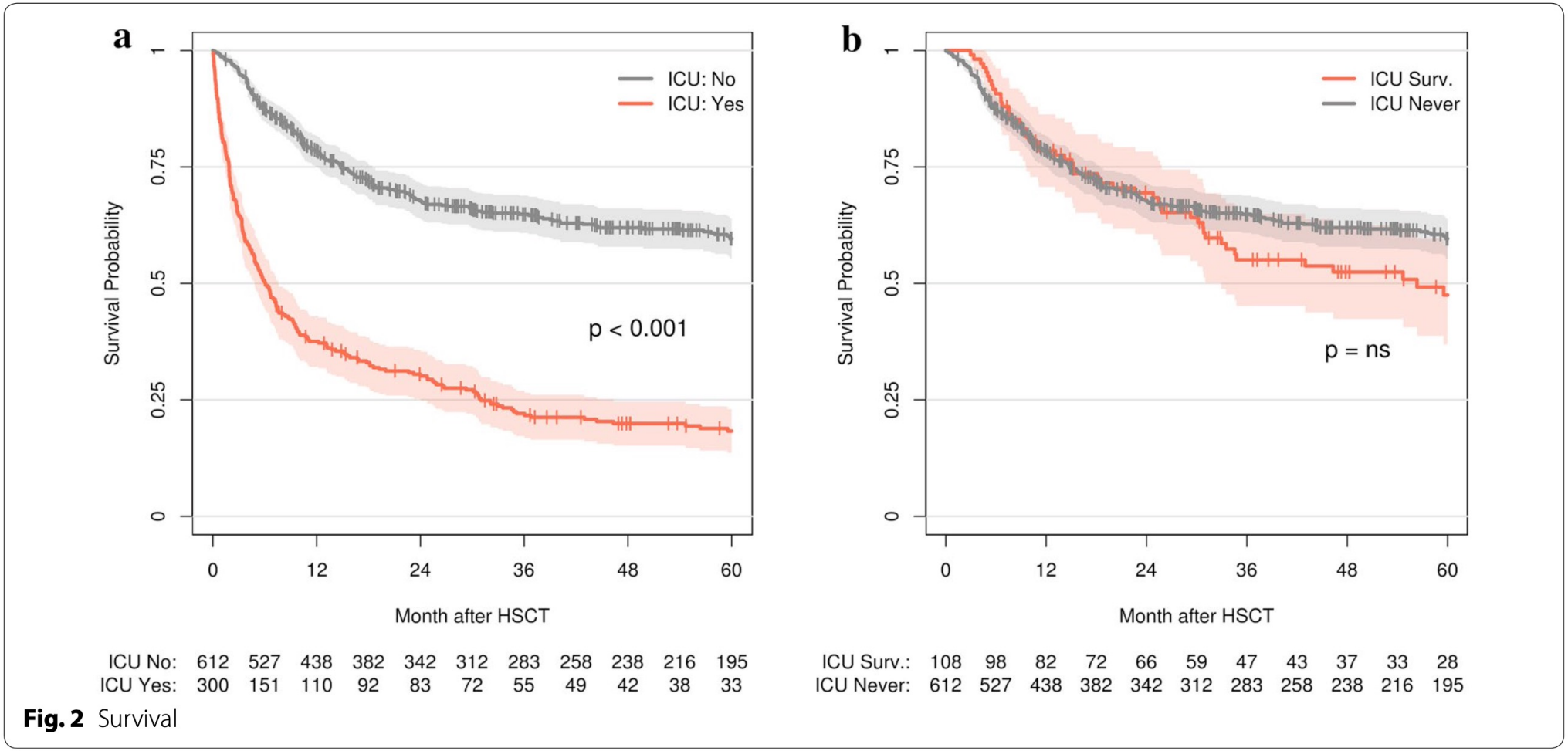


Fig. 2 Survival

Hematopoietic characteristics	2000–2006 ($n = 117$)	2007–2013 ($n = 183$)	p value[#]
Survival			
ICU survival (first admission)	52 (44.4)	110 (60.1)	0.009
Hospital survival	30 (25.6)	78 (42.6)	0.004
Survival after ICU admission			0.002
1-year survival	16 (13.7)	60 (32.4)	
3-year survival	13 (11.1)	47 (23.1)	

3. Very early admision to ICU

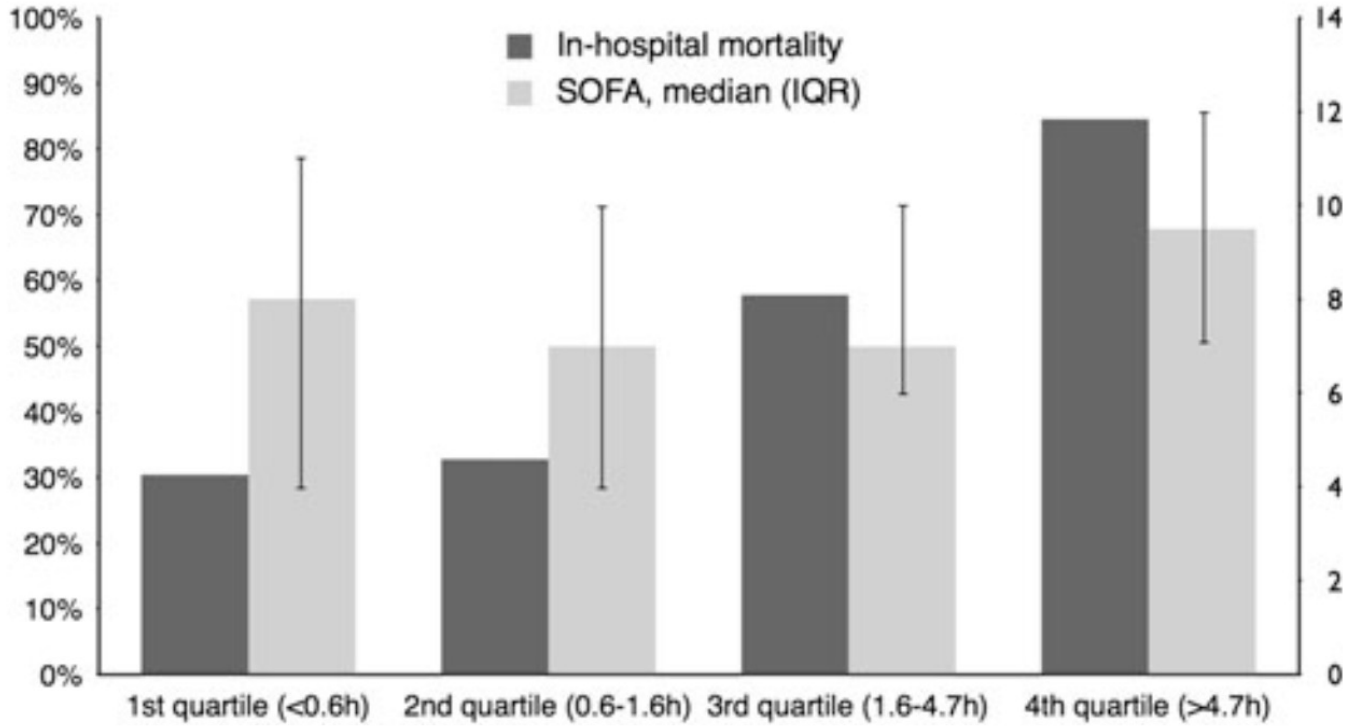


Fig. 1 Trends in hospital mortality rate and Sequential Organ Failure Assessment (*SOFA*) score according to time to intervention from the first physiological derangement in critically ill cancer patients admitted to the intensive care unit (ICU) ($p < 0.001$ and $p = 0.001$, respectively). *IQR* Interquartile range

Song JU, Suh GY, Park HY, Lim SY, Han SG, Kang YR, Kwon OJ, Woo S, Jeon K. Early intervention on the outcomes in critically ill cancer patients admitted to intensive care units. Intensive Care Med. 2012 Sep;38(9):1505-13. doi: 10.1007/s00134-012-2594-0. Epub 2012 May 17. PMID: 22592633.

