

Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Steering committee

Name	Affiliation
Cécile Aubron	Médecine Intensive Réanimation, CHU de Brest, Université de Bretagne Occidentale, Brest, France
Jan Bakker	Department of Pulmonary and Critical Care, New York University and Columbia University New York, New York City, United States of America Department of Intensive Care Adults, Erasmus Medical Centers, Rotterdam, the Netherlands Department of Intensive Care, Pontificia Universidad Católica de Chile, Chile
Sanne de Bruin	Department of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands
Maurizio Cecconi	Department of Anesthesiology and Intensive Care, IRCCS Humanitas Research Hospital, Milan, Italy
Aarne Feldheiser	Department of Anaesthesiology, Intensive Care Medicine and Pain Therapy, Evang. Kliniken Essen-Mitte, Huysens-Stiftung/Knappschaft
Harm-Jan de Groot	Department of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands
Zoe McQuilten	School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia
Jens Meier	Department of Anesthesiology and Intensive Care, Kepler University Clinic, Linz, Austria
Marcella Müller	Department of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands
Jorinde Raasveld	Department of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands
Thomas Scheeren	Department of Anesthesiology, University Medical Center Groningen, Groningen, the Netherlands
Alexander Vlaar	Department of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands

eTable 2. National coordinators (Alphabetical order)

Country	Name	Affiliation
Australia/New Zealand	1, Zoe McQuilten 2, Andrew Flint	1, School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia 2, Transfusion Research Unit, Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Australia The Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia
Bangladesh	Tarikul Hamid	Asgar Ali Hospital, Dhaka, Bangladesh
Belgium	Michael Piagnerelli	Department of Intensive Care, CHU Charleroi Marie Curie, Charleroi, Belgium
Croatia	Tina Tomić Mahečić	Department of Anesthesiology and Intensive Care. University Clinical Hospital Center Zagreb, Croatia
Czech Republic	Jan Benes	Department of Anesthesiology and Intensive Care Medicine, University hospital and Faculty of Medicine in Plzen - Charles University, Czech Republic
Denmark	Lene Russell	Department of Intensive Care, Rigshospitalet, Copenhagen, Denmark Dept. of Anaesthesia and Intensive Care Medicine, Copenhagen University Hospital - Gentofte, Hellerup, Denmark
Ecuador	Hernan Aguirre-Bermeo	Unidad de Cuidados Intensivos, Hospital Vicente Corral Moscoso, Cuenca, Ecuador
Egypt	<i>No national coordinator</i>	
France	Cécile Aubron	Médecine Intensive Réanimation, CHU de Brest, Université de Bretagne Occidentale, Brest, France
Greece	1, Konstantina Triantafyllou 2, Vasiliki Chantziara	1, Department of Intensive Care, Department of Cardiothoracic Surgery, Interbalkan Medical Center, Thessaloniki, Greece 2, Dept of Respiratory medicine, University of Athens, Hospital for Chest Diseases, Sotiria, Greece
India	1, Mohan Gurjar 2, Sheila Nainan Myatra	1, Department of Critical Care Medicine, Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS), Lucknow, India 2, Department of Anesthesiology, Critical Care and Pain, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, India
Iran	<i>No national coordinator</i>	
Iraq	<i>No national coordinator</i>	
Italy	Vincenzo Pota	Dept. Of Women, Child, General and Specialistic Surgery. University of Campania "L. Vanvitelli", Naples, Italy
Libya	Muhammed Elhadi	Faculty of Medicine, University of Tripoli, Tripoli, Libya
Morocco	<i>No national coordinator</i>	
Poland	Ryszard Gawda	Department of Anesthesiology and Intensive Care, Institute of Medical Sciences, University of Opole, Poland
Portugal	Mafalda Mourisco	Intensive Care Medicine Department, Centro Hospitalar de Entre o Douro e Vouga, Santa Maria da Feira, Portugal
Qatar	Marcus Lance	Department of Anesthesiology, Aga Khan University Nairobi, Kenya
Serbia	Vojislava Neskovic	Dept. of Anesthesia and intensive Care, Military Medical Academy Belgrade, Serbia
Slovenia	Matej Podbregar	Medical ICU, General Hospital Celje Department for Internal Medicine, University of Ljubljana, Ljubljana, Slovenia

Country	Name	Affiliation
Spain	1, Juan V. Llau 2, Manuel Quintana-Diaz	1, Chief of the department of anaesthesiology and post-surgical critical care, University Hospital Doctor Peset - Valencia, Spain Associated Professor of Anaesthesiology. University of Valencia, Spain 2, Intensive Care Service, Hospital Universitario La Paz, Madrid, Spain
Sweden	Maria Cronhjort	Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Sweden
Switzerland	Carmen Pfortmüller	Department of Intensive Care, Inselspital, Bern University Hospital and University of Bern, Bern, Switzerland
the Netherlands	Jorinde Raasveld Sanne de Bruin	Dept. of Intensive Care, Amsterdam University Medical Centers, Amsterdam, the Netherlands
Turkey	Nihan Yapici	Department of Anesthesiology and Reanimation, Dr. Siyami Ersek Thoracic and Cardiovascular Surgery Center, University of Health Sciences, Istanbul, Turkey
Ukraine	<i>No national coordinator</i>	
United Kingdom	Akshay Shah	Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford, UK
United States	Nathan Nielsen	Division of Pulmonary, Critical Care and Sleep Medicine, University of New Mexico School of Medicine Section of Transfusion Medicine and Therapeutic Pathology, University of New Mexico School of Medicine

eTable 3. Participating centers

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Australia	Monash University	Higgins	Alisa	Australian and New Zealand Intensive Care Research Centre, School of Public Health and Preventive Medicine, Monash University	553 St Kilda Rd, Melbourne 3004
Australia	Monash University	Serpa Neto	Ary	Australian and New Zealand Intensive Care Research Centre, School of Public Health and Preventive Medicine, Monash University	Prahran, Victoria, Australia 3004
Australia	Monash University	Flint	Andrew	Transfusion Research Unit, School of Public Health and Preventive Medicine, Monash University The Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia	Melbourne, Victoria, Australia 3004
Australia	Monash University	Brady	Karina	Transfusion Research Unit, School of Public Health and Preventive Medicine, Monash University	Melbourne, Victoria, Australia 3004
Australia	Monash University	McQuilten	Zoe	Transfusion Research Unit, School of Public Health and Preventive Medicine, Monash University	Melbourne, Victoria, Australia 3004
Australia	Monash University	Wood	Erica	School of Public Health and Preventive Medicine, Monash University	Victoria, Australia
Australia	Monash University	Poole	Alexis	Australian and New Zealand Intensive Care Research Centre, School of Public Health and Preventive Medicine, Monash University	Prahran, Victoria, Australia 3004
Australia	Monash University	Trapani	Tony	Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), School of Public Health and Preventative Medicine, Monash University,	Melbourne, Victoria, Australia
Australia	Alfred hospital	Young	Meredith	Alfred Health	Melbourne, Victoria, Australia 3004
Australia	Alfred hospital	Cooper	Jamie	Alfred Health	
Australia	Alice Springs Hospital	Secombe	Paul		
Australia	Blacktown Hospital	Reece	Graham		
Australia	Caboolture Hospital	Marella	Prashanti	Intensive Care Department	Caboolture, Queensland, Australia 4510
Australia	Cabrini Hospital	Brewster	David	Cabrini Health	Malvern, Victoria, Australia 3144
Australia	Calvary Mater Newcastle Hospital	Rashid	Alan	Calvary Mater	Waratah NSW 2298
Australia	Canberra Hospital	Suwandarathne	Ruwan	Australian National University	Canberra, Australia
Australia	Coffs Harbour Health Campus	Azad	Raman		
Australia	Epworth Richmond	Barrett	Jonathan	Epworth HealthCare	Richmond, Victoria, Australia 3121

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Australia	Gosford Hospital	Turner	Elisha		
Australia	John Hunter	Poulter	Amber-Louise		
Australia	Launceston General Hospital	Chen	Lixian	Launceston General Hospital	274-280 Charles St, Launceston TAS 7250
Australia	Lyell McEwin Hospital	Biradar	Vishwanath	SA Health Lyell McEwin Hospital	Elizabeth Vale SA 5112
Australia	Nepean Hospital	Whitehead	Christina	Nepean Hospital	Kingswood, NSW, Australia 2747
Australia	Queen Elizabeth Hospital	Peake	Sandra	The Queen Elizabeth Hospital	Woodville South, South Australia, Australia 5011
Australia	Redcliffe hospital	Tabah	Alexis	Intensive Care Department	Redcliffe Queensland Australia 4020
Australia	Royal Adelaide Hospital	O'Connor	Stephanie	Royal Adelaide Hospital	Port Rd, Adelaide, SA 5000
Australia	Royal Brisbane and Womens Hospital	Reade	Michael		
Australia	Royal Darwin Hospital	Janssen	Guido	Royal Darwin Hospital	Tiwi, Northern Territory, Australia 0810
Australia	Royal Hobart Hospital	McAllister	Richard	Royal Hobart Hospital	Hobart, Tasmania, Australia 7000
Australia	Royal Prince Alfred	Triplett	Katherine	The Royal Prince Alfred Hospital	Camperdown, New South Wales, Australia 2050
Australia	Ryde Hospital	Bowen	David		
Australia	St Vincent Hospital - Sydney	Buscher	Hergen	St Vincent's Hospital, Sydney	Darlinghurst, NSW
Australia	St Vincent Hospital - Melbourne	Santamaria	John	St Vincent's Hospital Melbourne	
Australia	The Prince Charles Hospital	Parmar	Dinesh	The Prince Charles Hospital	Chermside, QLD 4035
Australia	University Geelong Hospital	Power	Paul	Barwon Health, University Hospital Geelong	Geelong, VIC 3220
Australia	Western Health	French	Craig	Department of Intensive Care, Western Health	Footscray, Victoria, Australia, 3011
Australia	Westmead Hospital	Bowen	David		
Australia	Wollongong ICU	Mac Partlin	Matthew	Wollongong ICU	Loftus Street, Wollongong, NSW 2500
Australia	Wyong Hospital	Bowen	David		
Bangladesh	Asgar Ali Hospital	Tarikul	Hamid	Bangabandhu Sheikh Mujib Medical University	Shah Bag, Dhaka, Bangladesh
Bangladesh	Ibn Sina Medical College Hospital	Islam	Md Motiul	Bangabandhu Sheikh Mujib Medical University	Shah Bag, Dhaka, Bangladesh
Bangladesh	Central Police Hospital	Haque	Injamam Ull	Bangabandhu Sheikh Mujib Medical University	Shah Bag, Dhaka, Bangladesh
Belgium	CHU St Pierre, Brussels	Roman	Alain	CHU-St Pierre.	Université Libre de Bruxelles. 322, rue Haute. 1000 Bruxelles. Belgium
Belgium	CHU Charleroi Marie Curie, Charleroi	Piagnerelli	Michael	Intensive Care.	CHU-Charleroi. Université Libre de Bruxelles. 140, chaussée de Bruxelles. 6042-Charleroi. Belgium

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Belgium	CHU Mons a Paré	Haentjens	Lionel	CHU Ambroise Paré	Boulevard Kennedy, 2, 7000 Mons
Croatia	kbc zagreb	Tomić Mahečić	Tina	Department of Anesthesiology and Intensive Care. University Clinical Hospital Center Zagreb	Kispaticeva 12, 10 000 Zagreb
Croatia	kbc zagreb	Ikic	Višnja	UHC Osijek	Krstova ulica 92,Osijek
Croatia	UHC Osijek	Kvolik	Slavica	UHC Osijek	Krstova ulica 92,Osijek
Croatia	UHC Zagreb	Bojčić	Robert	UHC Zagreb	Kišpatićeva 12,Zagreb
Croatia	UH Rijeka	Juričić	Kazimir	KBC Rijeka	Krešimirova ulica 92,Rijeka
Czech Republic		Benes	Jan	1 Dpt. of Anesthesiology and Intensive Care Medicine, Faculty of Medicine in Plzen, Charles University, Plzen, Czech Republic 2 Department of Anesthesiology and Intensive Care Medicine, University hospital and Faculty of Medicine in Plzen - Charles University, Czech Republic	
Czech Republic	University Hospital Ostrava	Duksa	Martin	Dpt. of Anesthesiology and Intensive Care Medicine, University Hospital Ostrava	17. listopadu 1790/5; 708 52 Ostrava- Poruba
Czech Republic	Institute for Clinical and Experimental Medicine Prague	Bílek	Lukáš	Dpt. Of Anesthesiology and Intensive Care Medicine, Institute of clinical and experimental medicine	Videnska 1958, Praha 4, 140 00
Czech Republic	Hospital Havírov	Satinsky	Igor	Multidisciplinary intensive care unit, Hospital Havirov	Delnicka 1132/24; 736 01 Havirov
Czech Republic	FN Plzen	Zatloukal	Jan	Dpt. Of Anesthesiology and Intensive Care Medicine, University Hospital Plzen	alej Svobody 80, 304 60 Plzen
Denmark	Rigshospitalet	Russell	Lene	1) Department of Intensive Care	Blegdamsvej 9, 2100 Copenhagen
Denmark	Nordsjællands hospital	Bestle	Morten H.	Department of Anaesthesiology and Intensive Care, Copenhagen University Hospital - North Zealand, Hilleroed, Denmark Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark	Nordsjællands hospital, Dyrehavevej 29, 3400 Hillerød
Denmark	Bispeberg hospital	Meyhoff	Christian S.	Department of Anaesthesia and Intensive Care, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark	Bispebjerg hospital, Bispebjerg Bakke 23, 2400 Copenhagen NV
Ecuador	Hospital Eugenio Espejo	Diaz-Medina	Ana Maria	Unidad de Cuidados Intensivos, Hospital Eugenio Espejo, Quito.	Av. Gran Colombia
Ecuador	Hospital Santa Ines	Llumiquinga	Verónica	Unidad de Cuidados Intensivos, Hospital Santa Inés, Cuenca.	Av. Daniel Córdova T. 2-67
Ecuador	Hospital Vicente Corral Moscoso	Aguirre- Bermeo	Hernán	Unidad de Cuidados Intensivos, Hospital Vicente Corral Moscoso, Cuenca.	Av. del Paraíso
Ecuador	Hospital General Monte Sinai	Gonzabay- Campos	Heinert Enmanuel	Unidad de Cuidados Intensivos, Hospital General Monte Siani, Guayaquil.	Av. Causarina Kilometro 7
Egypt	Tanta University	Elbahnasaw y	Mohamed	Emergency medicine and traumatology department, Tanta Unversity faculty of medicine	Tanta, ELGEISH STREET

