

Supplementary Materials

Viral pathogen-specific severe acute respiratory infections in hospitalised adults in Europe: epidemiological findings from the id.DRIVE study 2024–2025

Katherine Newell¹, Nikki Vroom¹, Cátia Marques², Ekaterina Maslova³, Farid L. Khan⁴, Kok-Yew Ngew⁵, Hannah R. Volkman⁴, Chengbin Wang⁶, Juan V. Hernandez-Villena⁵, Negar Aliabadi⁴, Elizabeth Begier⁷, Jennifer Nguyen⁴, Hollie Dunford⁸, Somsuvro Basu⁵, Andrés Antón⁹, Susana Otero-Romero⁹, Irma Casas^{10,11}, Elisa Martró^{10,11}, Beate Grüner¹², Giancarlo Icardi^{13,14,15}, Federico Martínón-Torres^{16,17,18}, Ainara Mira-Iglesias^{11,19}, Carlos M. Oñoro-López²⁰, Alejandro Orrico-Sánchez^{11,19,21}, Oleguer Parés-Badell⁹, Wolfgang Gleiber²², Antoni Torres²³, Kaatje Bollaerts⁵, and on behalf of id.DRIVE COLLABORATIVE AUTHORING GROUP[#]

1. P95 Clinical and Epidemiology Services, Rotterdam, the Netherlands.
2. Pfizer, Oeiras, Portugal.
3. AstraZeneca, Cambridge, UK.
4. Pfizer, New York, USA.
5. P95 Clinical and Epidemiology Services, Leuven, Belgium.
6. AstraZeneca, Gaithersburg, USA.
7. Pfizer, Dublin, Ireland.
8. P95 Clinical and Epidemiology Services, Durham, USA.
9. Hospital Universitari Vall d'Hebron, Barcelona, Spain.
10. Hospital Universitari Germans Trias i Pujol, Institut d'Investigació Germans Trias i Pujol (IGTP), Badalona (Barcelona), Spain.
11. CIBER in Epidemiology and Public Health (CIBERESP), Instituto de Salud Carlos III, Madrid, Spain.
12. Universitätsklinikum Ulm, Ulm, Germany.
13. Interuniversity Research Centre on Influenza and Other Transmissible Infections (CIRI-IT), Genoa, Italy.
14. Hygiene Unit, San Martino Polyclinic Hospital, Genoa, Italy.
15. Department of Health Sciences, University of Genoa, Genoa, Italy.
16. Translational Pediatrics and Infectious Diseases, Hospital Clínico Universitario de Santiago (SERGAS) and University of Santiago de Compostela (USC), Santiago de Compostela, Galicia, Spain.
17. Genetics, Vaccines and Infectious Diseases Research Group (GENVIP), Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS), Santiago de Compostela, Galicia, Spain.
18. Centro de Investigación Biomédica en Red de Enfermedades Respiratorias (CIBERES), Instituto de Salud Carlos III, Madrid, Spain.
19. Vaccine Research Department, Fisabio – Public Health, Valencia, Spain.
20. Hospital Universitario La Paz, Madrid, Spain.
21. Universidad Católica de Valencia San Vicente Mártir, Valencia, Spain.
22. Universitätsklinikum, Goethe University Frankfurt, Frankfurt am Main, Germany.
23. Hospital Clínic de Barcelona, Barcelona, Spain.

Correspondence: Katherine Newell (katherine.newell@p-95.com)

id.DRIVE collaborative authoring group:

Carlos Fernández García¹, Brenda Marquina Sánchez^{1*}, F. Xavier López Labrador^{1,2,3}, Beatriz Mengual Chuliá^{1,2}, Laura Cano Pérez¹, Sandra García Esteban¹, Mario Carballido-Fernández⁴, M^a Dolores Tirado Balaguer⁴, Francisco Sanz Herrero⁵, Concepción Gimeno Cardona^{3,5}, María Dolores Ocete Mochon⁵, Ana Pineda Caplliure⁶, Juan Alberola Enguidanos^{3,6}, Juanjo Camarena Miñana^{3,6}, Ángel Belenguer Varea⁷, Olalla Martínez Macias⁷, Maruan Shalabi Benavent⁸, Francisco José Arjona Zaragoza⁸, David Panisello Yagüe^{2,9}, Poppy J. Hesketh-Best⁹, Cristina Casañ⁹, Verónica Saludes^{2,9}, Pere-Joan Cardona^{9,10}, Beatriz Blanco⁹, Julia Valera⁹, Erika Pérez⁹, Cristina Andrés Vergés¹¹, Eva del Amo Moran¹¹, Gema Barbeito Castiñeiras¹², Ouhao Zhu Huang¹², Lorenzo Redondo Collazo¹², Andres Muy Perez¹², Angela Manzanares Casteleiro¹², Irene Rivero Calle¹², Ana Dacosta-Urbieta¹², Jose Antonio Diaz Peromingo¹², Paula Pesqueira Fontan¹², Sonia Molinos Castro¹², Nuria Rodriguez Nuñez¹², Amara Gonzalez Noya¹², Carmen Rodriguez-Tenreiro Sanchez¹², Ana Pastoriza Mourelle¹², Ana Cotovad Bellas¹², Paula Otero Riveira¹², Miriam Taboada Puga¹², Andres Amado Fondo¹², Jose Ramón Arribas López¹³, Almudena Gutiérrez Arroyo¹³, David Grandioso Vas¹³, Marcial Cariqueo Arriagada¹⁴, Andrea Orsi^{15,16,17}, Donatella Panatto^{15,17}, Alexander Domnich¹⁶, Carola Minet¹⁷, Carlo Simone Trombetta¹⁷, Giada Garzillo¹⁷, Stefano Mosca¹⁷, Annapaola Callegaro¹⁸, Elena Pariani¹⁹, Giovanni Battista Orsi²⁰, Alessandra Torsello²¹, Maria Chironna^{15,22,23}, Francesca Centrone²³, Ilaria Manini²⁴, Emanuele Montomoli²⁴, Caterina Rizzo²⁵, Francesco Baglivo²⁵, Patrick König²⁶, Tonio Naka²⁶, Lynn Peters²⁶, Nicoleta-Raluca Trif²⁶

Affiliations:

1. Fisabio – Public Health, Valencia, Spain.
2. CIBER in Epidemiology and Public Health (CIBERESP), Instituto de Salud Carlos III, Madrid, Spain.
3. Department of Microbiology & Ecology, University of Valencia Medical School, Valencia, Spain.
4. Hospital General Castellón; Universidad CEU Cardenal Herrera, Castellón, Spain.
5. Hospital General Valencia, Valencia, Spain.
6. Hospital Doctor Peset, Valencia, Spain.
7. Hospital la Ribera, Valencia, Spain.
8. Hospital la Marina Baixa, Villajoyosa, Spain.
9. Hospital Universitari Germans Trias i Pujol, Institut d'Investigació Germans Trias i Pujol (IGTP), Badalona (Barcelona), Spain.
10. CIBER in Respiratory Diseases (CIBERES), Instituto de Salud Carlos III, Madrid, Spain.
11. Hospital Universitari Vall d'Hebron, Vall d'Hebron Institut de Recerca (VHIR), Universitat Autònoma de Barcelona, Barcelona, Spain.
12. Hospital Clínico Universitario de Santiago, Instituto de Investigación Sanitaria de Santiago, Santiago de Compostela, Spain.
13. Hospital Universitario La Paz, Madrid, Spain.
14. Hospital Clinic de Barcelona, Barcelona, Spain.
15. Interuniversity Research Centre on Influenza and Other Transmissible Infections (CIRI-IT), Genoa, Italy.
16. Hygiene Unit, San Martino Polyclinic Hospital, Genoa, Italy.
17. Department of Health Sciences, University of Genoa, Genoa, Italy.