Table 5 Baseline characteristics and outcomes between the early (≤1.5 h) and late (>1.5 h) intervention groups

Patient characteristics	Early intervention group, ≤1.5 h (n = 100)	Late intervention group, >1.5 h (n = 99)	p value
Age (years)	64 (51–71)	58 (49–68)	0.036
Gender (male)	71 (71)	70 (71)	0.964
ECOG performance status (three or more)	32 (32)	26 (26)	0.373
Type of malignancy			<0.001
Solid	68 (68)	36 (36)	
Hematologic	32 (32)	63 (64)	
Status of malignancy			
First presentation	33 (33)	24 (24)	0.172
Relapsed/refractory	52 (52)	60 (61)	0.221
Extensive disease	70 (70)	65 (66)	0.512
Major organ involvement	60 (60)	50 (51)	0.178
Stem cell transplantation	7 (7)	24 (24)	0.001
Duration of malignancy (months)	6.2 (1.2–19.0)	8.5 (1.8–22.6)	0.286
Characteristics of intervention			
Number of MET criteria (3 or more)	47 (47)	59 (60)	0.075
Intervention to ICU admission interval (hours)	2.2 (1.4–4.7)	2.5 (1.5–5.2)	0.606
Derangement to ICU admission interval (hours)	3.1 (2.0–5.3)	8.9 (5.2–15.3)	<0.001
Major reasons for ICU admission			0.081
Respiratory failure	44 (44)	45 (46)	
Severe sepsis or septic shock	30 (30)	40 (40)	
Others	26 (26)	14 (14)	
Clinical status on ICU admission			
Recent chemotherapy prior to ICU admission within 4 weeks	45 (45)	55 (56)	0.136
Severe neutropenia (ANC <500/μL)	24 (24)	32 (32)	0.192
Documented infection	63 (63)	81 (82)	0.003
Need for mechanical ventilation	32 (32)	42 (42)	0.128
Need for vasopressor support	40 (40)	43 (43)	0.623
Need for renal replacement therapy	5 (5)	5 (5)	1.000
High lactate (≥ 4 mmol/L)[a]	19 (20)	27 (29)	0.161
PF ratio	200.0 (113.0–333.0)		0.303
Severity of illness			
SAPS 3	79 (64–89)	81 (70–96)	0.067
SOFA score	8 (4–10)	9 (6–11)	0.019
Outcomes			
ICU mortality	10 (10)	51 (52)	<0.001
Length of stay in ICU (days)	3.0 (1.0–6.0)	4.0 (2.0–9.0)	0.026
In-hospital mortality	32 (32)	72 (73)	<0.001
Length of stay in hospital (days)	33.0 (18.2–51.8)	30.0 (19.0–55.0)	0.621

Data are expressed as medians, with the IQR in parenthesis, or as frequencies (number of patients), with the percentage in parenthesis

[a] Results of serum lactate levels were available for 185 (93 %) patients

Song JU, Suh GY, Park HY, Lim SY, Han SG, Kang YR, Kwon OJ, Woo S, Jeon K. Early intervention on the outcomes in critically ill cancer patients admitted to intensive care units. Intensive Care Med. 2012 Sep;38(9):1505-13. doi: 10.1007/s00134-012-2594-0. Epub 2012 May 17. PMID: 22592633.

Peyrony *et al. Ann. Intensive Care* (2019) 9:110
https://doi.org/10.1186/s13613-019-0587-7

Annals of Intensive Care

RESEARCH Open Access

Direct admission to the intensive care unit from the emergency department and mortality in critically ill hematology patients

Olivier Peyrony[1*], Sylvie Chevret[2,3,4], Anne-Pascale Meert[5], Pierre Perez[6], Achille Kouatchet[7], Frédéric Pène[4,8,9], Djamel Mokart[10], Virginie Lemiale[11], Alexandre Demoule[12,13,14], Martine Nyunga[15], Fabrice Bruneel[16], Christine Lebert[17], Dominique Benoit[18], Adrien Mirouse[11] and Elie Azoulay[3,4,11]

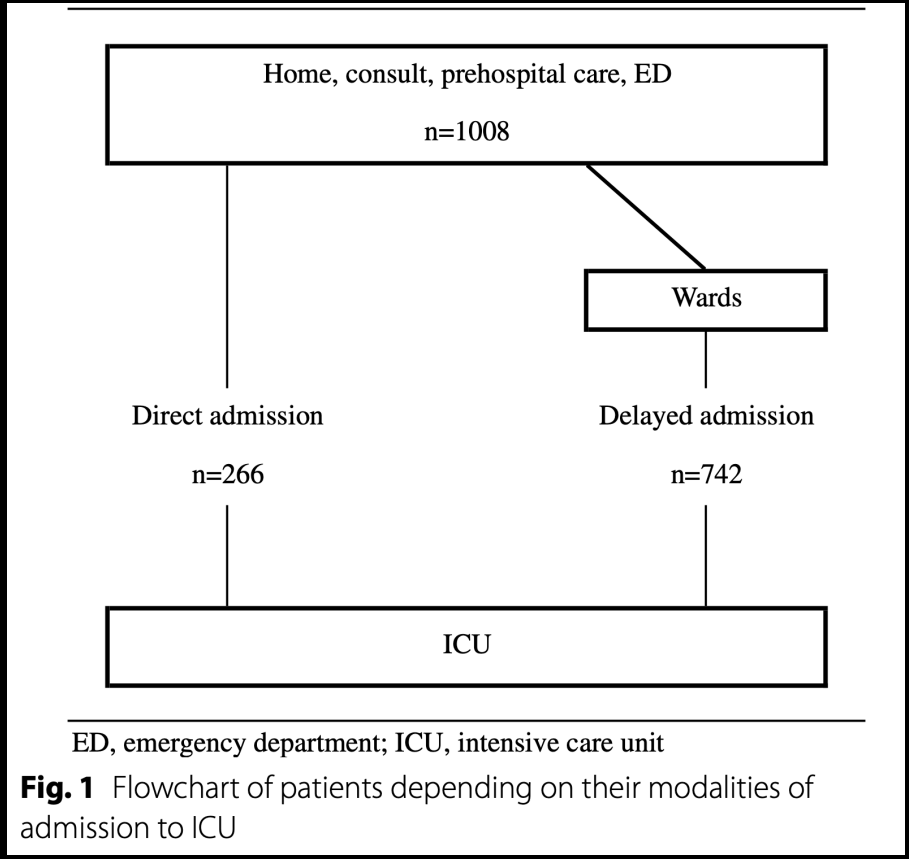


Fig. 1 Flowchart of patients depending on their modalities of admission to ICU

Table 3 Multivariable analysis. Variables independently associated with hospital mortality

Variables	Model without imputation ($N=898$)			Model with imputation ($N=1008$)		
	OR	95% CI	*P*	OR	95% CI	*P*
Direct admission to the ICU from the ED	0.64	(0.45 to 0.92)	0.02	0.63	(0.45 to 0.88)	0.007
Age > 60 years	1.47	(1.04 to 2.10)	0.03	1.47	(1.05 to 2.04)	0.02
Disease status						
Remission or newly diagnosed	1.00					
Other	1.49	(1.08 to 2.06)	0.01	1.52		
Allogeneic BMT/HSCT recipient	2.46	(1.57 to 3.86)	< 0.0001	2.42		
Charlson (/point)	1.06	(0.99 to 1.14)	0.10	1.07		
Poor PS (> 2)	1.88	(1.30 to 2.72)	< 0.001	1.99		
SOFA score (/point)	1.24	(1.19 to 1.29)	< 0.00001	1.23		
Reason for ICU admission						
Sepsis or septic shock	1.00					
Acute respiratory failure	2.16	(1.47 to 3.2)	< 0.001	2.11		
Coma	1.68	(0.89 to 3.15)	0.10	1.72		
Metabolic disorder or acute kidney injury	2.05	(1.17 to 3.56)	0.01	2.12		
Other	2.17	(1.30 to 3.63)	0.003	2.25		

BMT bone marrow transplantation, *ED* emergency department, *HSCT* hematopoietic stem-cell transplantation, *ICU* intensiv
Sequential-Related Organ Failure Assessment

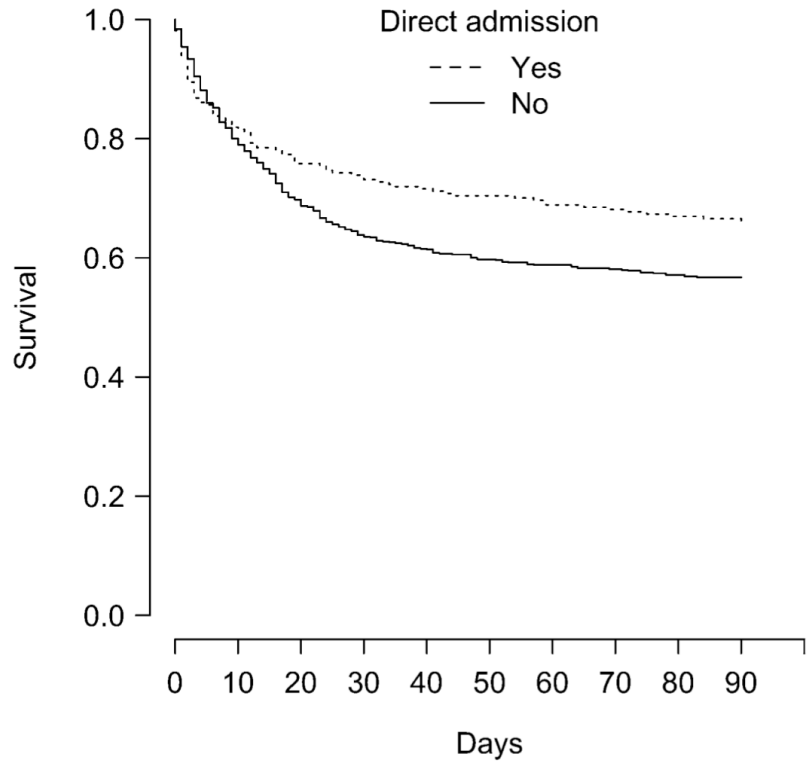


Fig. 3 Kaplan–Meier survival during 90 days from intensive care unit admission depending on direct admission from the emergency department