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
France	Brest surgical unit	Chapalain	Xavier	Département d'anesthésie réanimation CHU de Brest, Université de Bretagne occidentale	Bvd Tanguy Prigent 29200Brest
France	Brest medical unit	Aubron	Cécile	Médecine Intensive Réanimation, CHU de Brest, Université de Bretagne Occidentale	Bvd Tanguy Prigent 29200Brest
France	Hospital of Le Mans	Le Moal	Charlène	Réanimation, Centre Hospitalier Le Mans	194 Avenue Rubillard, 72037 Le mans
France	Hospital of Morlaix	Egreteau	Pierre-Yves	Service de Réanimation polyvalente, Centre Hospitalier des Pays de Morlaix	15 rue de Kersaint Gilly 29600 Morlaix
France	Rennes Surgical ICU	Launey	Yoann	Service d'Anesthésie-Réanimation 1, Département d'Anesthésie-Réanimation et Médecine Péri-Opératoire, CHU de Rennes	<u>2, rue Henri Le Guilloux, 35033 Rennes, France</u>
France	Rennes Medical ICU	Reizine	Florian	services des maladies infectieuses et réanimation médicale, CHU de Rennes	<u>2, rue Henri Le Guilloux, 35033 Rennes, France</u>
France	Teaching Hospital of Poitiers	Boissier	Florence	University hospital of Poitiers, Medical Intensive Care and INSERM CIC 1402 (ALIVE group) Poitiers University	CHU de Poitiers, CS 90577, 86021 Poitiers Cedex
France	Teaching Hospital of Nantes	Jean	Reignier	Service de Médecine Intensive Réanimation, Centre Hospitalier Universitaire de Nantes, Nantes, France; Université de Nantes, Nantes, France	
France	Teaching Hospital of Tours	Ehrmann	Stephan	Médecine Intensive Réanimation, CIC 1415 INSERM, CRICS-TriggerSep F-CRIN research network and Centre d'étude des pathologies respiratoires (CEPR), INSERM U1100, Université de Tours	2 Boulevard Tonnellé37044 Tours Cedex 9
France	Hospital of Vannes	Lebas	Eddy	Réanimation Polyvalente, Centre Hospitalier Bretagne Atlantique	20, boulevard du Gébéral Maurice Guillaudot 56017 Vannes
France	Hospital of Toulon	Corno	Gaëlle	Réanimation polyvalente, Centre Hospitalier Intercommunal de Toulon	54 rue Sainte-Claire Deville 83100 Toulon
France	hospital of Lorient	Cailliez	Pauline	Service de réanimation polyvalente, Centre Hospitalier de Bretagne Sud, CHBS	5 Avenue Choiseul 56322 Lorient
France	Hospital of Jossigny	Garçon	Pierre	Service de Réanimation Polyvalente, Grand Hôpital de l'Est Francilien site de Marne-la-Vallée, Jossigny	2 CRS Gondoire, 77600 Jossigny
France	Henri Mondor Teaching Hospital Paris	Carteaux	Guillaume	Assistance Publique-Hôpitaux de Paris, CHU Henri Mondor, Service de Médecine Intensive Réanimation, Créteil, F-94010 France Université Paris Est-Créteil, Faculté de Santé, Groupe de Recherche Clinique CARMAS, Créteil, F-94010 France INSERM U955, Institut Mondor de Recherche Biomédicale, Créteil, F-94010 France	CHU Henri Mondor, Service de Médecine Intensive Réanimation, Créteil, F-94010
France	Hospital of Nancy	Kimoun	Antoine	Université de Lorraine, CHRU de Nancy, institut Lorrain du cœur et des vaisseaux, service de médecine intensive et réanimation Brabois, INSERM U1116, Nancy, France	49 rue Hermite 54 000 Nancy

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Greece	Sotiria Chest Hospital	Chantziara	Vasiliki	ICU, 1st Dep of Respiratory Med, National and Kapodistrian Univ of Athens, "Sotiria" Chest Hospital, Athens, Greece	
Greece	Thoracic Diseases General Hospital Sotiria	Theodoulou	Danai	Sotiria General Hospital, ICU	152, Mesogeion Ave, 11527
Greece	General Military Hospital NIMTS	ALOIZOS	STAVROS	Department of Intensive Care	1 V. BENSI str. ATHENS
Greece	University Hospital Heraklion	Papadakis	Eleftherios	Department of Intensive Care, University Hospital Heraklion	voutes Heraklion
Greece	General Hospital Laiko	TSAKALIS	KONSTANTINOS	Department of Critical Care Medicine, Laiko, General Hospital of Athens, Athens	Agiou Thoma 17, Athens 115 27
Greece	General Hospital Korgialenio-Mpenakio HRC	Marinakis	Giorgos	Department of Intensive Care	Athanasius 2, Athens
Greece	General Hospital Imathia	Georgakas	Ioannis	Department of Intensive Care	Asomata Papagou 59132, Veroia
Greece	General Oncologic Hospital of Kifisia Agioi Anargiri	Tripolitsioti	Paraskevi	Department of Intensive Care	Noufaron ke, Timiou Stavrou 14, Kifisia 145 64
Greece	General Hospital Asklepieio Voulas	Nikolakopoulou	Sofia	Department of Intensive Care	1, Vasileos Paulou Avenue, Voula
Greece	University Hospital Ioannina	Papathanakos	Georgios	Department of Intensive Care	Medical School, University of Ioannina, GR 45110 Ioannina, Greece
Greece	Agios Savvas	Sklavou	Chrysanthi	Department of Intensive Care	152, Alexandras Av. 11522
Greece	Interbalkan Medical Center	Triantafyllopoulou	Konstantina	Department of Intensive Care, Department of Cardiothoracic Surgery	European Interbalkan Medical Center, Thessaloniki
Greece	General Hospital Ippokratio	Tsika	Evangelia	Department of Intensive Care	114 Vasilissis Sofia's Avenue
Greece	General Hospital Chatzikostas	Mousafiri	Ourania	General Hospital of Ioannina Hatzikosta	Makrigianni 1, Ioannina
Greece	General Hospital Tzanio	Prekates	Athanasios	Tzaneio General Hospital of Piraeus	Zanni and Afentouli 1
Greece	University Hospital Aretaieio	Micha	Georgia	Aretaieio University Hospital of Athens, National and Kapodistrian University of Athens	V. Sofias Anenue 76, 11528
Greece	General Hospital Papanikolaou	Lavrentieva	Athina	General Hospital Papanikolaou	Leof. Papanikolaou, 57010
Greece	General Hospital Agios Pavlos	Aslanidis	Theodoros	Intensive Care Unit	161 Ethnikis Antistaseos str, PC 55135
Greece	General Panarkadic Hospital	Palaiologou	Athina	Department of Intensive Care	Erithrou Stavrou, 22100 Tripolis
Greece	Sotiria Hospital: ICU 1	Bostantzoglu	Clementine	Department of Intensive Care	152, Mesogeion Ave, 11527
Greece	Sotiria Hospital: ICU 3	Dikoudi	Evangelia	Department of Intensive Care	152, Mesogeion Ave, 11527
Greece	Sotiria Hospital: ICU 4	Karaouli	Silia	Department of Intensive Care	152, Mesogeion Ave, 11527
Greece	KAA Sotiria	Pouriki	Sophia	Department of Intensive Care	152, Mesogeion Ave, 11527

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
India	Tata Memorial Hospital	Myatra	Sheila Nainan	Department of Anaesthesiology, Critical Care and Pain, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, India.	
India	Tata Memorial Hospital	Vijayakumar an	Swapna	Department of Anaesthesiology, Critical Care and Pain, Tata Memorial Hospital, Homi Bhabha National Institute	Tata Memorial Hospital, Mumbai, India
India	Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS)	Gurjar	Mohan	Department of Critical Care Medicine, Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS)	Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS), Lucknow, India
India	Sir H N Reliance Foundation Hospital	Rathod	Darshana	Department of Critical Care Medicine, Sir H N Reliance Foundation Hospital	Sir H N Reliance Foundation Hospital, Mumbai, India
India	Yashoda Hospital	KOLA	VENKAT RAMAN	Department of Critical Care Medicine, Yashoda Hospitals, Secunderabad	Behind Hari Hara Kala Bhavan, S P Road, Secunderabad-500003, Telengana
India	Criticare Hospital and Research Institute	Jeswani	Deepak	Criticare Hospital and Research institute.	Criticare Hospital and Research institute. 4th floor Dhanashree complex, near hotel Hardeo, Sitabuldi, Nagpur
India	NIMHANS	Gopalakrishna	Kadarapura Nanjundaiah	Department of Neuroanaesthesia and Neurocritical Care	National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru, India
India	BKL WRMC	Hartalkar	Amol	Professor, Department of Medicine, BKL Walawalkar Rural Medical College & Hospital, Dervan, Chiplun (Maharashtra) India, Dervan, Chiplun	Department of Medicine, BKL Walawalkar Rural Medical College & Hospital, Dervan, Chiplun (Maharashtra)
Iran	Imam Reza hospital/shohada hospital	Mahmoodpoor	Ata	Department of Anesthesiology, Faculty of Medicine, Tabriz University of Medical Sciences	General ICU, Imam Reza hospital, Daneshkade street, Tabriz, East Azerbaijan
Iraq	Ghazi Al-Hariri Surgical Specialties Hospital	Abdulkhaleq	Marwah	department of intensive care, medical city hospital	baghdad, Bab Al Moatham
Italy	University of Campania	Pota	Vincenzo	Dept. Of Women, Child, General and Specialistic Surgery. University of Campania "L. Vanvitelli"	Via de Crecchio, Napoli
Italy	Policlinico Paolo Giaccone, University of Palermo	Ippolito	Mariachiara	Department of Surgical, Oncological and Oral Science (Di.Chir.On.S.), University of Palermo, Italy.	via del vespro, 129, 90127, Palermo, Italy
Italy	University Hospital of Foggia	Cotoia	Antonella	Intensive Care Medicine	
Italy	Regina Elena National Cancer Institute	Covotta	Marco	IRCCS Regina Elena National Cancer Institute	Via E. Chianesi 53, Rome

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Italy	Azienda Ospedaliera Universitaria	Filippo	Sanfilippo	Department of Anesthesiology and Intensive Care, Azienda Ospedaliero Universitaria 'Policlinico-San Marco', Catania, Italy	Via S. Sofia n 78, Postcode 95100 Catania, Italy
Italy	Humanitas Research Hospital	Cecconi	Maurizio	1 Department of Biomedical Sciences, Humanitas University, Via Rita Levi Montalcini 4, 20072 Pieve Emanuele, Milan, Italy. 2 Department of Anesthesiology and Intensive Care, IRCCS Humanitas Research Hospital, via Manzoni 56, 20089 Rozzano, Milan, Italy	1: Via Rita Levi Montalcini 4, 20072 Pieve Emanuele, Milan. 2: Via Manzoni 56, 20089 Rozzano, Milan
Libya		Elhadi	Muhammed	Faculty of Medicine, University of Tripoli, Tripoli, Libya.	Furnaj, University Road, 13725, Tripoli, Libya.
Libya	Althawra hospital, medical ICU	Ishteiwy	Ehab	Althawra hospital, Medical Intensive Care Unit	Al Bayda' City
Libya	Tripoli Central hospital, medical ICU	Benzarti	Hebtallah	Medical ICU, Tripoli Central hospital	Elsaidi Street, Tripoli
Libya	Tobruk medical centre, medical ICU	Bouhuwaish	Ahmed Elmabri Mohammed	Medical ICU, Tobruk medical centre	Tobruk
Libya	Sabha Medical Center	Abdalhadi	Alya	Sebha Medical Center	Sebha
Libya	Aljalla Benghazi Hospital, surgical ICU	Buimsaedah	Ahmad	Surgical ICU, Aljalla Benghazi Hospital	Benghazi
Libya	Tripoli Central Hospital, trauma ICU	Abdulwahed	Eman Ali	Trauma ICU, Tripoli Central Hospital	Elsaidi Street, Tripoli
Libya	Aljalla Benghazi Hospital, medical ICU	Tamoos	Khalil	Medical ICU, Aljalla Benghazi Hospital	Benghazi
Libya	Al-Zawia Teaching Hospital	Younes	Eman	Al-Zawia Teaching Hospital	Al-Zawia
Libya	Sabratha Teaching Hospital, medical ICU	Alkamkhe	Asma Abubakr Saleh	Medical ICU, Sabratha Teaching Hospital	Sabratha
Libya	Tripoli Central Hospital, surgical ICU	Biala	Marwa	Surgical ICU, Tripoli Central Hospital	Elsaidi Street, Tripoli
Libya	Medical Misurata Center	Hwili	Hajer Abdalla Mohammed	Medical Misurata Center	Misurata
Libya	Zliten medical center, medical ICU	Ben Hasan	Najat Shaban	Zliten Medical Centre	Sea Street, Zliten
Libya	Shaima Clinic - Janzour, medical ICU	Almiqlash	Bushray Alhadi	Medical ICU, Shaima Clinic	Janzour, Tripoli
Libya	AboSleem Hospital; trauma	Altair	Mawadda	Trauma ICU, AboSleem Hospital	AboSleem, Tripoli
Libya	Alkhadra Hospital Tripoli; medical	Otman	Rema	Intensive Care Unit, Alkhadra Hospital Tripoli	AboSleem, Tripoli
Libya	Benghazi Medical Center; surgical/trauma	Al Gharyani	Mohamed Fathi	Surgical and Trauma ICU, Benghazi Medical Center	Benghazi
Libya	El Maqarif Hospital Agdabia	Alkeelani	Omlez Mohammed	El Maqarif Hospital	Agdabia