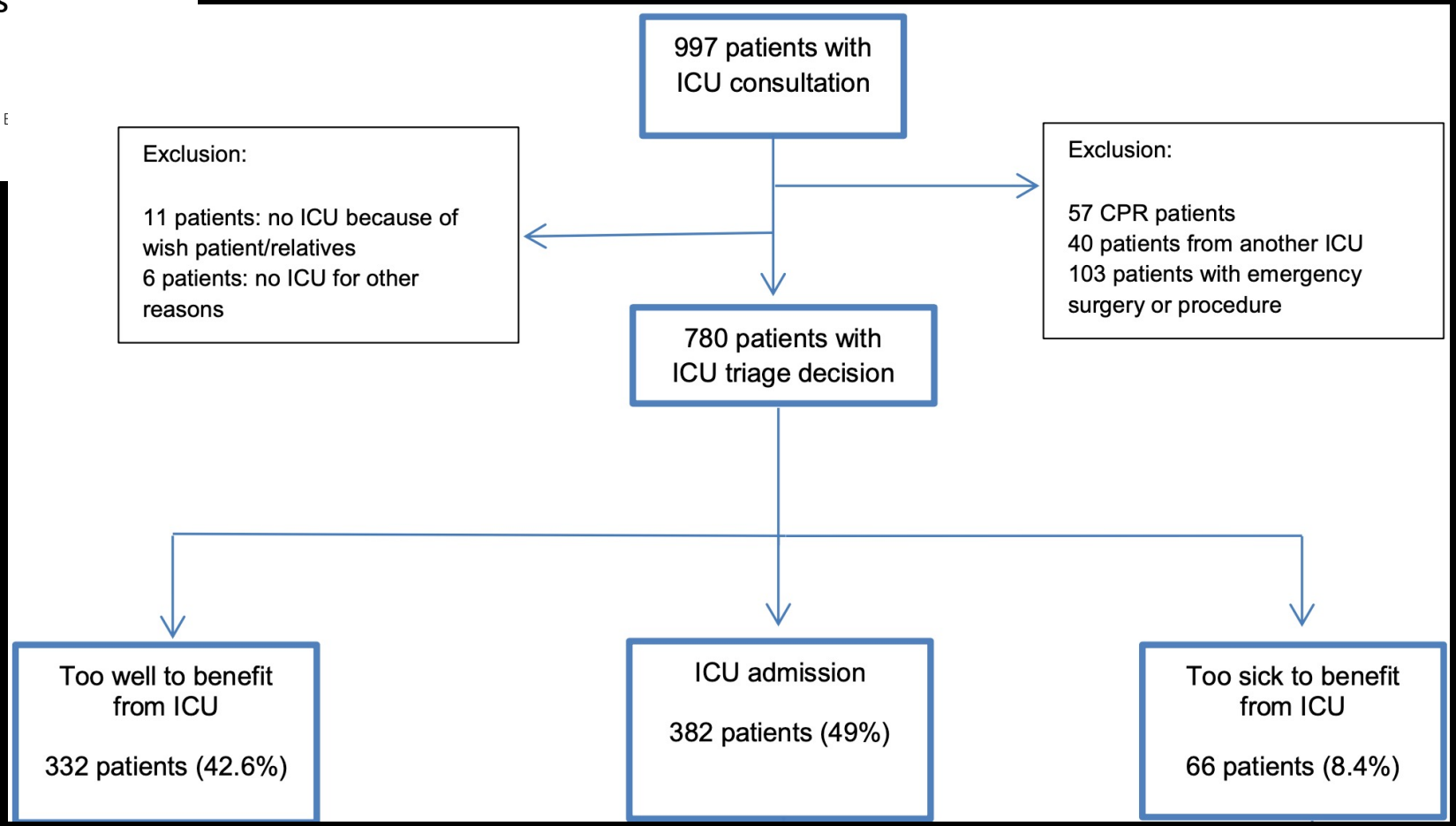
van der Zee *et al. Ann. Intensive Care* (2021) 11:125
https://doi.org/10.1186/s13613-021-00898-2

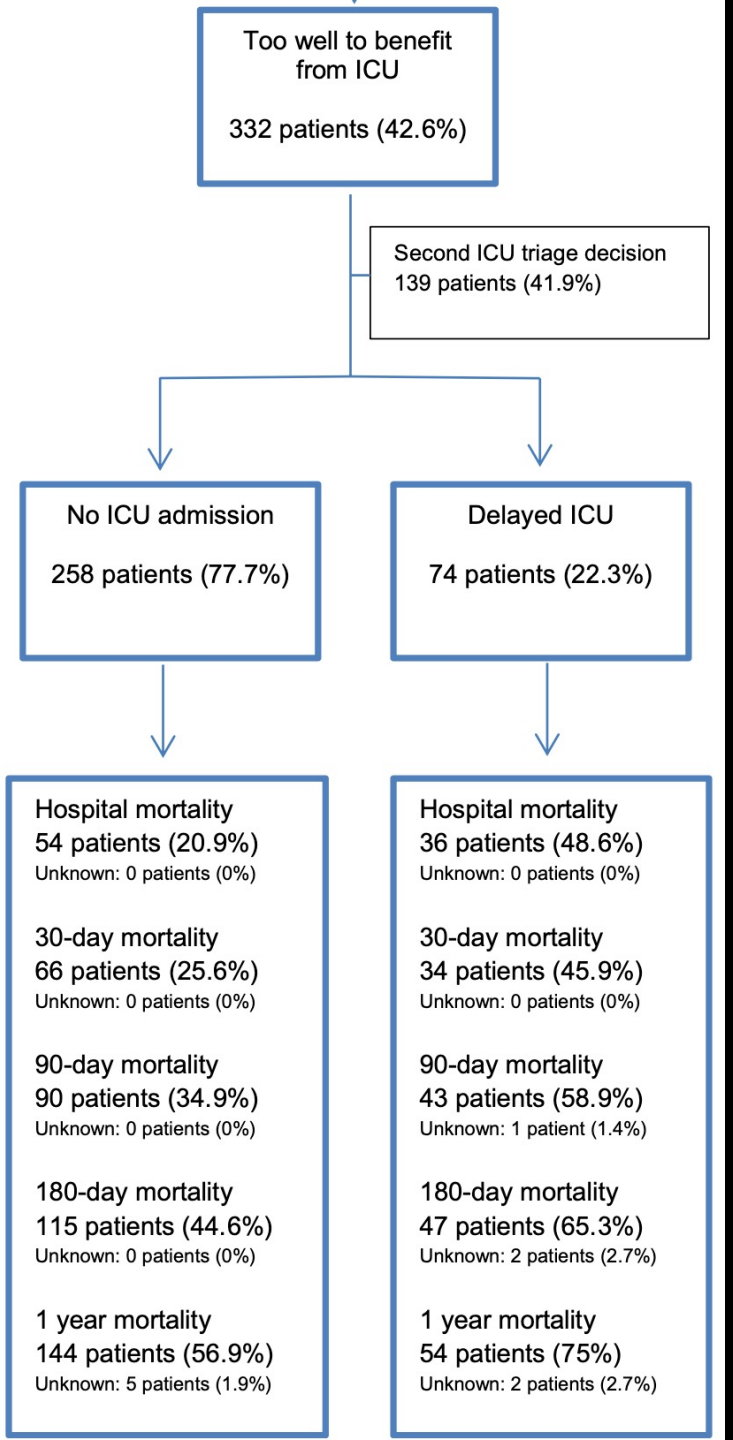
Annals of Intensive Care

RESEARCH Open Access

Outcome of cancer patients considered for intensive care unit admission in two university hospitals in the Netherlands· the danger of delayed ICU admissions and off-hour triage decisions

Esther N. van der Zee[1*], Dominique D. Benoit[2], Marinus Hazenbroek[1], Jan Bakker[1,3,4,5], E
Nuray Kusadasi[6] and Jelle L. Epker[1]





	Total population of hematological cancer patients **N = 274**	**Too well to benefit – No ICU** **N = 94**	**Too well to benefit- Delayed ICU** **N = 33**	**ICU** **N = 136**	**Too sick to benefit** **N = 11**	**p-value**
Hospital mortality Missing	117 (42.7%) 0 (0%)	31 (33%) 0 (0%)	17 (51.5%) 0 (0%)	61 (44.9%) 0 (0%)	8 (72.7%) 0 (0%)	0.03*
30-day mortality Missing	117 (42.7%) 0 (0%)	35 (37.2%) 0 (0%)	17 (51.5%) 0 (0%)	56 (41.2%) 0 (0%)	9 (81.8%) 0 (0%)	0.03*
90-day mortality Missing	143 (52.2%) 0 (0%)	42 (44.7%) 0 (0%)	22 (66.7%) 0 (0%)	70 (51.5%) 0 (0%)	9 (81.8%) 0 (0%)	0.03*
180-day mortality Missing	157 (57.3%) 0 (0%)	47 (50%) 0 (0%)	24 (72.7%) 0 (0%)	77 (56.6%) 0 (0%)	9 (81.8%) 0 (0%)	0.046*
1 year mortality Missing	178 (65%) 6 (2.2%)	58 (63.7%) 3 (1.1%)	25 (75.8%) 2 (4.9%)	84 (63.2%) 3 (2.2%)	11 (100%) 0 (0%)	0.05

Supplementary material Table 6; crude mortality rates of hematological cancer patients by ICU triage decision

- Table shows data of first ICU consultation of the hospital admission
- A p-value of < 0.05 is considered significant (marked by an *)
- ICU mortality of ICU patients: 37 (30.3%). Missing: 14 (10.3%)
- 3 patients with both solid and hematological cancer were excluded from analysis

Journal of Critical Care 61 (2021) 82–88

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Impact of early ICU admission on outcome of critically ill and critically ill cancer patients: A systematic review and meta-analysis.

Yannick Hourmant, MD [a], Arnaud Mailloux, MD [a], Sandrine Valade, MD [a], Virginie Lemiale, MD [a], Elie Azoulay, MD, PhD [a,b,c], Michael Darmon, MD, PhD [a,b,c,*]

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[c] ECSTRA team, Biostatistics and clinical epidemiology, UMR 1153 (center of epidemiology and biostatistics Sorbonne Paris Cité, CRESS), INSERM, Paris, France

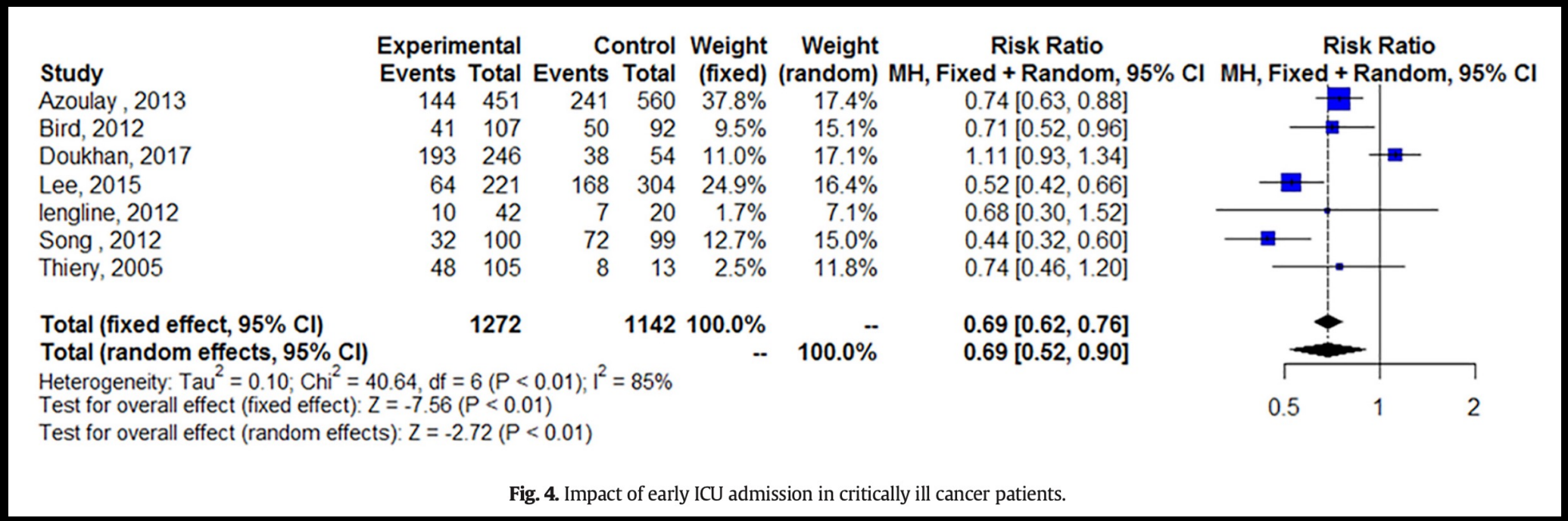


Fig. 4. Impact of early ICU admission in critically ill cancer patients.

4. They are fragile

Intensive Care Med (2019) 45:977–987
https://doi.org/10.1007/s00134-019-05653-7

SYSTEMATIC REVIEW

Changes in critically ill cancer patients' short-term outcome over the last decades: results of systematic review with meta-analysis on individual data

Michaël Darmon[1,2,3*], Aurélie Bourmaud[2,4,5], Quentin Georges[6], Marcio Soares[7], Kyeongman Jeon[8], Sandra Oeyen[9], Chin Kook Rhee[10], Pascale Gruber[11], Marlies Ostermann[12], Quentin A. Hill[13], Pieter Depuydt[9], Christelle Ferra[14], Anne-Claire Toffart[15], Peter Schellongowski[16], Alice Müller[17], Virginie Lemiale[1], Djamel Mokart[18] and Elie Azoulay[1,2,3]