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Libya	Gheryan Central Hospital	Bakeer	Hibah	Gheryan Central Hospital	Gheryan
Libya	Misurata Medical Center; medical	Omar Affat	Azah Mukhtar	Medical ICU, Misurata Medical Center	Misurata
Libya	Misurata Medical Center; surgical	Aween	Husayn	Surgical ICU, Misurata Medical Center	Misurata
Libya	National Cancer Institution Misurata	Benamwor	Aihab	Intensive Care Unit, National Cancer Institute Misurata	Misurata
Libya	Tripoli Medical Center; cardiac	Alsori	Mohamed	Cardiac ICU, Tripoli Medical Center (Tripoli University Hospital)	Furnaj, University Road, Tripoli
Libya	Ibn sina hospital	Abdelrahim	Najwa	Medical ICU, Ibn Sina Hospital	Sirt
Marocco	faculty of medicine and pharmacy of Rabat, Mohammed V university	Abdelilah	GHANNAM	Université Mohammed V de Rabat, Centre Hospitalo-Universitaire Ibn Sina de Rabat	Institut National d'Oncologie, Avenue Allal Al Fassi, Rabat
New Zealand	Auckland City Hospital CVICU	Parke	Rachael	Cardiothoracic and Vascular ICU, Auckland City Hospital	Auckland, New Zealand
New Zealand	Auckland district Health board DCCM	Chen	Yan	Department of Critical Care Medicine, Auckland City Hospital	Park Road, Grafton, Auckland, New Zealand 1023
New Zealand	Christchurch Hospital	Mehrtens	Jan	Canterbury District Health Board	Department of Intensive Care Medicine Christchurch Hospital, Riccarton Ave, Christchurch New Zealand 8011
New Zealand	Dunedin Hospital	Twardowski	Pawel	Department of Surgical Sciences, Otago Medical School	201 Great King St, Dunedin 9016, New Zealand
New Zealand	Hawke's Bay Hospital	Freebairn	Ross		
New Zealand	Middlemore Hospital	Song	Rima		
New Zealand	North shore hospital	North Shore Hospital	Gibson		NORTH SHORE HOSPITAL, AUCKLAND, NZ
New Zealand	Tauranga Hospital	Chen	Jonathan	Te Whatu Ora Health New Zealand, Hauora a Toi Bay of Plenty	Tauranga, New Zealand 3112
New Zealand	Waikato Hospital	Moore	Richard	Waikato Hospital Intensive Care	183 Pembroke Street, Waikato Hospital, Hamilton, 3204
New Zealand	Wellington Hospital	Sol Cruz	Mary Rose	CCDHB INTENSIVE CARE UNIT	RIDDIFORD STREET NEWTOWN WELLINGTON 6021
Poland		Gawda	Ryszard	Department of Anesthesiology and Intensive Care, Institute of Medical Sciences, University of Opole, Poland	
Poland	Wojskowy Szpital Kliniczny z Poliklinika w Krakowie	Wludarczyk	Anna	Department of Intensive Care and Perioperative Medicine, Jagiellonian University Medical	ul. Wroclawska 1-3, 30-901 Krakow, Poland
Poland	Central University Hospital	Krzych	Łukasz	Department of Anesthesiology and Intensive Care, Medical University of Silesia, Katowice, Poland	Central University Hospital, 14 Medykow Str., 40752 Katowice, Poland
Poland	Medical University of Lublin	Szczukocka	Marta	2nd Department of Anesthesiology and Intensive Care, Medical University of Lublin, Lublin, Poland	Staszica 16, 20-081 Publin, Poland

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Poland	Szpital Wojewodzki w Opolu	Kubiak	Marcin	Oddzial Anestezjologii i Intensywnej Terapii, Szpital Wojewodzki w Opolu	ul. Kosnego 53, 46-020 Opole, Poland
Poland	Uniwersytecki Szpital Kliniczny w Opolu	Molsa	Maciej	Department of Anesthesiology and Intensive Care, Institute of Medical Sciences, University of Opole	al. Witosa 26, 45-401 Opole, Poland
Poland	University Clinical Centre, Medical University of Gdansk	Wujtewicz	Magdalena	Department of Anaesthesiology and Intensive Therapy , Faculty of Medicine, Medical University of Gdansk, Gdansk, Poland	Smoluchowskiego 17, 80-214 Gdansk, Poland
Poland	Wojskowy Szpital Kliniczny z Poliklinika	Wieczorek	Agnieszka	Kliniczny Oddzial Anestezjologii i Intensywnej Terapii, 4 Wojskowy Szpital Kliniczny z Poliklinika SP ZOZ	Weigla 5, 50-981 Wroclaw, Poland
Poland	Szpital Slaski w Cieszynie	Misiewska-Kaczur	Agnieszka	Oddzial Anestezjologii i Intensywnej Terapii, Szpital Slaski w Cieszynie	ul. Bielska 4, 43-400 Cieszyn, Poland
Poland	Wielospecjalistyczny Szpital SPZOZ w Nowej Soli	Maslicki	Marek	Oddzial Anestezjologii i Intensywnej Terapii, Wielospecjalistyczny Szpital SP ZOZ w Nowej Soli	ul. Chalubinskiego 7, 67-100 Nowa Sol, Poland
Poland	Wojewodzki Szpital Specjalistyczny w Olsztynie	Onichimowski	Dariusz	University of Warmia and Mazury in Olsztyn Collegium Medicum Department of Anaesthesiology and Intensive Care	Warszawska 30, 11-041 Olsztyn, Poland
Poland	Szpital Wojewodzki w Bielsku-Bialej	Mazur	Jakub	Oddzial Anestezjologii i Intensywnej Terapii, Szpital Wojewodzki w Bielsku-Bialej	al. Armii Krajowej 101, 43-316 Bielsko-Biala, Poland
Poland	University Clinical Center of Medical University of Warsaw	Zatorski	Pawel	I Department of Anaesthesiology and Intensive Care	4 Lindleya Street, 02-005 Warsaw, Poland
Portugal	Centro Hospitalar de Entre o Douro e Vouga	Mourisco	Mafalda	Intensive Care Medicine Department, Centro Hospitalar de Entre o Douro e Vouga	Rua Dr. Cândido Pinho 5, 4520-211 Santa Maria da Feira
Portugal	Hospital Central do Funchal, Madeira	Mota	Ana Marta	Intensive Care Medicine Department, Hospital Central do Funchal	Av. Luís de Camões 6180, 9000-177 Funchal
Portugal	Centro Hospitalar e Universitário de São João	Fernandes	Joana	Intensive Care Medicine Department, Centro Hospitalar e Universitário de São João	Alameda Prof. Hernâni Monteiro, 4200-319 Porto
Portugal	Centro Hospitalar de Leiria	Castro	Diana	Intensive Care Medicine Department, Centro Hospitalar de Leiria - Hospital de Santo André	R. de Santo André, 2410-197 Leiria
Portugal	Hospital de Braga	Coelho	Elisabete	Intensive Care Medicine Department, Hospital de Braga	R. das Comunidades Lusíadas 133, Braga
Portugal	Unidade de Saude Local do Baixo Alentejo	Paula	Alexandra	Intensive Care Medicine Department, Unidade Local de Saúde do Baixo Alentejo, Hospital José Joaquim Fernandes	R. Dr. Antonio Fernando Covas Lima, 7801-849 Beja
Portugal	Centro Hospitalar Tamega e Sousa	Guimarães	Teresa	Intensive Care Medicine Department, Centro Hospitalar Tâmega e Sousa	Avenida do Hospital Padre Américo 210, 4564-007
Portugal	Centro Hospitalar de Vila Nova de Gaia/Espinho	Adrião	Diana	Centro Hospitalar de Vila Nova de Gaia/Espinho".	R. Conceição Fernandes, 4434-502 Vila Nova de Gaia

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Qatar	Hammad Medical Corporation	Lance	Marcus	Aga Khan University Nairobi, Kenya	3rd Parklands Ave, Nairobi
Serbia	Military Medical Academy Belgrade	Neskovic	Vojislava	Associated Professor of Anesthesia and intensive Care	Crnotravska 17, Belgrade
Slovenia	General Hospital Celje: internal intensive care	Podbregar	Matej	Medical ICU, General Hospital Celje	Celje, Slovenia
Slovenia	University medical center Ljubljana: internal intensive care	Mark	Igor	Clinical department for internal intensive care, UMC Ljubljana	Ljubljana, Slovenia
Slovenia	University medical center Ljubljana: cardiothoracic ICU	Mušič	Elizabeta	Cardiothoracic ICU, UMC Ljubljana	Ljubljana, Slovenia
Slovenia	University medical center Ljubljana: surgical intensive care	Mirković	Tomislav	Department of Anaesthesiology and Surgical Intensive Care, UMC Ljubljana	Ljubljana, Slovenia
Slovenia	University medical center Maribor: internal intensive care	Markota	Andrej	Medical Intensive Care Unit, UMC Maribor	Maribor, Slovenia
Slovenia	University medical center Maribor: surgical intensive care	Krope	Natalija	Surgical ICU, UMC Maribor	Maribor, Slovenia
Slovenia	General hospital Novo Mesto	Kmet	Marko	Medical ICU, general Hospital Novo mesto	Novo mesto, Slovenia
Slovenia	General hospital Murska Sobota	Forjan	Petra	ICU, general Hospital, Murska Sobota	Murska Sobota, Slovenia
Slovenia	General hospital Jesenice	Savli	Tomaž	Surgical ICU, General Hospital Jesenice	Jesenice, Slovenia
Spain	University Hospital Doctor Peset	Llau	Juan V	Chief of the department of anaesthesiology and post-surgical critical care University Hospital Doctor Peset - Valencia, Spain Associated Professor of Anaesthesiology. University of Valencia, Spain	Valencia
Spain	Hospital Universitario La Paz	Quintana-Diaz	Manuel	Intensive Care Service	P.º de la Castellana, 261, 28046 Madrid
Spain	Hospital Clinic Universitari de València	Aguilar	Gerardo	Anaesthesiology and Critical Care Service	Av. de Blasco Ibáñez, 17, 46010 València, Valencia
Spain	H. General Universitario Reina Sofia Murcia	González-Celdrán	Rebeca	Department of Intensive Care	Av. Intendente Jorge Palacios, 1, 30003 Murcia
Spain	Hospital Universitario Doctor Peset	Martínez-González	Estefanía	Department of Intensive Care	Av. de Gaspar Aguilar, 90, 46017 València, Valencia

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Spain	Hospital Universitario de Salamanca	Díaz	Agustín	Department of Intensive Care	P.º de San Vicente, 182, 37007 Salamanca
Spain	Hospital de Bellvitge	Colomina	María José	Department of Intensive Care	Carrer de la Feixa Llarga, s/n, 08907 L'Hospitalet de Llobregat, Barcelona
Spain	Clínica Universidad de Navarra	Hidalgo	Francisco	Department of Intensive Care	Av. de Pío XII, 36, 31008 Pamplona, Navarra
Spain	Surgical IC Clinic Hospital Barcelona	Ferrando	Carlos	Department of Intensive Care	C. de Villarroel, 170, 08036 Barcelona
Spain	Hospital Universitari i Politecnic La Fe, Valencia	Ferrandis	Raquel	Department of Intensive Care	Avinguda de Fernando Abril Martorell, 106, 46026 València, Valencia
Spain	Consortio Hospital General Universitario de Valencia	Ferrer	Carolina	Department of Intensive Care	Av. de les Tres Creus, 2, 46014 València, Valencia
Spain	Hospital Sant Pau	Cegarra	Virginia	Department of Intensive Care	Carrer de Sant Antoni Maria Claret, 167, 08025 Barcelona
Spain	Hospital Universitario Virgen de la Victoria	Gómez-Luque	Aurelio	Department of Intensive Care	Campus de Teatinos, S/N, 29010 Málaga
Sweden	Sahlgrenska Universitetssjukhuset	Henman	Stina	Sahlgrenska University Hospital, Department of Anaesthesia and Intensive Care	Blå Stråket 5, 413 45 Göteborg
Sweden	Sunderbyns Sjukhus	Blomstrand	Disa	Region Norrbotten	Region norrbotten 97189 Luleå
Sweden	Akademiska Sjukhuset Uppsala	Risberg	Emelie	Akademiska Sjukhuset, Department of Anaesthesia and Intensive Care	Anestesi, operation och intensivvård Akademiska sjukhuset Ing 70, plan 1 751 85 Uppsala
Sweden	Södersjukhuset	Cronhjort	Maria	Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset	Sjukhusbacken 10, 11883, Södersjukhuset
Sweden	Södersjukhuset	Johansen	Natalie	Södersjukhuset, Department of Anaesthesia and Intensive Care	Sjukhusbacken 10, 11883, Södersjukhuset
Sweden	Karolinska Sjukhuset Solna	Rajala	Henrik	Karolinska Universitetssjukhuset, Department of Anaesthesia and Intensive Care	Karolinska Universitetssjukhuset, Solna, 17176 Stockholm
Sweden	Karolinska Sjukhuset Huddinge	Layous	Natalie	Karolinska Universitetssjukhuset, Department of Anaesthesia and Intensive Care	Karolinska Universitetssjukhuset, Huddinge, 141 86 Stockholm
Switzerland	University Hospital of Bern	Pfortmueller	Carmen Andrea	Department of Intensive Care, Inselspital, Bern University Hospital and University of Bern, Bern, Switzerland	Freiburgstrasse 10, 3010 Bern
The Netherlands	St Antonius Ziekenhuis	Vlot	Eline A.	Department of Intensive Care	Koekoekslaan 1, 3435 CM Nieuwegein
The Netherlands	Dijklander ziekenhuis	Erkamp	Michiel	Department of Intensive Care, Dijklander Ziekenhuis	Maelsonstraat 3, 1624 NP Hoorn, NL