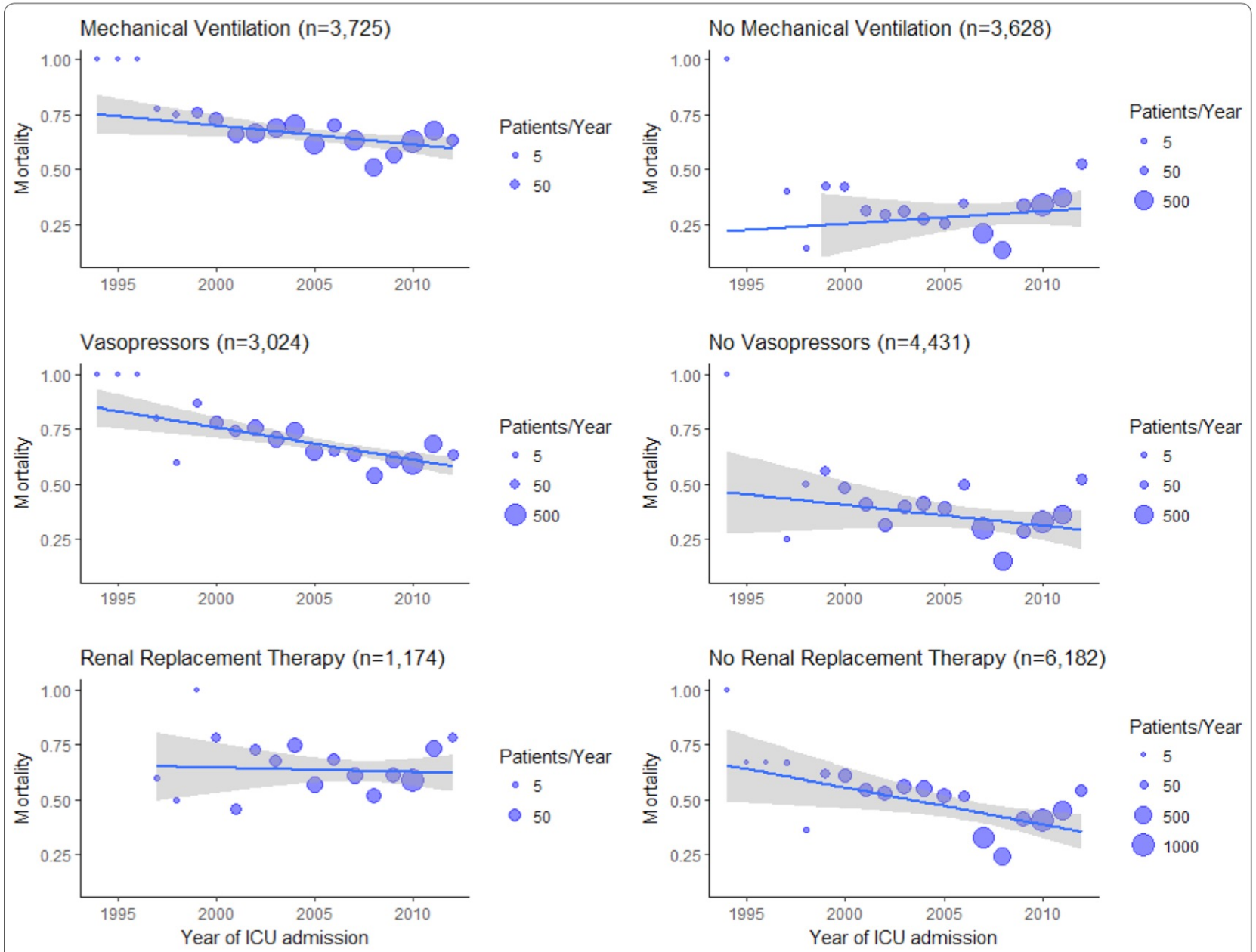
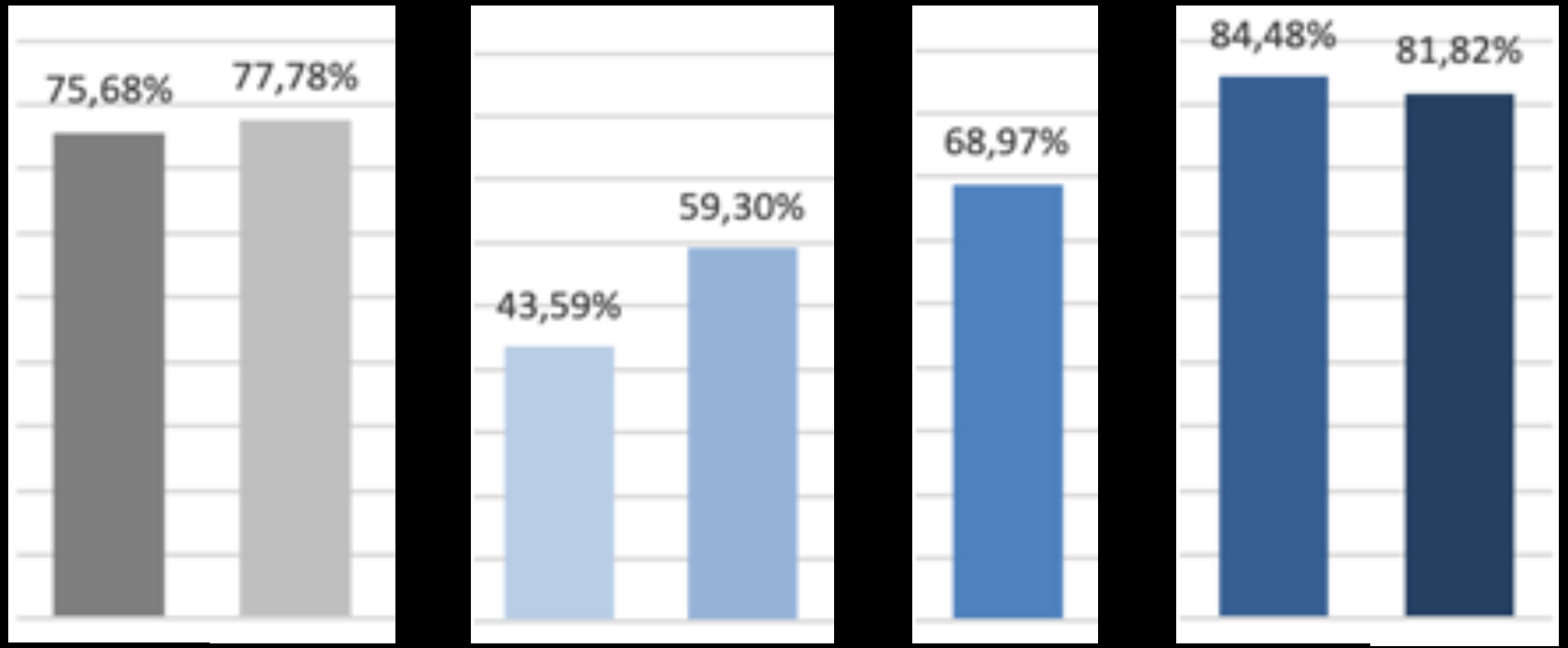


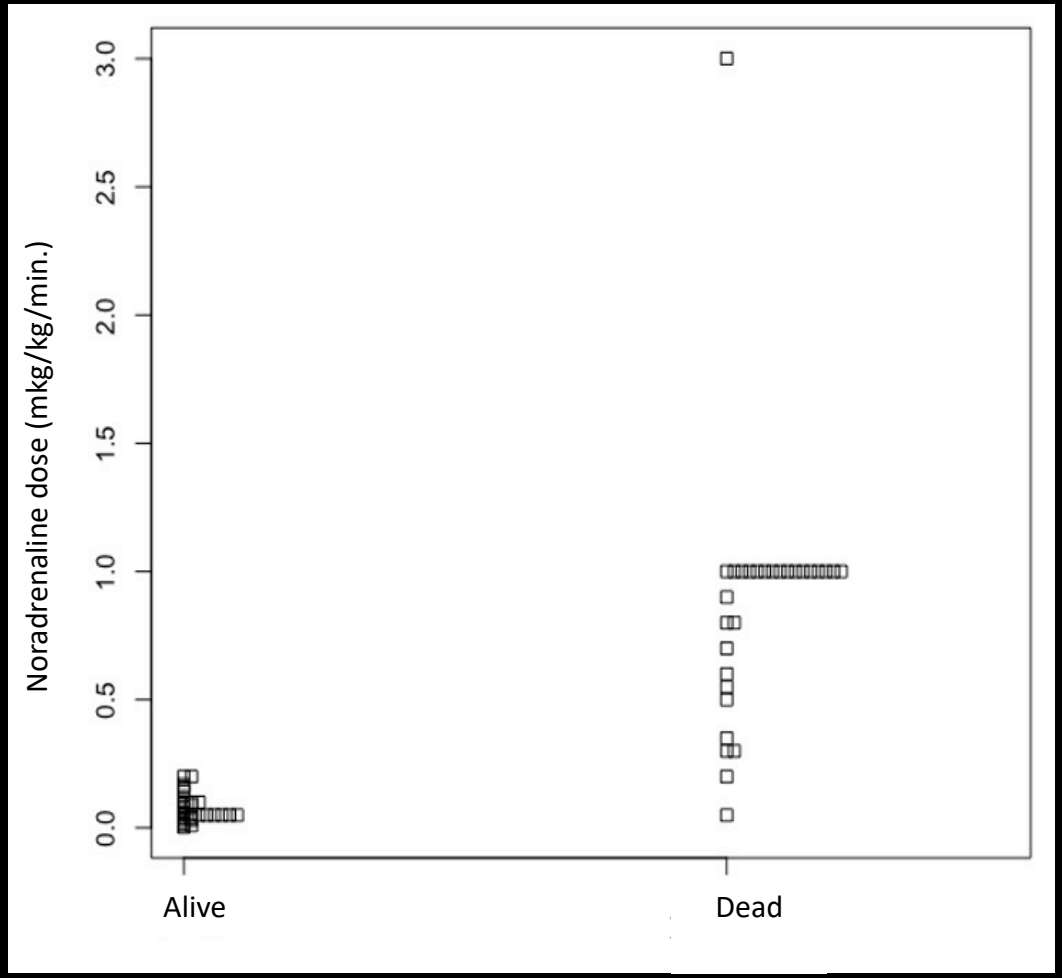
Fig. 4 Change in mortality over time according to use of organ support ($P < 0.001$ for every subgroup except renal replacement therapy—$P = 0.99$). Blue line represents linear regression (95% CI) and points represent mean mortality each year and are weighted for number of observation each year

Organ support and mortality in ICU



PhD Thesis. Šarūnas Judickas “Organ dysfunction in critically ill oncohaemathological patients: prevalence, risk factors, impact on mortality”. https://doi.org/10.15388/vu.thesis.308