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
The Netherlands	OLVG	Nicole	Juffermans	OLVG	Oosterpark 9 1091AC Amsterdam
The Netherlands	Amsterdam UMC, AMC	van den Oord	Claudia	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	Reuland	Merijn	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	van Wonderen	Stefan	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	Raasveld	Senta Jorinde	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	de Grooth	Harm-Jan	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	de Bruin	Sanne	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	Amsterdam UMC, AMC	Schenk	Jimmy	Department of Intensive Care, Amsterdam UMC, location AMC, Amsterdam	Meibergdreef 9, 1105AZ
The Netherlands	UMCG	Kuznecova-Keppel Hesselink	Lidija	Intensive care unit	Hanzeplein 1, 9713 GZ Groningen
The Netherlands	Franciscus gasthuis & Vlietland	van Bochove	Victor	Franciscus Gasthuis & Vlietland	kleiweg 500, 3045 PM, Rotterdam
Türkiye	University of Health Sciences Dr.Siyami Ersek Thoracic and Cardiovascular Surgery Center	Yapici	Nihan	Department of Anesthesiology and Reanimation, Dr.Siyami Ersek Thoracic and Cardiovascular Surgery Center, University of Health Sciences	Selimiye, Tibbiye Cd No:13, 34668 Uskudar/Istanbul
Türkiye	University of Health Sciences Dr.Siyami Ersek Thoracic and Cardiovascular Surgery Center	Acarel	Murat	Department of Anesthesiology and Reanimation, Dr.Siyami Ersek Thoracic and Cardiovascular Surgery Center, University of Health Sciences	Selimiye, Tibbiye Cd No:13, 34668 Uskudar/Istanbul
Türkiye	Koc University School of Medicine Department of Anesthesiology and Reanimation	Senturk	Evren	Department of Anesthesiology and Reanimation, Koc University School of Medicine	Topkapi, Koc Universitesi Hastanesi, Davutpasa Cd. No:4, 34010 Zeytinburnu/Istanbul
Türkiye	Harran University Medical Faculty Department of Anesthesiology and Reanimation	Karahan	Mahmut Alp	Department of Anesthesiology and Reanimation, Harran University Medical Faculty	Sanlıurfa-Mardin Karayolu Sanlıurfa/Türkiye

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Türkiye	Baskent University Faculty of Medicine, Anesthesiology Department	Camkiran Firat	Aynur	Department Anesthesiology, Baskent University Faculty of Medicine	Yukari Bahcelievler, Maresal Fevzi Cakmak Cd. No:45, 06490 Cankaya/Ankara
Türkiye	Medipol University Medical Faculty Hospital	Yildiz	Yahya	Department Anesthesiology, Medipol University Medical Faculty Hospital	TEM Avrupa otoyolu goztepe cikisi no:1, 34214 Bagcilar/Istanbul
Türkiye	University of Health Sciences Haydarpaşa Training and Research Hospital	Ekinci	Osman	Department of Anesthesiology and Reanimation, Haydarpaşa Training and Research Hospital, University of Health Sciences	Tibbiye Caddesi No:23 34668 Uskudar / ISTANBUL
Türkiye	University of Health Sciences Haydarpaşa Training and Research Hospital	Ozgultekin	Asu	Department of Anesthesiology and Reanimation, Haydarpaşa Training and Research Hospital, University of Health Sciences	Tibbiye Caddesi No:23 34668 Uskudar / ISTANBUL
Türkiye	Van Yuzuncu Yil University Dursun Odabas Medical Center	Arikan	Huseyin	Department of Intensive Care, Dursun Odabas Medical Center, Van Yuzuncu Yil University	Van Yuzuncu Yil Universitesi Dursun Odabas Tip Merkezi, 65000, Kampus / VAN
Türkiye	Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anesthesiology and Reanimation	Kucukosman	Gamze	Department of Anesthesiology and Reanimation, Zonguldak Bülent Ecevit University Faculty of Medicine	Esenkoy, 67000 Zonguldak Merkez/Zonguldak
Türkiye	Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anesthesiology and Reanimation	Aydin	Bengu Gulhan	Department of Anesthesiology and Reanimation, Zonguldak Bülent Ecevit University Faculty of Medicine	Esenkoy, 67000 Zonguldak Merkez/Zonguldak
Türkiye	University of Health Sciences Izmir Tepecik Training and Research Hospital	Yavuz	Mehmet	Department of Intensive Care, Izmir Tepecik Training and Research Hospital, University of Health Sciences	Yenisehir, Gaziler Cd No:468, 35020 Konak/Izmir
Türkiye	University of Health Sciences Fatih Sultan Mehmet Education and Research Hospital, ICU	Oztas	Alev	Department of Intensive Care, Fatih Sultan Mehmet Education and Research Hospital, University of Health Sciences	Icerenkoy, D100 Uzeri D:İ, 34752 Atasehir/Istanbul
Türkiye	University of Health Sciences Antalya Training and Research Hospital	Kavrut Ozturk	Nilgun	Department of Anesthesiology and Reanimation, Antalya Training and Research Hospital, University of Health Sciences	Varlik, Kazim Karabekir Cd., 07100 Muratpasa/Antalya
Türkiye	Malatya Training and Research Hospital	Kasapoglu	Umut Sabri	Department of Intensive Care, Malatya Training and Research Hospital	Ozalper, Kanal Boyu Cd. No:4, 44000 Yesilyurt/Malatya

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Türkiye	Yozgat Bozok University Faculty Of Medicine Department Of Anesthesiology And Reanimation	Miniksar	Hakan	Department Of Anesthesiology And Reanimation, Faculty Of Medicine , Yozgat Bozok University	Capanoglu Mah. Cemil cicek Cad Bozok Universitesi, Ataturk Yolu 7. KM, 66100 Yozgat Merkez/Yozgat
Türkiye	University of Health Sciences Sureyyapasa Chest Diseas and Thoracic Surgery Training and Research Hospital	Tuncay	Eylem	Department of Intensive Care Sureyyapasa Chest Diseas and Thoracic Surgery Training and Research Hospital, University of Health Sciences	Basibuyuk, Hastane Yolu D:c blok, 34844 Maltepe/Istanbul
Türkiye	University of Health Sciences Kartal Kosuyolu High Speciality Educational and Research Hospital	Indelen	Cenk	Department Of Anesthesiology And Reanimation, Kartal Kosuyolu High Speciality Educational and Research Hospital, University of Health Sciences	Cevizli, 2, Denizer Caddesi, Cevizli Kavsagi, 34865 Kartal/Istanbul
Türkiye	University of Health Sciences Kartal Kosuyolu High Speciality Educational and Research Hospital	Ogus	Halide	Department Of Anesthesiology And Reanimation, Kartal Kosuyolu High Speciality Educational and Research Hospital, University of Health Sciences	Cevizli, 2, Denizer Caddesi, Cevizli Kavsagi, 34865 Kartal/Istanbul
Türkiye	Recep Tayyip Erdogan University Medical Faculty	Erdivanli	Basar	Department Of Anesthesiology And Reanimation, Medical Faculty Hospital, Recep Tayyip Erdogan University	Islampasa Mahallesi.Sehitler Caddesi No.74 Rize
Türkiye	University of Health Sciences Kanuni Sultan Süleyman Training and Research Hospital	Sahin	Ayca Sultan	Department Of Anesthesiology And Reanimation, Kanuni Sultan Süleyman Training and Research Hospital, University of Health Sciences	Atakent Mh, Turgut Ozal Bulvari No:46/1, 34303 Kucukcekmece/Istanbul
Türkiye	University of Health Sciences Derince Training and Research Hospital	Yilmaz	Mehmet	Department Of Anesthesiology And Reanimation, Derince Training and Research Hospital, University of Health Sciences	Ibnisina, Lojman Sk., 41900 Derince/Kocaeli
Türkiye	University of Health Sciences Bursa Yuksek Ihtisas Training and Research Hospital	Sayan	Erken	Department Of Anesthesiology And Reanimation, Bursa Yuksek Ihtisas Training and Research Hospital, University of Health Sciences	Mimarsinan Mah. Emniyet Cad. 16310 Yildirim/Bursa
Türkiye	University of Health Sciences Bursa Yuksek Ihtisas Training and Research Hospital	Yilmaz	Canan	Department Of Anesthesiology And Reanimation, Bursa Yuksek Ihtisas Training and Research Hospital, University of Health Sciences	Mimarsinan Mah. Emniyet Cad. 16310 Yildirim/Bursa
Türkiye	University of Health Sciences Umraniye Training and Research Hospital	Goksu	Senay	Department Of Anesthesiology And Reanimation, Ümraniye Training and Research Hospital, University of Health Sciences	Elmalikent, Adem Yavuz Cd., 34764 Umraniye/Istanbul

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
Türkiye	Konya Training and Research Hospital	Basaran	Betul	Department Of Anesthesiology And Reanimation, Konya Training and Research Hospital	Ayanbey Mah.Yeni Meram Cad.No:97 Konya
Türkiye	Konya Training and Research Hospital	Kutahya	Emine	Department Of Anesthesiology And Reanimation, Konya Training and Research Hospital	Ayanbey Mah.Yeni Meram Cad.No:97 Konya
Türkiye	University of Health Sciences Gaziosmanpasa Training and Research Hospital	Gok	Ayfer Kaya	Department Of Anesthesiology And Reanimation, Gaziosmanpasa Training and Research Hospital, University of Health Sciences	Karayollari, Osmanbey Cd. 621 Sokak, 34255 Gaziosmanpasa/Istanbul
Türkiye	University of Health Sciences Ankara Training and Research Hospital	Ozcan	Ayse	Department Of Anesthesiology And Reanimation, Ankara Training and Research Hospital, University of Health Sciences	Ankara Egitim ve Arastirma Hastanesi Hacettepe Mh. Ulucanlar Cd. No:89 Altindag / ANKARA
Türkiye	Selcuk University Medical Faculty	Kara	Iskender	Department Of Anesthesiology And Reanimation, Medical Faculty, Selcuk University	Ardicli, Akademi, Celal Bayar Cd. No:313, 42250 Selcuklu/Konya
Türkiye	University of Health Sciences Trabzon Kanuni Training and Research Hospital	Kartal	Seyfi	Department Of Anesthesiology And Reanimation, Trabzon Kanuni Training and Research Hospital, University of Health Sciences	Kasustu Mah. Topal Osman Cad. No: 7 Yomra / TRABZON
Türkiye	University of Health Sciences Kartal Dr. Lutfi Kirdar Training and Research Hospital	Saracoglu	Kemal Tolga	Department Of Anesthesiology And Reanimation, University of Health Sciences Kartal Dr. Lutfi Kirdar Training and Research Hospital	Cevizli, D-100 Guney Yanyol, Cevizli Mevkii No:47, 34865 Kartal/Istanbul
Türkiye	University of Health Sciences Kartal Dr. Lutfi Kirdar Training and Research Hospital	Bilir	Yeliz	Department Of Anesthesiology And Reanimation, University of Health Sciences Kartal Dr. Lutfi Kirdar Training and Research Hospital	Cevizli, D-100 Guney Yanyol, Cevizli Mevkii No:47, 34865 Kartal/Istanbul
Türkiye	Giresun University Medical Faculty	Eyupoglu	Selin	Department of Intensive Care, Medical Faculty , Giresun University	Merkez, Teyyareduzu Mah, Ataturk Blv. No:323, 28200 Giresun Merkez/Giresun
Türkiye	S.B.U. Diskapi Yildirim Beyazit Training and Research Hospital-Ankara	Ertugrul Oruc	Nigar	Department Of Anesthesiology And Reanimation, Diskapi Yildirim Beyazit Training and Research Hospital, University of Health Sciences	Ziraat, Sht. Omer Halisdemir Blv No:1, 06110 Altindag/Ankara
Türkiye	Ministry of Health Sakarya Training and research Hospital	Issever	Kubilay	Department of Intensive Care, Sakarya Training and research Hospital, Ministry of Health/ Giresun University Medical Faculty Department of Internal Medicine	Adnan Menderes Caddesi Saglik Sokak No: 195 Adapazari
UK		Shah	Akshay	Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford	
UK	Warwick Hospital	Patel	Jamie	Warwick Hospital	Lakin Road, Warwick, CV34 5BW
UK	Lewisham and Greenwich NHS Trust	Clarke	Jayson	University Hospital Lewisham	Lewisham High Street, London, SE13 6LH
UK	Whittington Health	Ma	Louise	Whittington Hospital	Magdala Avenue, London, N19 5NF

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
UK	Bradford Teaching Hospitals	Lawton	Tom	Bradford Teaching Hospitals NHS Foundation Trust	Bradford Royal Infirmary, Duckworth Lane, Bradford, BD9 6RJ
UK	Mid Yorkshire Hospitals NHS Trust	Sloan	Brendan	Mid Yorkshire Hospitals NHS Trust	Pinderfields Hospital, Wakefield, WF1 4DG
UK	SWBH Birmingham	Kannan	Santhana	City Hospital	Sandwell and West Birmingham Hospitals NHS Trust, Dudley Road, Birmingham, B19 7QH
UK	Somerset FT	Innes	Richard	Taunton and Somerset NHS Foundation Trust	Musgrove Park Hospital, Parkfield Drive, Taunton, TA1 5DA
UK	South Tyneside and Sunderland NHS Foundation Trust	Carpenter	Mark	South Tyneside and Sunderland NHS Foundation Trust	Kayll Road, Sunderland, SR4 7TP
UK	Swansea Bay University Health Board	Newey	Luke	Morrison Hospital	Swansea
UK	Barnsley Hospital NHS Foundation Trust	Alwagih	Hazem	Barnsley Hospital	Foundation Block 2, Pogmoor Road Entrance, Barnsley, S75 2EP
UK	Oxford John Radcliffe Hospital	Acott	Chris	Oxford University Hospitals NHS Foundation	John Radcliffe Hospital, Oxford, OX3 9DU
UK	The Rotherham NHS Foundation Trust	Hormis	Anil	The Rotherham NHS Foundation Trust	Moorgate Road, Rotherham, S60 2UD
UK	Neuro ICU Oxford John Radcliffe Hospital	Herdman	James	Oxford University Hospitals NHS Foundation	John Radcliffe Hospital, Oxford, OX3 9DU
UK	Royal Berkshire Hospital	Akrama	Osama	Royal Berkshire Hospital NHS Foundation Trust	London Road, Reading, Berkshire, RG1 5AN.
UK	Royal national Orthopaedic Hospital Stanmore	Baumber	Rachel	Royal National Orthopaedic Hospital NHS Trust	Brockley Hill, Stanmore, Middlesex, HA7 4LP
Ukraine	O.O. Shalimov Nat. Institute of Surgery and Transplantology, Nat. Ac. of Med. Sciences of Ukraine	Khomenko	Olena	1) State Institution O.O. Shalimov National Institute of Surgery and Transplantology of National Academy of Medical Sciences of Ukraine, Dept of Anaesthesiology & Intensive Care - Senior research fellow. 2) Bogomolets National Medical University, Department of Surgery, anaesthesiology and intensive care of the institute of postgraduate education - assistant	Heroiv Sevastopolia, 30 Kyiv, 03680
USA	Oregon Health and Science University	Khan	Akram	Oregon Health & Science University	3181 SW. Sam Jackson Park Rd. UHN-67, Portland Oregon 97239
USA	Northwell EDU	Hasan	Zubair	Division of Pulmonary, Critical Care, and Sleep Medicine, Department of Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell	410 Lakeville Road, Suite 107, New Hyde Park, NY 11042 USA
USA	university of new mexico school of medicine	Nielsen	Nathan D	University of New Mexico School of Medicine	Albuquerque, NM