Vasopressors



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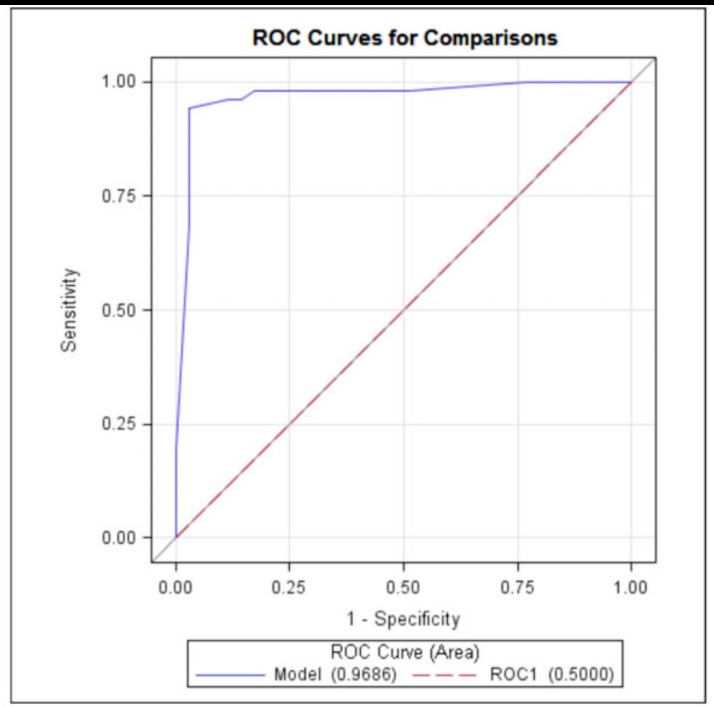
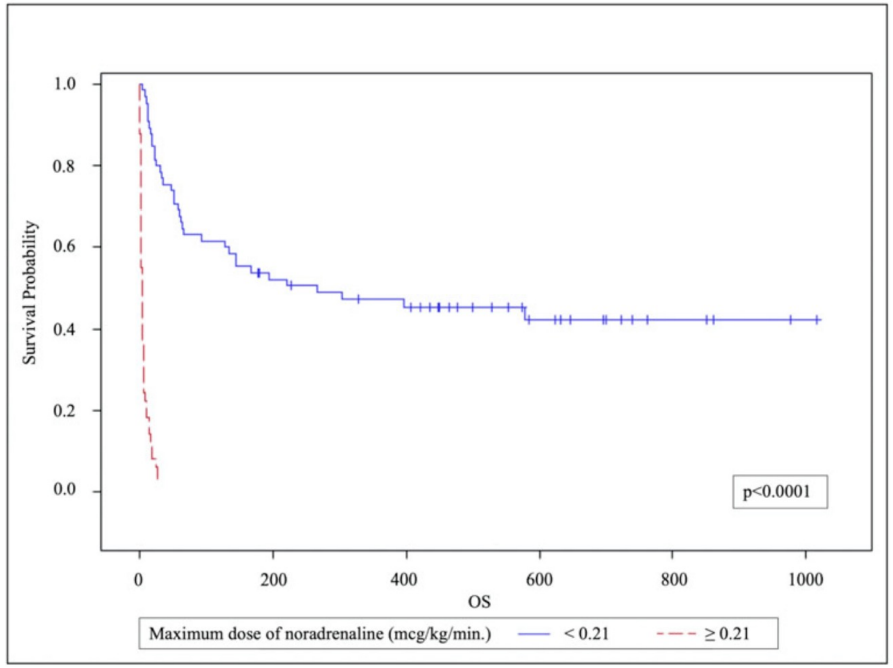
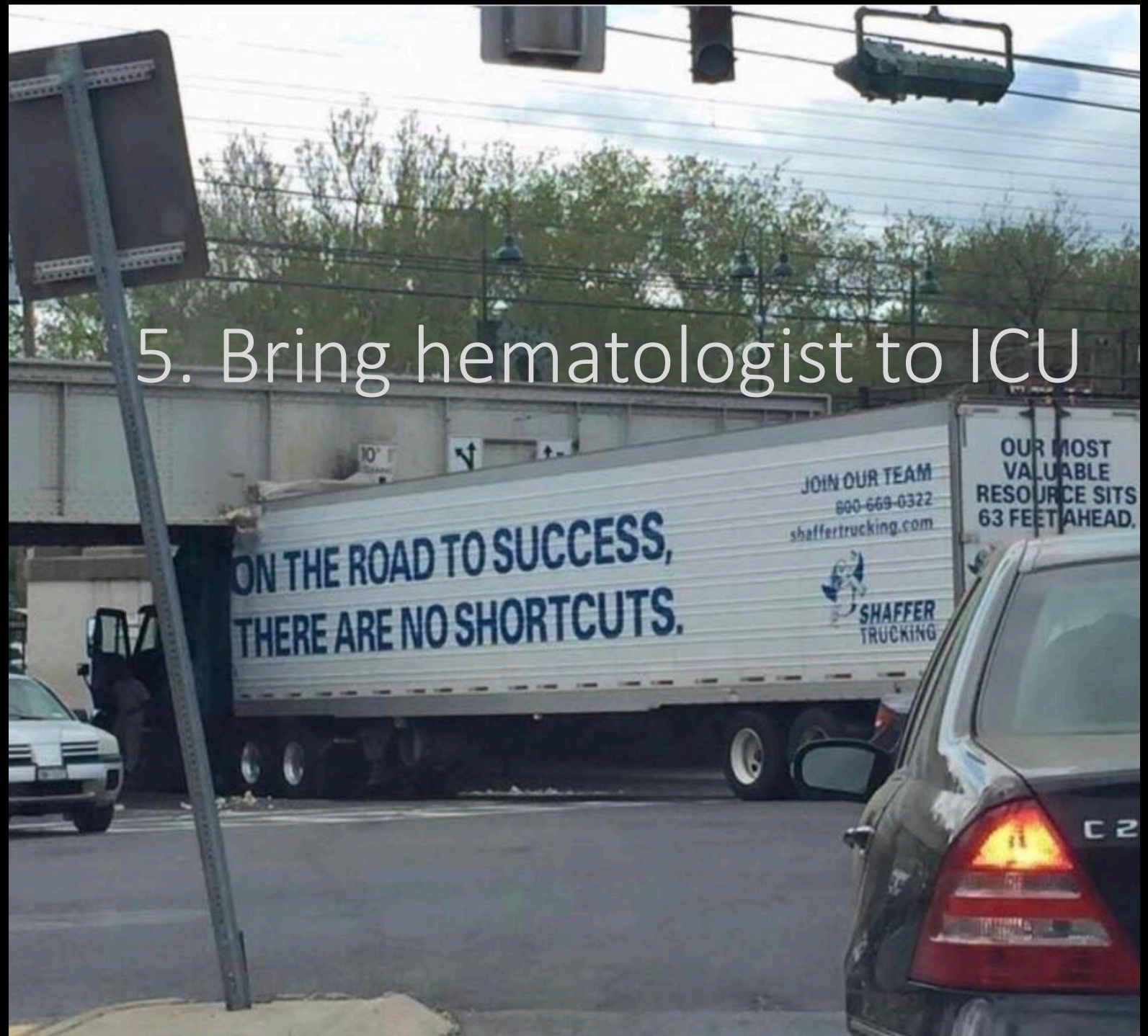




(a) (b)

Figure 3. Noradrenaline dose and mortality. (**a**) ROC curve for the cut-off value of the noradrenaline dose associated with ICU mortality. AUROC 0.9686 (95% CI 0.9291–1.0000, $p < 0.0001$), sensitivity 94.1%, specificity 97.1%; (**b**) Kaplan–Meier curves for overall survival of patients with a noradrenaline dose <0.21 µg/kg/min or ≥0.21 µg/kg/min.

Judickas, Š.; Stasiūnaitis, R.; Žučenka, A.; Žvirblis, T.; Šerpytis, M.; Šipylaitė, J. Outcomes and Risk Factors of Critically Ill Patients with Hematological Malignancy. Prospective Single-Centre Observational Study. Medicina 2021, 57, 1317. https://doi.org/10.3390/medicina57121317