Country	Hospital Name	Surname	Name	Affiliation	Address primary affiliation
USA	university of new mexico school of medicine	Raval	Jay S.	University of New Mexico School of Medicine	Albuquerque, NM
USA	Columbia University	Sutherland	Lauren	Department of Anesthesiology, Columbia University Medical Center, New York City, United States of America.	622 W 168th Street, NY, NY 10032

eTable 4. Inclusion weeks

Inclusion week #	Week number	From (dd-mm-yyyy)	Up to and including (dd-mm-yyyy)	Year
1	10	2-3-2020	8-3-2020	2020
2	16	13-4-2020	19-4-2020	2020
3	22	25-5-2020	31-5-2020	2020
4	30	20-7-2020	26-7-2020	2020
5	37	7-9-2020	13-9-2020	2020
6	43	19-10-2020	25-10-2020	2020
7	49	7-12-2020	13-12-2020	2020
8	3	18-1-2021	24-1-2021	2021
<i>Scheduled extra weeks</i>				
9	10	8-3-2021	14-3-2021	2021
10	15	12-4-2021	18-4-2021	2021
11	21	24-5-2021	30-5-2021	2021
12	26	28-6-2021	4-7-2021	2021
13	31	2-8-2021	8-8-2021	2021
14	38	20-9-2021	26-9-2021	2021
15	43	25-10-2021	30-10-2021	2021
16	48	29-11-2021	5-12-2021	2021

An exception was made for Australia-New Zealand due to the delayed COVID-19 wave. Their data collection timeframe was rescheduled separately: January 2022 – October 2022.

eMethods 1. Data cleaning, missing data patterns and prerequisites

After every inclusion week, the specific center's data was evaluated using a basic checklist, after which inconsistencies were shared with the center:

- Inclusion: is for an included patient informed consent available when required;
- Inclusion: is for every patient at least a demographics, daily, and outcome (28-day follow up) questionnaire available;
- Do the number of questionnaires (i.e., daily) match the stated number of ICU days;
- Do the number of transfusion questionnaires match the stated number of transfusion events.

In addition, after confirmation of the participating center that the data was complete, a more detailed check of the data was performed per center, after which outliers were shared and checked with the center itself. This included, but was not limited to:

- In case certain variables with dependencies are filled in, is the dependent variable filled in as well (i.e., "shock present" leads to "which type of shock");
- In case certain unit is filled in (i.e., for Hemoglobin g/L), are the values in line with the expected range of that unit (g/L);
- Inclusion: is for every patient at least a demographics, daily, and outcome (28-day follow up) questionnaire available;
- Do the number of questionnaires (i.e., daily) match the stated number of ICU days;
- Do the number of transfusion questionnaires match the stated number of transfusion events.

After closure of the database, we started with in detail assessment of the missing data. Different patterns can be found with regard to missing data, including missing-at-random (MAR), missing completely at random (MCAR) and not missing at random (NMAR). Depending of this missingness pattern, different strategies for handling missing data are advised. Most methods assume data is MAR. However, in case of NMAR, methods to handle the missing data points can be most complex.

Therefore, we evaluated the missing count and pattern using the *naniar* and *visdat* packages. By using these packages, we can identify the combinations of missingness and intersections of missingness amongst variables. Missingness of these variables was assumptive of a not-missing at random pattern, and was correlated with a majority of other missing variables in this patient. The following variables were identified as minimally required and thus mandatory:

- (Demographics) Sex;
- (Demographics) Code (do not resuscitate/do not intubate);
- (Demographics) Referring specialism;
- (Daily) Day of ICU stay/no. of day since ICU admission;
- (Daily) Hb measurement available;
- (Outcome) Follow-up at day 28;
- (Outcome) Number of days admitted.

Moreover, certain quality checks were performed, including the following:

- No. of daily questionnaires available **is equal to** days of ICU admission (with a maximum of 28 days that data collection was required);
- Daily questionnaire: RBC transfused = transfusion questionnaire for that day **has to be** available;
- In case of non-transfused: demographics, daily and outcome questionnaire **have to be** available;
- In case of transfused: demographics, daily, transfusion and outcome questionnaire **have to be** available;
- In case of ICU stay >3 days: daily questionnaires **have to have** concomitant dates.

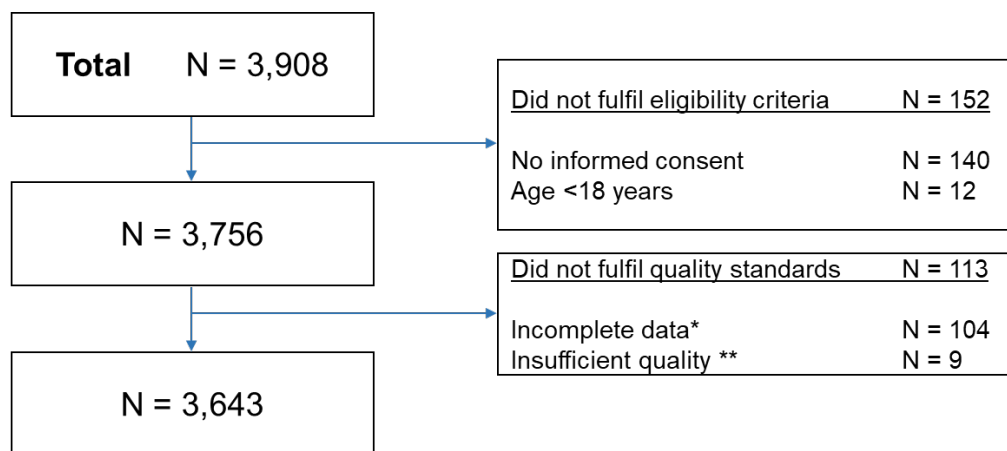
Lastly, after removing the patient records of those who did not fulfill the above described criteria, an evaluation of the frequencies and patterns of missing data were assessed in the cleaned dataset. This resulted in the Table as presented on the following page.

eTable 5. Missing data frequencies in cleaned dataset, stratified per continent

Variable (alphabetical order)	Africa (N = 150)	Asia (N = 182)	Europe (N = 2,167)	South America (N = 50)	North America (N = 167)	Oceania (N = 927)
Admission type (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Age (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Anemia during ICU stay (daily)	8 (5)	5 (3)	32 (1.5)	1 (2)	2 (1.2)	7 (0.8)
Blood loss (daily)	13 (8.7)	0 (0)	23 (1.1)	0 (0)	0 (0)	2 (0.2)
Code status: DNI (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Code status: DNR (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
COVID status (28-day follow-up) ^a	0 (0)	0 (0)	536 (24.7)	8 (16)	0 (0)	25 (2.7)
Day 28 follow-up assessment (28-day follow-up)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Hb available admission (demographics)	0 (0)	0 (0)	13 (0.6)	0 (0)	0 (0)	0 (0)
Hb threshold (transfusion)	40/89 (45.0)	25/103 (24.3)	266/1,024 (26.0)	0/31 (0)	29/55 (52.7)	179/425 (42.1)
Hb before transfusion (transfusion)	18/89 (20.2)	3/103 (2.9)	77/1,024 (7.5)	0/31 (0)	2/55 (3.6)	17/425 (4.0)
Hb after transfusion (transfusion)	20/89 (22.5)	30/103 (2.9)	192/1,024 (18.8)	0/31 (0)	24/55 (43.6)	58/425 (13.6)
Medical history (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Nadir Hb transfusion day (daily)	7 (4.7)	5 (2.7)	4 (0.2)	1 (2.0)	0 (0)	5 (0.5)
Platelet count admission available (demographics)	0 (0)	0 (0)	2 (0.1)	0 (0)	0 (0)	0 (0)
Reason of admission (demographics)	1 (0.7)	0 (0)	5 (0.2)	0 (0)	0 (0)	2 (0.2)
Referred from (demographics)	0 (0)	0 (0)	2 (0.1)	0 (0)	0 (0)	0 (0)
Referring specialism (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Sex (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Shock present (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
SOFA (daily)	37 (24.7)	21 (11.5)	401 (18.5)	1 (2.0)	151 (90.4)	257 (27.7)
Supportive therapy at admission: other (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Supportive therapy: mechanical invasive ventilation (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Surgery <24 hours prior to ICU admission (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total days ICU stay (28-day follow up)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Transfusion status (daily)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Type of surgery (demographics)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Sex, code (DNR/DNI), referring specialism, days of ICU stay, at least one daily Hb available, follow-up status at day 28 and total days of ICU submission were identified as variables with an interaction suggestive of not-missing-at-random data. A total of 104 patients with missing data were removed, as well as 9 with an incongruence in questionnaires, resulting in the cleaned dataset (eMethods 1). ^a COVID variable was introduced after the second inclusion week, at the time the pandemic started.

eFigure 1. Flowchart



Flowchart

* Incomplete data: after assessment of the missingness pattern, seven variables were identified as “minimally required” and thus “mandatory”. Missingness of these variables was assumptive of a not-missing-at-random pattern, and as a result marked as “*mandatory*” variables. Mandatory variables included: sex, code (do not resuscitate/intubate), referral, day since admission day, Hb measurement available, follow-up state at day 28, number of days admitted.

** Insufficient quality: i.e., large incongruence between questionnaire types, for example non-consecutive calendar dates in consecutive daily questionnaires larger than a day difference (i.e., within different months), or grotesque mismatches in number of questionnaires (for example, two daily questionnaires created for a patient with a stated ICU admission of 28 days).

eTable 6. Details participating countries

Country	No. of centers	No. of patients	Income status	Transfusion occurrence rate (%)	mean Hb threshold among those transfused	mean nadir Hb on transfused days among those transfused	mean Hb during ICU stay among all patients
					median (IQR)	median (IQR)	median (IQR)
Australia	31	731	High income	22	8.0 (7.0-8.0)	7.5 (6.9-8.0)	10.4 (8.8-12.2)
Bangladesh	2	31	Lower middle income	26	7.0 (6.8-9.0)	8.2 (7.6-9.0)	11.1 (10.5-12.9)
Belgium	2	43	High income	19	7.5 (7.3-7.5)	6.9 (6.5-7.5)	11.0 (9.0-13.2)
Croatia	4	70	High income	33	9.0 (8.6-9.0)	8.5 (8.0-8.9)	10.4 (9.4-11.6)
Czech Republic	2	39	High income	13	9.0 (8.5-9.5)	7.8 (7.3-8.3)	10.8 (9.4-11.7)
Denmark	3	45	High income	31	6.9 (6.9-6.9)	8.4 (7.5-8.9)	10.6 (8.8-12.3)
Ecuador	4	50	Upper middle income	28	11.5 (10.2-13.6)	7.9 (7.5-8.7)	11.9 (9.7-13.4)
Egypt	1	5	Lower middle income	80	-	8.3 (8.0-9.0)	9.7 (9.3-10.1)
France	16	254	High income	16	7.0 (7.0-8.0)	7.3 (6.7-8.3)	10.6 (8.8-12.0)
Greece	21	106	High income	28	8.0 (7.0-8.0)	7.4 (7.0-8.1)	10.6 (9.2-11.9)
India	6	138	Lower middle income	36	9.0 (8.6-10)	7.8 (7.0-9.3)	9.9 (8.3-11.6)
Iran	1	5	Lower middle income	0	-	-	8.1 (7.9-8.6)
Iraq	1	8	Upper middle income	38	8.0 (7.5-8.6)	7.9 (7.6-8.0)	8.0 (7.4-8.7)
Italy	6	51	High income	24	8.0 (8.0-8.0)	7.6 (7.3-7.9)	9.6 (8.5-12.3)
Libya	22	115	Upper middle income	45	10.0 (8.0-12.8)	8.7 (7.2-10.2)	10.0 (8.4-12.7)
Morocco	1	23	Lower middle income	48	10.0 (9.0-10.0)	8.8 (8.5-9.2)	9.5 (9.3-10.3)
New-Zealand	9	196	High income	18	8.0 (7.5-8.0)	7.5 (7.2-7.7)	10.2 (8.8-12.0)
Poland	11	59	High income	27	8.0 (8.0-9.0)	7.4 (6.8-7.7)	10.0 (8.8-11.5)
Portugal	8	126	High income	20	7.5 (7.0-8.0)	7.2 (6.7-7.5)	11.0 (9.1-12.6)
Qatar	1	7	High income	14	8.0 (8.0-8.0)	7.9 (7.9-7.9)	12.1 (9.8-13.5)
Serbia	1	16	Upper middle income	6	7.0 (7.0-7.0)	5.3 (5.3-5.3)	12.4 (11.2-13.1)
Slovenia	7	50	High income	40	9.0 (9.0-10.0)	8.3 (8.2-8.7)	10.2 (9.2-12.1)
Spain	11	194	High income	24	8.0 (7.5-9.0)	8.1 (7.4-8.8)	11.0 (9.2-12.4)
Sweden	6	86	High income	29	8.8 (8.0-9.0)	7.8 (7.5-8.5)	10.9 (8.9-12.5)
Switzerland	1	44	High income	23	8.0 (7.0-8.8)	7.3 (7.1-8.3)	10.3 (8.3-12.9)
the Netherlands	6	128	High income	20	7.3 (7.3-8.1)	8.1 (7.4-9.7)	11.0 (9.8-12.3)
Turkey	29	685	Upper middle income	28	9.0 (8.0-9.0)	8.0 (7.3-8.8)	10.2 (8.9-11.6)
Ukraine	1	47	Lower middle income	23	8.0 (8.0-9.0)	9.1 (8.1-10.2)	12.0 (10.0-13.2)
United Kingdom	15	124	High income	19	7.0 (7.0-7.9)	7.9 (7.3-9.6)	11.1 (9.5-12.5)
United States of America	4	167	High income	19	7.0 (7.0-7.0)	7.2 (6.7-7.7)	10.8 (9.1-13.0)

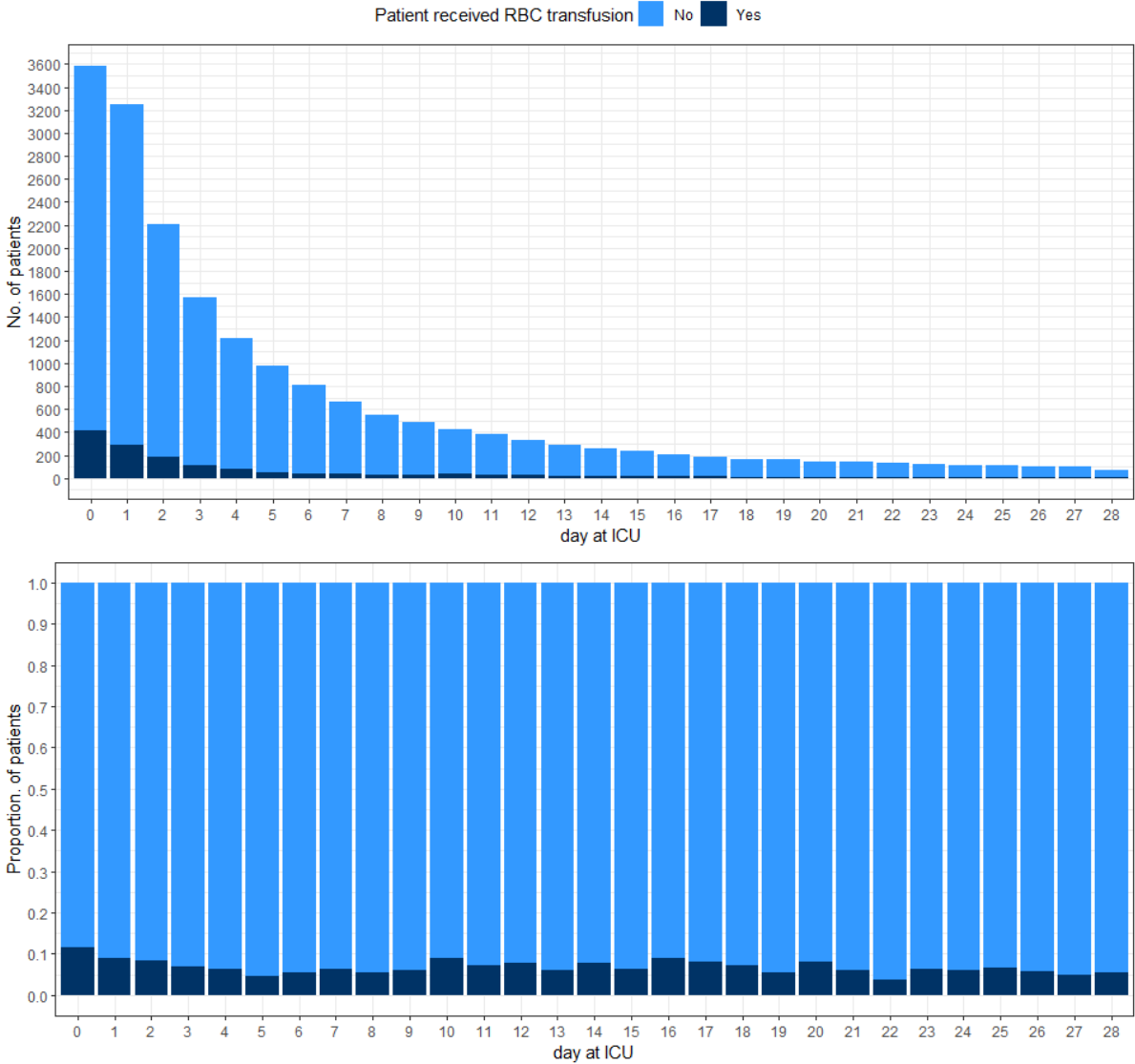
eTable 7. Patient outcomes stratified by transfusion status

Variable	Overall N = 3,643	Transfused N = 894	Non-transfused N = 2,749	P-value (unadjusted)
Total days ICU admission	3 (2 - 6)	4 (2 - 9)	3 (2 - 5)	<0.001
Day 28, state of patient				
<i>Alive</i>	2781 (76.3)	651 (72.8)	2130 (77.5)	<0.01
Discharged from hospital	2248 (80.8)	439 (67.3)	1809 (84.9)	<0.001
General ward	426 (15.3)	151 (23.2)	275 (12.9)	<0.001
ICU	83 (3.0)	51 (7.8)	32 (1.5)	<0.001
ICU readmission	25 (0.9)	11 (1.7)	14 (0.7)	0.03
<i>Deceased</i>	618 (17.0)	206 (23.0)	412 (15.0)	<0.001
During ICU admission	443 (71.8)	150 (73.2)	293 (71.1)	0.73
After ICU admission, inside hospital	157 (25.4)	51 (24.9)	106 (25.7)	0.87
After ICU admission, outside hospital	17 (2.8)	4 (2.0)	13 (3.2)	0.54
<i>Unknown</i>	244 (6.7)	37 (4.1)	207 (7.5)	0.001
Discharged from ICU, status after discharge unknown	55 (22.4)	6 (15.8)	49 (23.6)	0.43
Transferred to other hospital (ICU), current status unknown	37 (15.0)	9 (23.7)	28 (13.5)	0.26
Transferred to other hospital (general ward), current status unknown	20 (8.1)	3 (7.9)	17 (8.2)	1.00
Discharged from hospital, current status unknown	134 (54.5)	20 (52.6)	114 (54.8)	1.00
COVID status				<0.001
Confirmed positive by CAT-scan (CO-RADS >5)	13 (0.4)	0 (0.0)	13 (0.6)	0.08
Confirmed positive by PCR test	304 (9.9)	41 (5.7)	263 (11.2)	<0.001
Suspected but no testing available	17 (0.6)	4 (0.6)	13 (0.6)	1.00
No clinical suspicion and no testing	1638 (53.3)	384 (53.0)	1254 (53.4)	0.04
Confirmed negative	1102 (35.8)	295 (40.7)	807 (34.3)	0.18
Abbreviations: CAT-scan, computerized axial tomography scan; CO-RADS, coronavirus disease 2019 (COVID-19) Reporting and Data System; ICU, intensive care unit; PCR, polymerase chain reaction				

eTable 8. Post-surgical vs. non-post-surgical patients

Variable	Post-surgical admission (N = 1,602)^a	Non-post-surgical admission (N = 2,034)^a
Proportion transfused	491 (30.7)	401 (19.7)
Total sum RBC transfused	2 (1-4)	2 (1-3)
Total transfusion events	2 (1-3)	2 (1-4)
Mean Hb during ICU stay, g/dL	10.3 (2.0)	10.9 (2.4)
Transfusion events (no.)	963	762
Part of massive transfusion protocol	34 (3.5)	9 (1.2)
Hemoglobin level		
Threshold pre-defined, g/dL	8.0 (7.5-9.0)	8.0 (7.0-9.0)
Restrictive (≤ 7 g/dL)	110 (11.4)	189 (24.8)
Intermediate (7 - 9 g/dL)	241 (25.0)	189 (24.8)
Liberal (≥ 9 g/dL)	289 (30.0)	170 (22.3)
Missing	323 (33.5)	214 (28.0)
Prior transfusion, g/dL	7.88 (1.66)	7.40 (1.36)
Post transfusion, g/dL	9.28 (1.54)	8.81 (1.32)
Reason for RBC transfusion (<i>multiple options possible</i>)		
Low Hb value	739 (76.7)	672 (88.2)
Active bleed	304 (31.6)	175 (23.0)
Hemodynamic instability	241 (25.0)	165 (21.7)
Improving general state	68 (7.1)	74 (9.7)
Improving peripheral O ₂	59 (6.1)	56 (7.3)
Age of patient	16 (1.7)	44 (5.8)
(New) coronary ischemia	32 (3.3)	37 (4.9)
Improving weaning	17 (1.8)	26 (3.4)
Pre-surgery	45 (4.7)	21 (2.8)
Other	36 (3.7)	11 (1.4)
Part of clinical trial	4 (0.4)	2 (0.3)
Exchange transfusion	1 (0.1)	1 (0.1)
Trigger for RBC transfusion (<i>multiple options possible</i>)		
None	362 (37.6)	319 (41.9)
Hypotension	420 (43.6)	308 (40.4)
Tachycardia	253 (26.3)	220 (28.9)
High lactate levels (>2 mmol/L)	169 (17.5)	139 (18.2)
Acidosis	107 (11.1)	97 (12.7)
Arrhythmia	33 (3.4)	37 (4.9)
SVO ₂ < 65%	16 (1.7)	20 (2.6)
SCVO ₂ < 65%	15 (1.6)	15 (2.0)
Other	51 (5.3)	15 (2.0)
ECG changes	9 (0.9)	14 (1.8)
Presented as no. (%) for frequency data, median (IQR, 1 st -3 rd quartile borders) for non-parametric and mean (SD) for parametric numerical variables.		
Post-surgical defined as receiving surgery within 24 hours before or after ICU admission.		
^a For 7 patients, the post-surgical status was not available.		
Abbreviations: ECG, Electrocardiogram; Hb, hemoglobin; RBC, red blood cells; SCVO ₂ , central venous oxygen saturation; SVO ₂ , mixed venous oxygen saturation		

eFigure 2. Absolute count and proportion receiving an RBC transfusion per admission day



This figure shows the absolute count (above) and proportion (below) of patients that received an RBC transfusion for each admission day at the ICU. In the upper section, a steady decline in the absolute number of ICU admitted and transfused patients is observed. The lower section shows the average proportion of patients receiving an RBC transfusion per day at the ICU. The daily RBC transfusion rate was 6%, ranging from 11% (N=416/3,643) on admission to 5% on day 5 (N=46/973).

eTable 9. Daily + transfusion details per continent

Variable	Africa (N = 150)	Asia (N = 182)	Europe (N = 2,167)	South America (N = 50)	North America (N = 167)	Oceania (N = 927)
Daily forms	3 (2-5)	3 (2-5)	3 (2-6)	5 (3-13.75)	3 (3-6)	3 (2-5)
Daily blood loss, mL	0 (0-219)	0 (0-200)	0 (0-100)	0 (0-35)	0 (0-53)	0 (0-50)
SOFA, weighted	3 (1-6)	2 (1-4.5)	3 (2-6)	4 (3-6)	7.5 (4-9)	4 (2-6)
Newly developed complications during ICU stay						
Acute coronary syndrome	23 (15.3)	18 (9.9)	210 (9.7)	3 (6.0)	10 (6.0)	54 (5.8)
Acute kidney injury	17 (11.3)	28 (15.4)	358 (16.5)	14 (28.0)	22 (13.2)	172 (18.6)
Acute Respiratory Distress Syndrome	16 (10.7)	29 (15.9)	350 (16.2)	29 (58.0)	36 (21.6)	51 (5.5)
Bone marrow failure	2 (1.3)	1 (<1.0)	21 (1.0)	3 (6.0)	3 (1.8)	10 (1.1)
Cerebrovascular event	11 (7.3)	31 (17.0)	170 (7.8)	6 (12.0)	23 (13.8)	43 (4.6)
Failure to wean	3 (2.0)	12 (6.6)	159 (7.3)	12 (24.0)	11 (6.6)	24 (2.6)
Gastro-intestinal bleed	10 (6.7)	14 (7.7)	86 (4.0)	3 (6.0)	7 (4.2)	39 (4.2)
Liver failure	8 (5.3)	11 (6.0)	111 (5.1)	2 (4.0)	8 (4.8)	26 (2.8)
Retinal hemorrhage	2 (1.3)	0 (0.0)	6 (<1.0)	1 (2.0)	0 (0.0)	1 (<1.0)
Sepsis	20 (13.3)	31 (17.0)	445 (20.5)	15 (30.0)	35 (21.0)	206 (22.2)
Laboratory values at admission						
Hb at admission, g/dL	11.5 (3.3)	11.2 (2.5)	11.9 (2.6)	12.7 (3.1)	12.0 (2.9)	12.0 (2.7)
Proportion anemic*, no./no. available (%)	63/105 (60)	106/148 (72)	1,014/1,698 (60)	18/41 (44)	69/122 (57)	476/803 (59)
Platelet count at admission, 10 ⁹ /L	250 (164-308)	230 (160-306)	222 (163-289)	243 (154-295)	192 (148-278)	219 (165-286)
Laboratory values during ICU admission						
Mean Hb during ICU stay	10.6 (3.2)	10.3 (2.4)	10.7 (2.1)	11.7 (2.8)	11.0 (2.5)	10.5 (2.2)
Nadir Hb	10.2 (3.2)	9.5 (2.7)	10 (2.4)	10.5 (3.0)	10.0 (2.66)	9.8 (2.3)
Proportion anemic ^a	114 (76)	161 (88.5)	1,820 (84)	34 (68)	130 (77.8)	785 (84.7)
Platelet count during ICU stay	220 (129-291)	243 (159-299)	200 (146-262)	243 (187-329)	175 (132-247)	196 (146-255)
Nadir platelet count	210 (123-280)	205 (130-281)	171 (114-230)	182 (91-251)	147 (103-194)	168 (115-224)
Overall/concomitant transfusion						
Received RBC	67 (44.7)	61 (33.5)	526 (24.3)	14 (28.0)	32 (19.2)	194 (20.9)
No. of units transfused in total during ICU stay	2 (1-3)	2 (1-4)	2 (1-4)	4 (3-6)	2 (1-6)	2 (1-4)
No. of transfusion events	1 (1-2)	1 (1-3)	1 (1-4)	1 (1-6)	1 (1-3)	1 (1-4)
Received Platelet transfusion	2 (1.3)	16 (3.8)	109 (5.0)	5 (10.0)	13 (7.8)	63 (6.8)
Received Plasma transfusion	9 (6.0)	29 (15.9)	241 (11.1)	5 (10.0)	6 (3.6)	47 (5.1)
Received MTP	1 (<1.0)	1 (<1.0)	21 (1.0)	4 (8.0)	1 (<1.0)	6 (<1.0)
Received coagulation product	9 (6.0)	6 (3.3)	105 (4.8)	6 (12.0)	6 (3.6)	76 (8.2)
^a Anemia defined as <12 g/dL for women and <13 g/dL for men, according to WHO-definition. Abbreviations: ARDS, acute respiratory distress syndrome; Hb, hemoglobin; MTP, massive transfusion protocol; RBC, red blood cells; SOFA, sequential organ failure assessment						