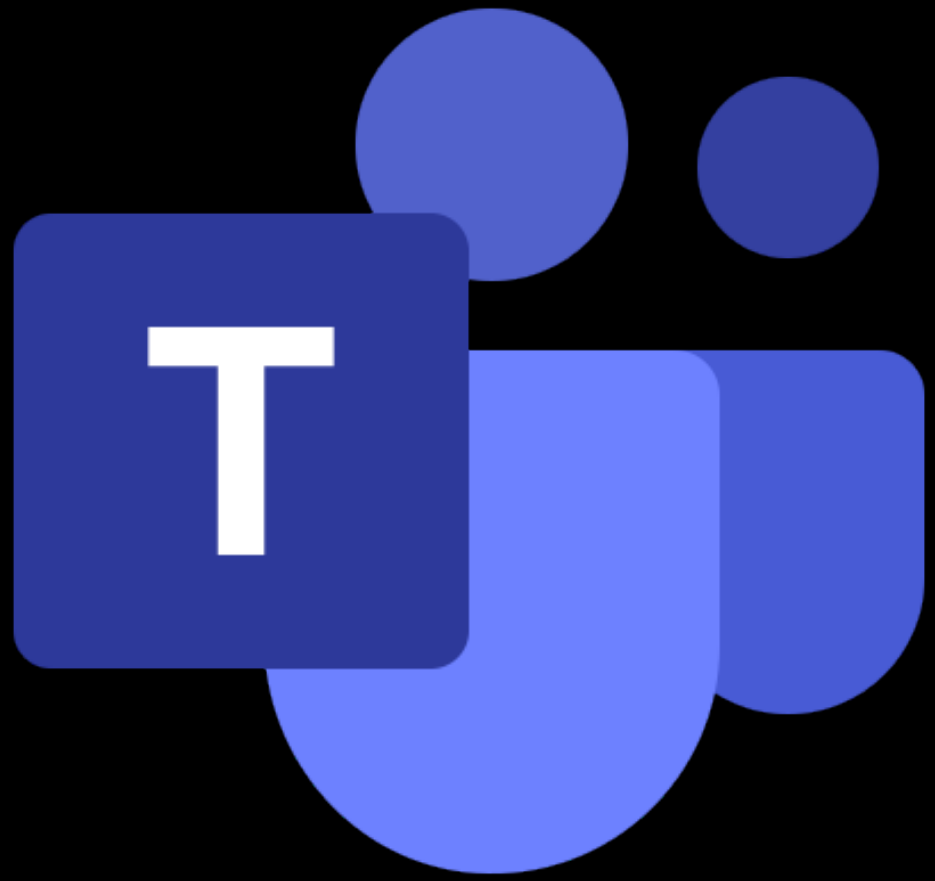
5. Bring hematologist to ICU

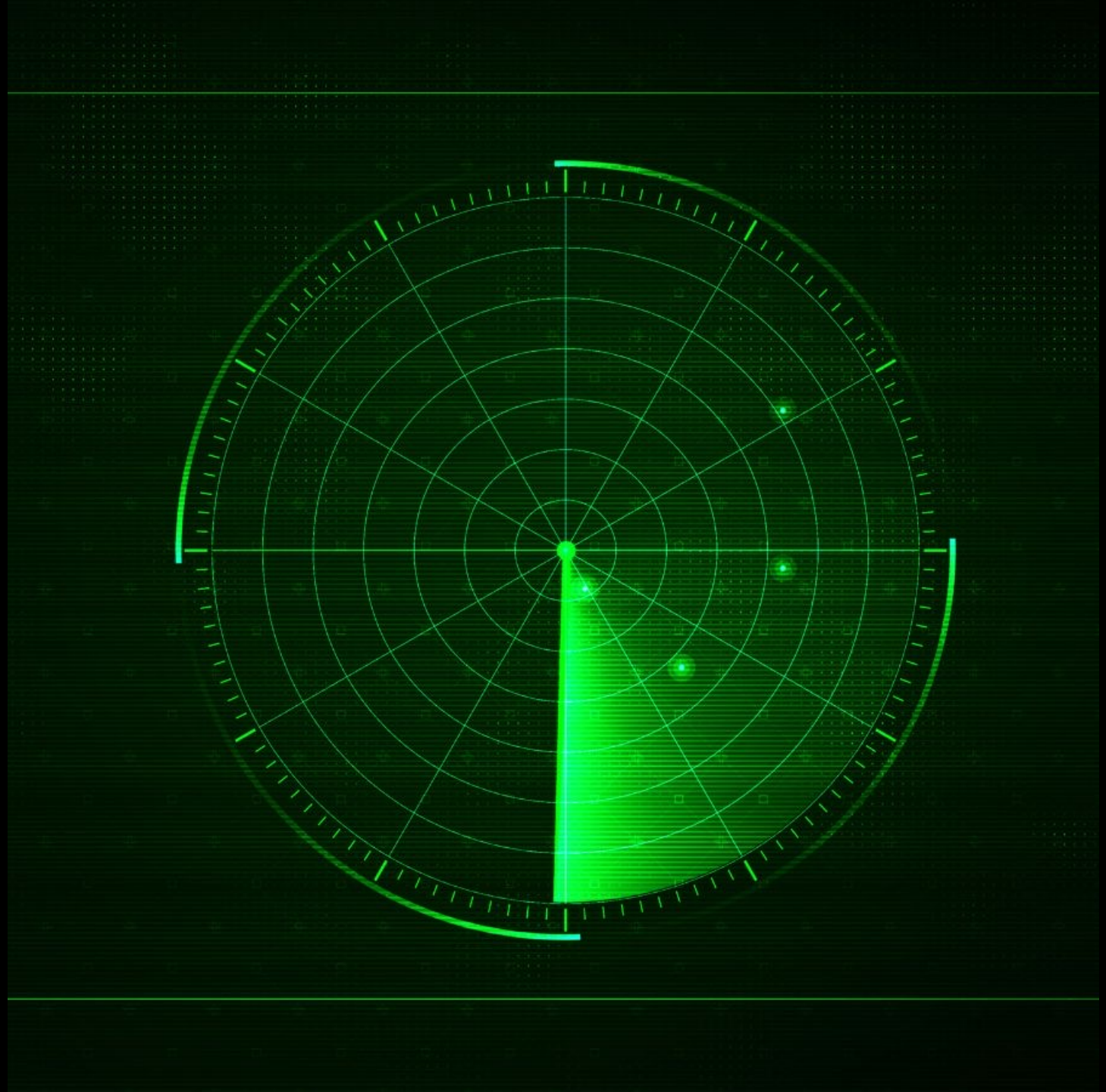
Effects of Organizational Characteristics on Outcomes and Resource Use in Patients With Cancer Admitted to Intensive Care Units

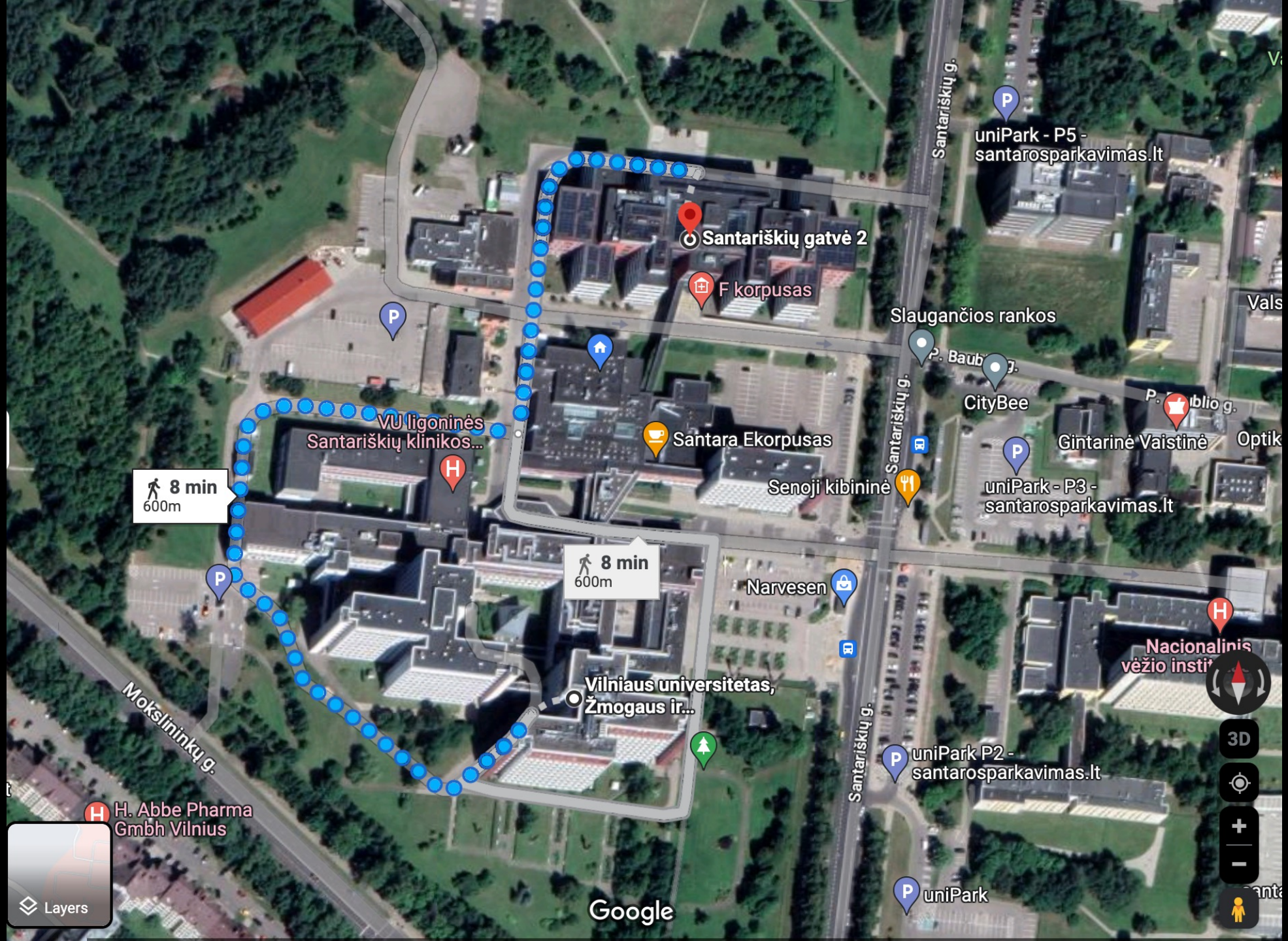
Marcio Soares, Fernando A. Bozza, Luciano C.P. Azevedo, Ulysses V.A. Silva, Thiago D. Corrêa, Fernando Colombari, André P. Torelly, Pedro Varaschin, William N. Viana, Marcos F. Knibel, Moyzés Damasceno, Rodolfo Espinoza, Marcus Ferez, Juliana G. Silveira, Suzana A. Lobo, Ana Paula P. Moraes, Ricardo A. Lima, Alexandre G.R. de Carvalho, Pedro E.A.A. do Brasil, Jeremy M. Kahn,