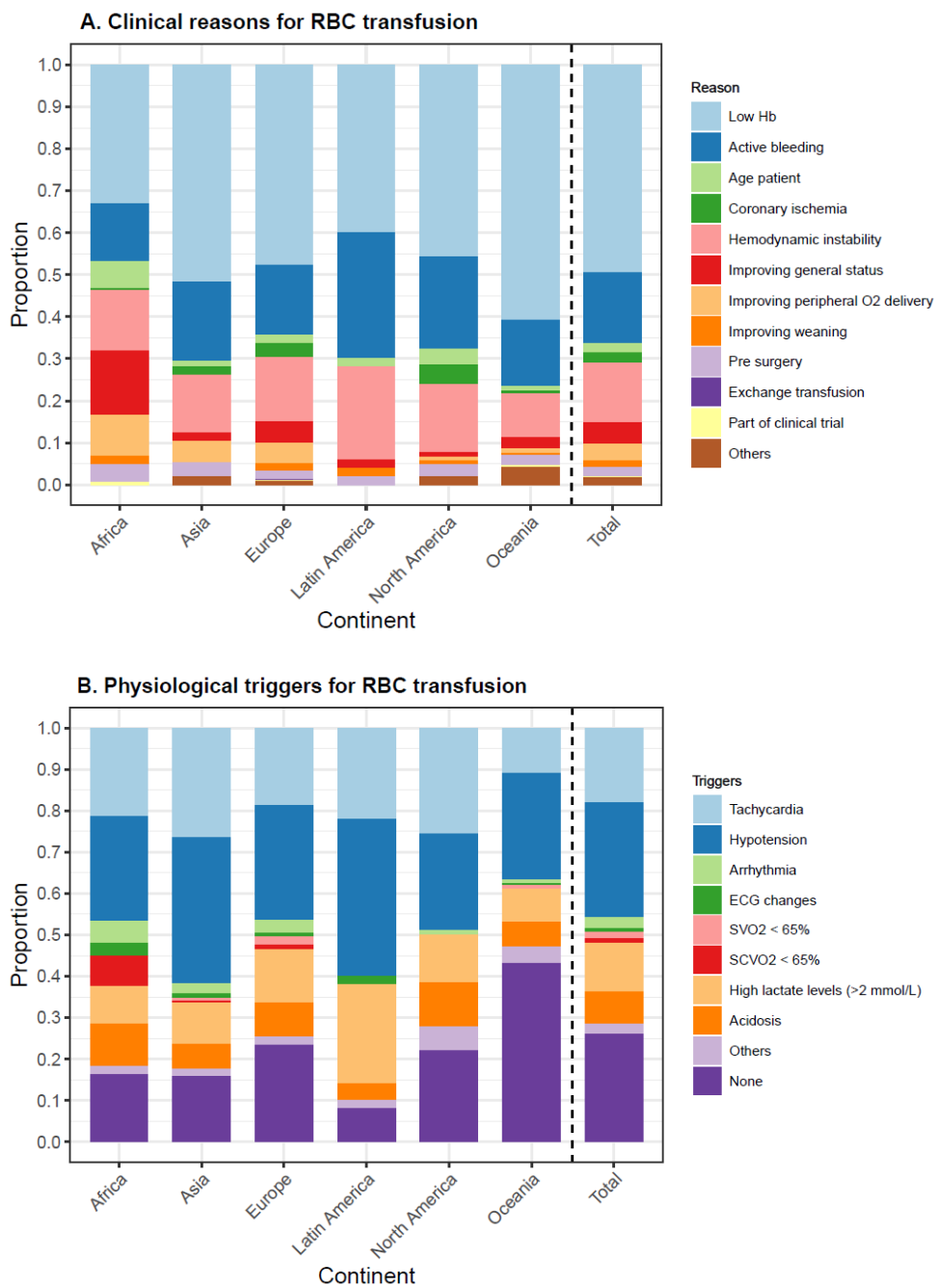
eTable 10. Transfusion events per continent

Variable	Total RBC events N = 1,727	Africa (N = 89)	Asia (N = 103)	Europe (N = 1,024)	South America (N = 31)	North America (N = 55)	Oceania (N = 425)
Time of administration: during daytime hours (07:30am-6:00pm)	1063 (62.9)	58 (68.2)	74 (71.8)	686 (67.2)	24 (77.4)	24 (43.6)	197 (49.9)
Certification level of transfusion requestor							
Intensivist	1055 (61.1)	50 (56.2)	60 (58.3)	703 (68.7)	25 (80.6)	41 (74.5)	176 (41.4)
Specialist non-intensivist practicing ICU	252 (14.6)	19 (21.3)	12 (11.7)	191 (18.7)	3 (9.7)	2 (3.6)	25 (5.9)
Resident, specialist in training	326 (18.8)	18 (20.2)	18 (17.5)	91 (8.9)	3 (10)	7 (12.7)	189 (44.5)
Student	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Nurse	12 (0.7)	2 (2.2)	0 (0.0)	9 (0.9)	0 (0.0)	1 (1.8)	0 (0.0)
Specialist non-intensivist outside ICU	74 (4.3)	0 (0.0)	13 (12.6)	29 (2.8)	0 (0.0)	4 (7.3)	28 (6.6)
Other	8 (<1)	0 (0.0)	0 (0.0)	1 (<1)	0 (0.0)	0 (0.0)	7 (1.6)
Primary medical specialty of transfusion requestor							
Anesthesiology	818 (47.7)	44 (51.2)	44 (42.7)	659 (64.8)	0 (0.0)	10 (18.5)	61 (14.4)
Cardiology	27 (1.6)	3 (3.5)	1 (1.0)	16 (1.6)	3 (9.7)	1 (1.9)	3 (0.7)
Internal medicine	236 (13.8)	27 (31.4)	9 (8.7)	107 (10.5)	10 (32.3)	13 (24.1)	70 (16.5)
Intensivist ^a	390 (22.7)	0 (0.0)	28 (27.2)	74 (7.3)	15 (48.4)	0 (0.0)	273 (64.2)
Neurology	2 (<1)	1 (1.2)	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Pulmonology	48 (2.8)	0 (0.0)	0 (0.0)	44 (4.3)	0 (0.0)	3 (5.6)	1 (0.2)
Surgery	180 (10.5)	10 (11.6)	20 (19.4)	109 (10.7)	3 (9.7)	27 (50.0)	11 (2.6)
Other (i.e., ED)	15 (<1)	1 (<1)	0 (0.0)	8 (<1)	0 (0.0)	0 (0.0)	6 (1.4)
No. of RBC units	1 (1-2)	2 (1-2)	1 (1-2)	1 (1-2)	2 (2-2)	1 (1-2)	1 (1-1)
Hemoglobin level							
Threshold pre-defined, g/dL	8 (7 - 9)	10 (9 - 11)	9 (7-10)	8 (7-9)	12 (10-12)	7 (7-7)	8 (7-8)
Restrictive (\leq 7 g/dL)	299 (17.3)	6 (6.7)	24 (23.3)	184 (18.0)	0 (0.0)	23 (41.8)	62 (14.6)
Intermediate (7-9 g/dL)	430 (24.9)	6 (6.7)	5 (4.9)	266 (26.0)	2 (6.5)	1 (1.8)	150 (35.3)
Liberal (\geq 9 g/dL)	459 (26.6)	37 (41.6)	49 (47.6)	308 (30.1)	29 (93.5)	2 (3.6)	34 (10.5)
Missing	539 (31.2)	40 (45.0)	25 (24.3)	266 (26.0)	0 (0.0)	29 (52.7)	179 (42.1)
Prior transfusion, g/dL	7.7 (1.6)	8.6 (2.0)	7.9 (2.0)	7.6 (1.6)	8.2 (1.8)	7.3 (1.4)	7.6 (1.2)
Post transfusion, g/dL	9.1 (1.5)	9.8 (1.6)	9.7 (2.0)	9.1 (1.5)	10.2 (1.6)	8.7 (1.2)	8.7 (1.2)
As part of massive transfusion protocol	43 (2.5)	1 (1.1)	1 (1.0)	25 (2.4)	6 (19.4)	1 (1.8)	9 (2.1)
Whole blood (no isolated RBC available)	54 (3.1)	43 (48.3)	7 (6.8)	1 (0.1)	0 (0.0)	3 (5.5)	0 (0.0)
Reason for RBC transfusion (<i>multiple options possible</i>)							
Low Hb value	1412 (81.8)	63 (70.8)	79 (76.7)	827 (80.8)	20 (64.5)	48 (87.3)	375 (88.2)
Active bleeding	479 (27.7)	26 (29.2)	29 (28.2)	289 (28.2)	15 (48.4)	23 (41.8)	97 (22.8)
Age of patient	60 (3.5)	12 (13.5)	2 (1.9)	35 (3.4)	1 (3.2)	4 (7.3)	6 (1.4)
Exchange transfusion	2 (<1)	0 (0.0)	0 (0.0)	2 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)

Variable	Total RBC events N = 1,727	Africa (N = 89)	Asia (N = 103)	Europe (N = 1,024)	South America (N = 31)	North America (N = 55)	Oceania (N = 425)
Hemodynamic instability	406 (23.5)	27 (30.3)	21 (20.4)	265 (25.9)	11 (35.5)	17 (30.9)	65 (15.3)
Improving general status	142 (8.2)	29 (32.6)	3 (2.9)	92 (9.0)	1 (3.2)	1 (1.8)	16 (3.8)
Improving peripheral O ₂	115 (6.7)	18 (20.2)	8 (7.8)	81 (7.9)	0 (0.0)	1 (1.8)	7 (1.6)
Improving weaning	43 (2.5)	4 (4.5)	0 (0.0)	34 (3.3)	1 (3.2)	1 (1.8)	3 (0.7)
(New) coronary ischemia	69 (4.0)	1 (1.1)	3 (2.9)	56 (5.5)	0 (0.0)	5 (9.1)	4 (0.9)
Part of clinical trial	6 (<1)	1 (1.1)	0 (0.0)	3 (0.3)	0 (0.0)	0 (0.0)	2 (0.5)
Pre-surgery	67 (3.9)	9 (10.1)	5 (4.9)	34 (3.3)	1 (3.2)	3 (5.5)	15 (3.5)
Other	47 (2.7)	0 (0.0)	3 (2.9)	16 (1.6)	0 (0.0)	2 (3.6)	26 (6.1)
No. of reasons	1 (1-2)	2 (1-3)	1 (1-2)	1 (1-2)	2 (1-2)	2 (1-3)	1 (1-2)
Trigger for RBC transfusion (multiple options possible)							
Acidosis	204 (11.8)	16 (18.0)	10 (9.7)	135 (13.2)	2 (6.5)	9 (16.4)	32 (7.5)
Arrhythmia	70 (4.1)	8 (9.0)	4 (3.9)	52 (5.1)	0 (0.0)	1 (1.8)	5 (1.2)
ECG changes	23 (1.3)	5 (5.6)	2 (1.9)	13 (1.3)	1 (3.2)	0 (0.0)	2 (0.5)
Hypotension	728 (42.2)	39 (43.8)	60 (58.3)	455 (44.4)	19 (61.3)	20 (36.4)	135 (31.8)
Increased lactate levels (>2 mmol/L)	308 (17.8)	14 (15.7)	17 (16.5)	213 (20.8)	12 (38.7)	10 (18.2)	42 (9.9)
SVO ₂ < 65%	36 (2.1)	0 (0.0)	1 (1.0)	31 (3.0)	0 (0.0)	0 (0.0)	4 (0.9)
SCVO ₂ < 65%	30 (1.7)	11 (12.4)	1 (1.0)	18 (1.8)	0 (0.0)	0 (0.0)	0 (0.0)
Tachycardia	474 (27.4)	33 (37.1)	45 (43.7)	306 (29.9)	11 (35.5)	22 (40.0)	57 (13.4)
Other	66 (3.8)	3 (3.4)	3 (2.9)	33 (3.2)	1 (3.2)	5 (9.1)	21 (4.9)
No physiological trigger affected the decision to transfuse	682 (39.5)	26 (29.2)	27 (26.2)	381 (37.2)	4 (12.9)	19 (34.5)	225 (52.9)
No. of triggers	1 (0-2)	1 (0-2)	1 (0-2)	1 (0-2)	2 (0-2)	1 (0-2)	0 (0-0)
<p>Abbreviations: ECG, electrocardiogram; ED, emergency department; Hb, hemoglobin; ICU, intensive care unit; RBC, red blood cells; SVO₂, venous oxygen saturation; SCVO₂, central venous oxygen saturation</p> <p>^a Intensivist training differs worldwide; whereas in some countries, training starts with another medical specialty (i.e., surgery, anesthesiology, internal medicine), some countries offer a special intensivist training program. The latter is hereby noted at "intensivist".</p>							

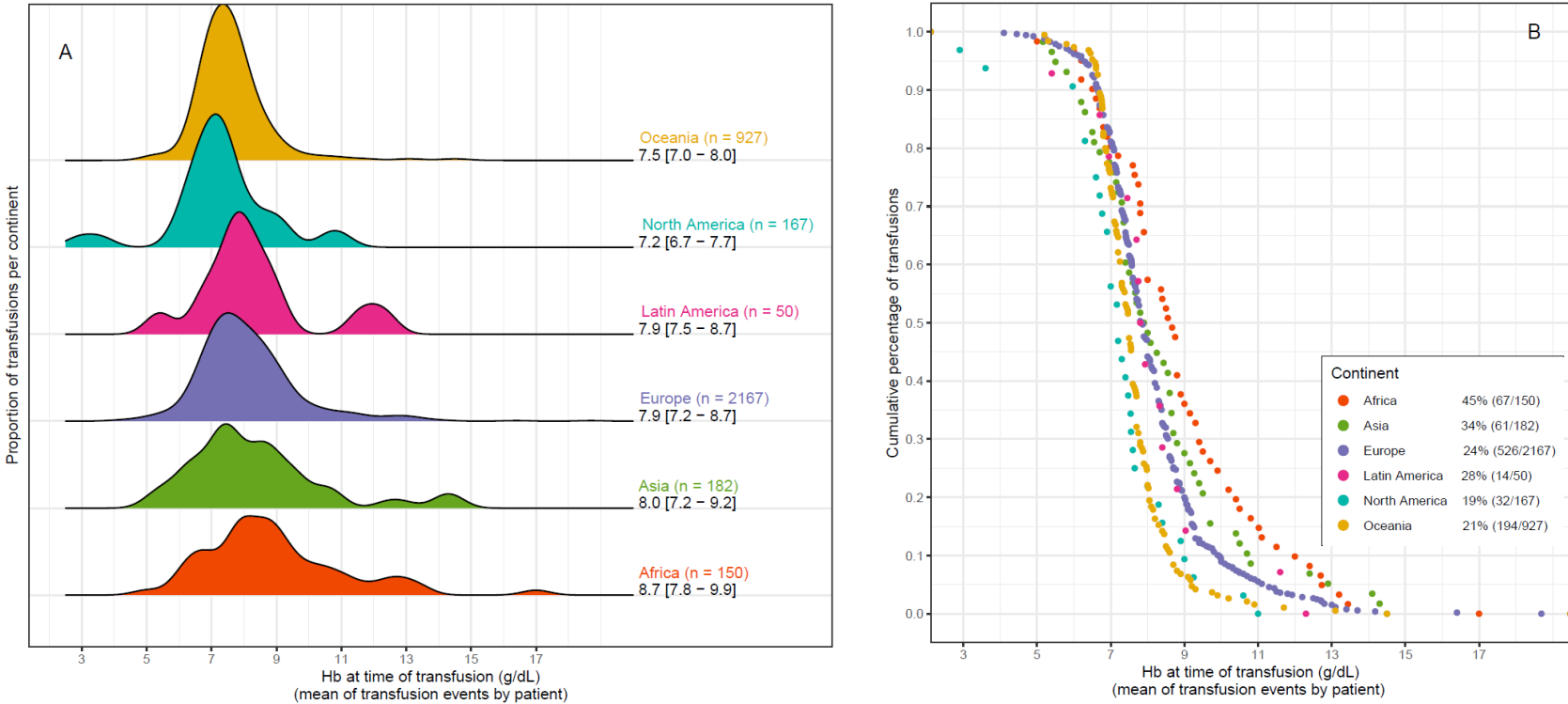
eFigure 3. Reasons and triggers per continent