Table 4. Multilevel Multivariable Analysis of Characteristics Associated With Hospital Mortality

Variable	OR (95% CI)	*P*
Center level		
Type of hospital		
General	1.000	
Referral cancer center	1.210 (0.893 to 1.638)	.217
Training programs in critical care in ICU		
No	1.000	
Yes	1.376 (1.048 to 1.808)	.021
Presence of clinical pharmacist in ICU		
No	1.000	
Yes	0.666 (0.492 to 0.900)	.008
Daily meetings between oncologists and intensivists for care planning in all patients		
No	1.000	
Yes	0.688 (0.520 to 0.910)	.009
Implemented clinical protocols†	0.923 (0.865 to 0.984)	.015



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Jaunųjų miško ąžuolų parkas
Senoji kibininė
Užsisakyk gardžius patiekalus
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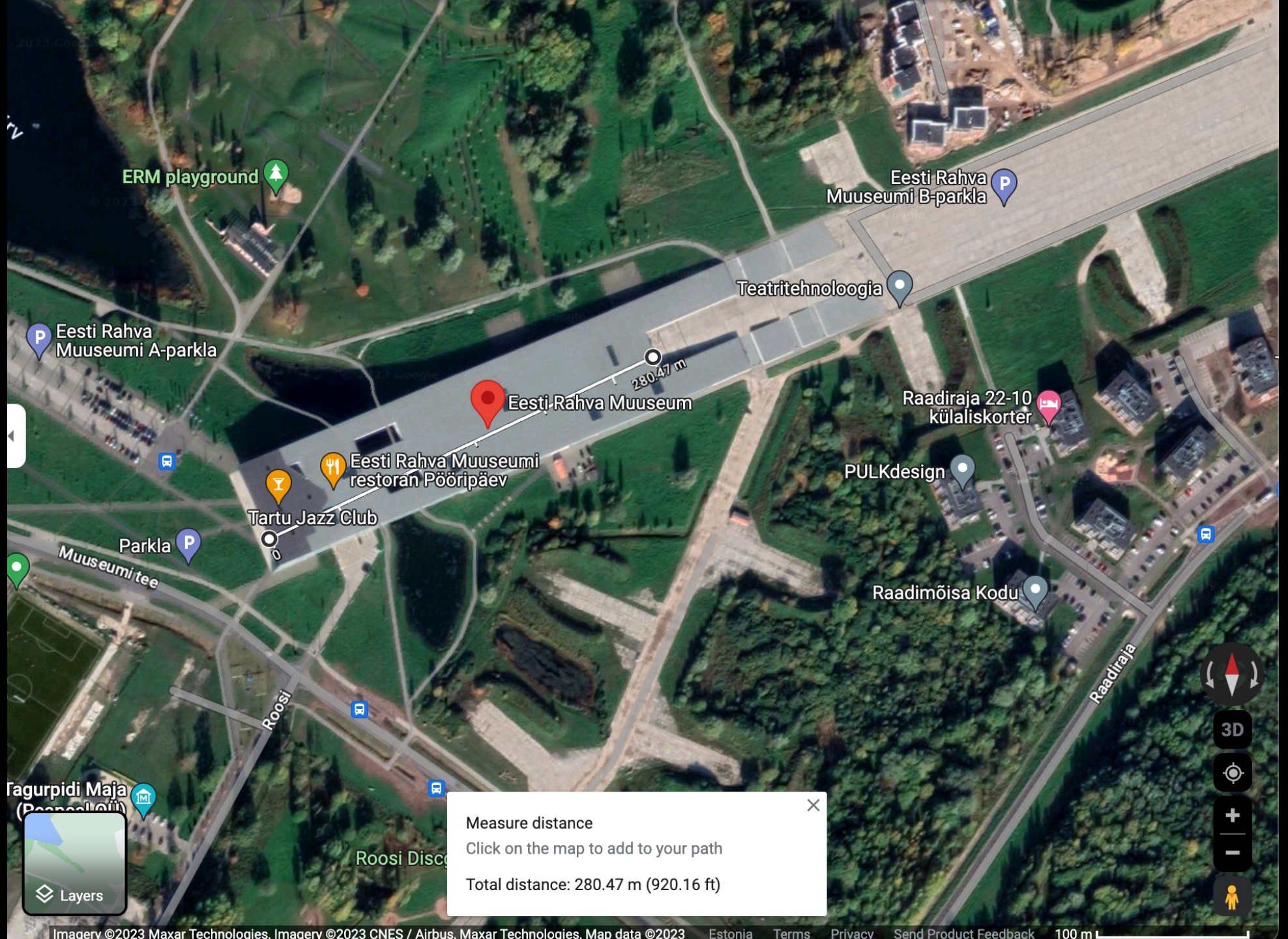
ERM playground
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Teatritehnoloogia
Eesti Rahva Muuseumi A-parkla
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Eesti Rahva Muuseum
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Tartu Jazz Club
Parkla
Muuseumi tee
Raadimõisa Kodu
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Click on the map to add to your path
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Table 3
Ten patient subgroups unlikely to benefit from ICU management.

- Bedridden patients
- Patients with no lifespan-extending treatment options for their hematological malignancy
- Elderly patients with significant comorbidities
- Patients with multiple or severe comorbid conditions (COPD, heart failure, cirrhosis of the liver)
- Patients with less than 6 months of life expectancy
- Allogeneic BMT/HSCT recipients with steroids-uncontrolled GVHD
- Patients with invasive pulmonary aspergillosis requiring endotracheal mechanical ventilation
- Patients with persistent multiple organ failure
- Patients with newly diagnosed malignancies unresponsive to chemotherapy started in the ICU
- Patients experiencing a recurrent life-threatening event after ICU discharge, with prolonged and complex interventions during the first ICU stay and several residual organ dysfunctions at discharge (e.g., dialysis, oxygen, neurologic dysfunction, liver failure, heart failure)

ICU, intensive care unit; COPD, chronic obstructive pulmonary disease; BMT, bone marrow transplant; HSCT, hematopoietic stem cell transplant; GVHD, graft-versus-host disease.

Azoulay E, Pène F, Darmon M, Lengliné E, Benoit D, Soares M, Vincent F, Bruneel F, Perez P, Lemiale V, Mokart D; Groupe de Recherche Respiratoire en Réanimation Onco-Hématologique (Grrr-OH). Managing critically Ill hematology patients: Time to think differently. Blood Rev. 2015 Nov;29(6):359-67. doi: 10.1016/j.blre.2015.04.002. Epub 2015 Apr 26. PMID: 25998991.

Take home messages

Survival is getting better

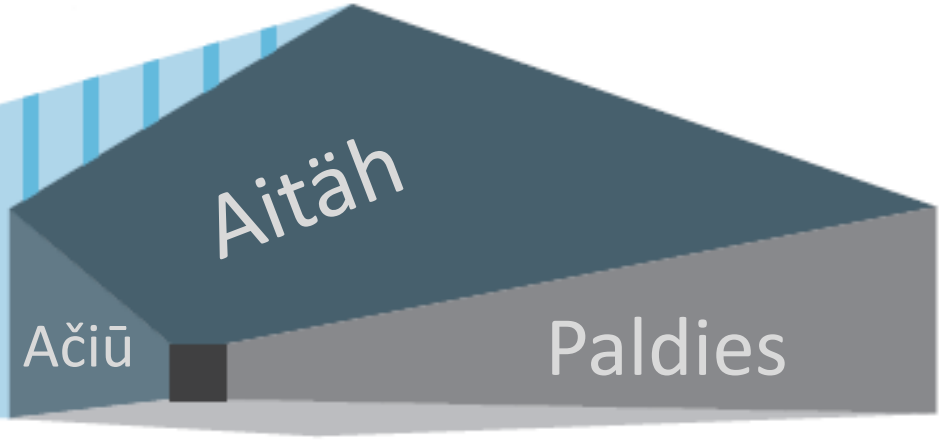
They are fragile

Early ICU admission

Hematologist is your team member

Difficult, but worth trying

Baltanest 2023



11th International Baltic Congress of anaesthesioogy and Intensive care

28–30 September 2023, Tartu, Estonia Estonian National Museum