Continent	Africa	Asia	Europe	South America	North America	Oceania	Total
No. events	89	103	1,024	31	55	425	1,727



This figure shows the proportion of listed clinical reasons for RBC transfusion (**Panel A**) and the proportion of listed physiological triggers for RBC transfusion (**Panel B**) for each continent and in total. The heading table shows the number of RBC transfusion events within each continent and in total. Absolute patient numbers can be found in eTable 9.

eFigure 4. Hemoglobin before transfusion in transfused patients, by continent

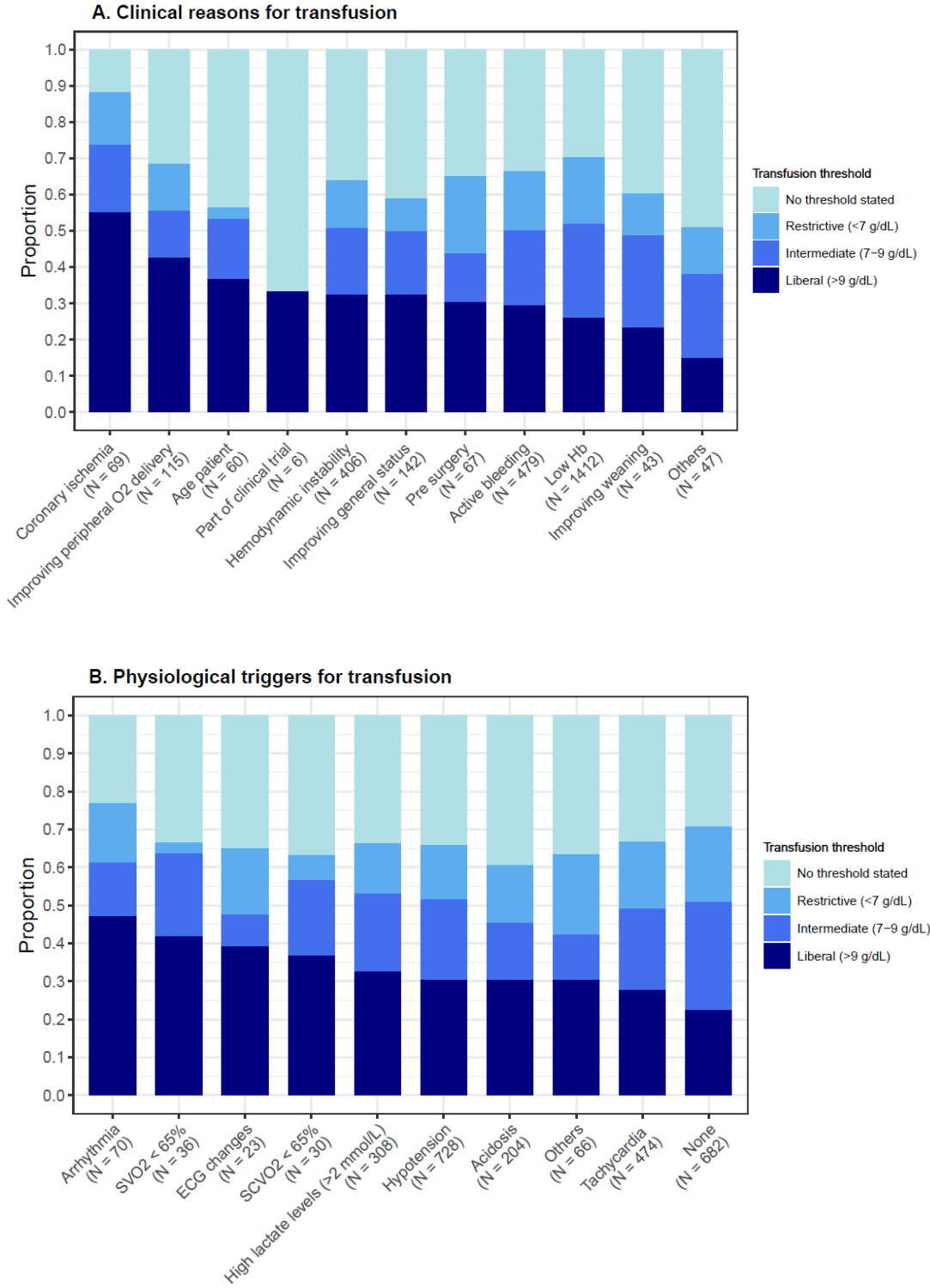


Hemoglobin before transfusion in transfused patients, by continent. For patients with multiple transfusions, the mean of the pre-transfusion Hb across different transfusions was calculated. **Panel A:** Density plots representing relative transfusion rate for different hemoglobin levels. Numerical values by continent are the total number of patients and the median [25th to 75th percentile] hemoglobin before transfusion across all patients. **Panel B:** Cumulative proportion of transfusions at different Hb values (for example, among patients in Africa approximately 25% of transfusions occurred at a hemoglobin of 10 g/dL or higher.). Numerical values are the number of patients that were transfused.

eTable 11. Transfusion reasons + triggers as stratified per threshold

Variable	Restrictive (N = 299)	Intermediate (N = 430)	Liberal (N = 459)	Unadjusted P-value
Time of administration during daytime hours (07:30am-6:00pm)	198 (66.9)	246 (57.2)	312 (68.0)	<0.01
Certification level of transfusion requestor				
Intensivist	201 (67.2)	226 (52.6)	314 (68.4)	<0.001
Specialist non-intensivist practicing ICU	38 (12.7)	77 (17.9)	62 (13.5)	0.08
Resident, specialist in training	48 (16.1)	115 (26.8)	60 (13.1)	<0.001
Student	0 (0.0)	0 (0.0)	0 (0.0)	1.00
Nurse	6 (2.0)	2 (0.5)	1 (0.2)	0.01
Specialist non-intensivist outside ICU	6 (2.0)	8 (1.9)	22 (4.8)	0.02
Other	0 (0.0)	2 (0.5)	0 (0.0)	0.13
Primary medical specialty of transfusion requestor				
Anesthesiology	112 (38.1)	176 (41.1)	294 (64.2)	<0.001
Cardiology	3 (1.0)	11 (2.6)	5 (1.1)	0.14
Internal medicine	70 (23.8)	31 (7.2)	32 (7.0)	<0.001
Intensivist ^a	79 (26.9)	144 (33.6)	63 (13.8)	<0.001
Neurology	0 (0.0)	0 (0.0)	1 (0.2)	0.45
Pulmonology	13 (4.4)	19 (4.4)	2 (0.4)	<0.001
Surgery	14 (4.8)	44 (10.3)	61 (13.3)	0.001
Other (i.e. ED)	3 (1.0)	3 (0.7)	0 (0.0)	0.13
No. of RBC units	1 (1-2)	1 (1-2)	1 (1-2)	
Hemoglobin levels				
Threshold pre-defined, g/dL	7 (7-7)	8 (8-8)	9 (9-10)	<0.001
Prior transfusion, g/dL	6.95 (1.42)	7.45 (1.18)	8.48 (1.50)	<0.001
Post transfusion, g/dL	8.35 (1.45)	8.80 (1.22)	9.85 (1.38)	<0.001
As part of massive transfusion protocol	4 (1.3)	17 (4.0)	14 (3.1)	
Whole blood (no isolated RBC available)	4 (1.3)	3 (0.7)	23 (5.0)	
Reason for RBC transfusion (<i>multiple options possible</i>)				
Low Hb value	259 (86.6)	370 (86.0)	365 (79.5)	<0.01
Active bleeding	78 (26.1)	100 (23.3)	141 (30.7)	0.04
Age of patient	2 (0.7)	10 (2.3)	22 (4.8)	<0.01
Exchange transfusion	2 (0.7)	0 (0.0)	0 (0.0)	0.051
Hemodynamic instability	53 (17.7)	76 (17.7)	131 (28.5)	<0.001
Improving general state	13 (4.3)	25 (5.8)	46 (10.0)	<0.01
Improving peripheral O ₂	15 (5.0)	15 (3.5)	49 (10.7)	<0.001
Improving weaning	5 (1.7)	11 (2.6)	10 (2.2)	0.72
(New) coronary ischemia	10 (3.3)	13 (3.0)	38 (8.3)	<0.001
Part of clinical trial	0 (0.0)	0 (0.0)	2 (0.4)	0.20
Pre-surgery	14 (4.7)	10 (2.3)	20 (4.4)	0.16
Other	6 (2.0)	11 (2.6)	7 (1.5)	0.55
No. of reasons	1 (1-2)	1 (1-2)	2 (1-2)	<0.001
Trigger for RBC transfusion (<i>multiple options possible</i>)				
Acidosis	31 (10.4)	31 (7.2)	62 (13.5)	<0.01
Arrhythmia	11 (3.7)	10 (2.3)	33 (7.2)	<0.01
ECG changes	4 (1.3)	2 (0.5)	9 (2.0)	0.14
Hypotension	104 (34.8)	155 (36.0)	221 (48.1)	<0.001
Increased lactate levels (>2 mmol/L)	41 (13.7)	64 (14.9)	100 (21.8)	<0.01
SVO ₂ < 65%	1 (0.3)	8 (1.9)	15 (3.3)	0.02
SCVO ₂ < 65%	2 (0.7)	6 (1.4)	11 (2.4)	0.17
Tachycardia	83 (27.8)	103 (24.0)	131 (28.5)	0.27
Other	14 (4.7)	8 (1.9)	20 (4.4)	0.06
No physiological trigger affected the decision to transfuse	136 (45.5)	196 (45.6)	152 (33.1)	<0.001
No. of triggers	1 (0-2)	1 (0-2)	1 (0-2)	<0.001
Abbreviations: ECG, electrocardiogram; ED, emergency department; Hb, hemoglobin; ICU, intensive care unit; RBC, red blood cells; SVO ₂ , venous oxygen saturation; SCVO ₂ , central venous oxygen saturation				
^a Intensivist training differs worldwide; whereas in some countries, training starts with another medical specialty (i.e., surgery, anesthesiology, internal medicine), some countries offer a special intensivist training program. The latter is hereby noted as "intensivist".				

eFigure 5. Reasons and triggers per threshold



This figure shows the differences in proportion of transfusion thresholds for both clinical reasons for RBC transfusion (Panel A) and the listed physiological triggers for RBC transfusion (Panel B). Absolute numbers can be found in eTable 10.

eMethods 2. Predefined sub-questions and secondary analyses

Currently scheduled sub-questions and secondary analyses include:

- National transfusion behavior
- The consistency of transfusion practice in non-bleeding ICU patients; does length of stay effect transfusion policy
- RBC transfusion in septic patients
- Thrombocyte course and thrombocytopenia in the ICU
- Platelet transfusion in the ICU
- Transfusion behavior vs sex differences
- RBC transfusion in the elderly
- Influence of transfusion on mortality
- Practices of plasma transfusion in the ICU
- Transfusion practices in patients with shock
- Transfusion practices in hematological patients

Predefined secondary objectives include:

- To evaluate which other triggers such as hemodynamic or comorbidities influence RBC transfusion practice.
- To compare platelet count in transfused patients with platelet to nadir platelet count in non-transfused patients
- To compare INR (or PT) in transfused patients with plasma to nadir level of INR (PT) in non-transfused patients
- To compare transfusion practice between different subgroups of patients including shock septic, hematology, cardiovascular disease without acute coronary diseases and coronary disease
- Association between restrictive and liberal RBC transfusion strategy on ICU length of stay and 28-day mortality
- Association of platelet target transfusion strategy on ICU length of stay and 28-day mortality
- Association between restrictive and liberal coagulation factor administration strategy on ICU length of stay and 28-day mortality

For further sub-studies and secondary analyses please contact inputstudy@amsterdamumc.nl . The requestor will then receive the data request form, data dictionary and list of unavailable topics. The data request form includes a short proposal, including statistical analysis plan and mock figures and tables. This request will then be reviewed by the InPUT coordinating team (Amsterdam UMC) and, in case the application is considered sufficient, by the complete steering committee. If the steering committee approves the proposal, dummy data (either mock data or data from the center itself) will be shared with the requestor. For regulatory and legal purposes, the full dataset cannot be shared. Therefore, data analysis can either be done 1) on the data provided by the requesting institute, or 2) on the full dataset on the servers of Amsterdam UMC using analysis syntax prepared by the requestors on mock data. This dataset can be used to develop a syntax for data analyses. This syntax will be revised and reviewed by one of the statisticians or methodologists part of the InPUT study team. Lastly, after the syntax is performed by the InPUT study team, the results will be shared with the requestors to draft the manuscript. Lastly, the manuscript has to be reviewed by the steering committee prior to submission. In every stage, one round of feedback is possible.