18. IRCCS Ca' Granda Ospedale Maggiore Policlinico Foundation, Milan, Italy.
19. Department of Biomedical Sciences for Health, University of Milan, Milan, Italy.
20. Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy.
21. Department of Medical and Surgical Sciences and Translational Medicine, Faculty of Medicine and Psychology, Sapienza University of Rome, Rome, Italy.
22. Interdisciplinary Department of Medicine, University of Bari, Bari, Italy.
23. Hygiene Unit, Azienda Ospedaliero-Universitaria Policlinico di Bari, Bari, Italy.
24. Azienda ospedaliero-universitaria Senese Department of Molecular and Developmental Medicine, Siena, Italy.
25. Department of Translational Research and of New Surgical and Medical Technologies, Pisa, Italy.
26. Universitätsklinikum Ulm, Ulm, Germany.

* Part of id.DRIVE Co-Coordination team

Supplementary Table S1. Study contributor characteristics and SARI patients included in this report. id.DRIVE, 01 September 2024 – 31 August 2025

Country	Study contributor	Hospital(s)	City	Beds (Total/ICU)	Participant Recruitment Settings	Direct ICU Enrolment ^a	Start Date	End Date
Spain	VAHNSI	Hospital General Castellón	Castellón	509/33	ED (incl. holding area)/Inpatient Wards	No	01 Sep 24	31 Aug 25
		Hospital General de Valencia	Valencia	530/36	ED/Inpatient Wards	No	01 Sep 24	31 Aug 25
		Hospital Marina Baixa	La Vila Joiosa	270/18	Inpatient Wards (incl. pre-admission area)	No	01 Sep 24	31 Aug 25
		Hospital Universitario de la Ribera	Alzira	364/27	Inpatient Wards (incl. pre-admission area)	No	01 Nov 24	31 Aug 25
	La Paz	Hospital Universitario La Paz	Madrid	1308/31	ED/Inpatient Wards	No	19 Sep 24	31 Aug 25
	Santiago de Compostela	Hospital Clínico Universitario de Santiago	Santiago	1511/38	Inpatient Wards	No	25 Oct 24	31 Aug 25
	Hospital de Barcelona	Hospital Clínic de Barcelona	Barcelona	767/63	ICU/ED/Inpatient Wards	Yes	30 Sep 24 ^b	31 Aug 25
	Vall d'Hebron	Val d'Hebron	Barcelona	1154/56	ICU/ED/Inpatient Wards	Yes	19 Dec 24 ^b	31 Aug 25
	GTPUH	Hospital Universitari Germans Trias i Pujol	Barcelona	794/94	ICU/ED/Inpatient Wards	Yes	01 Sep 24 ^b	31 Aug 25
Germany	Ulm	Universitätsklinikum Ulm	Ulm	1000/30	Inpatient Wards	No	29 Oct 24	31 Aug 25
	Frankfurt	Universitätsklinikum Frankfurt	Frankfurt am Main	1250/96	ICU/Inpatient Wards	Yes	01 Sep 24	31 Aug 25
Italy	CIRI-IT	IRCCS Ospedale Policlinico San Martino	Genoa	1200/51	ED/Inpatient Wards	No	18 Nov 24	31 Aug 25
		Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico	Milan	716/55	Inpatient Wards Only	No	18 Nov 24	31 Aug 25
		Azienda Ospedaliero-Universitaria Sant'Andrea	Rome	450/26	ED Only	No	18 Nov 24	31 Aug 25
		Azienda Ospedaliero Bari Hospital	Bari	1550/27	ED/Inpatient Wards	No	18 Nov 24	31 Aug 25
		Azienda ospedaliero-universitaria Senese	Sienna	600/34	ED/Inpatient Wards	No	18 Nov 24	31 Aug 25
		Azienda ospedaliero-universitaria pisana	Pisa	1107/88	ED/Inpatient Wards	No	18 Nov 24	31 Aug 25

Abbreviations: ED, emergency department; CIRI-IT, Centro Interuniversitario per la Ricerca sull'Influenza e le altre Infezioni Trasmissibili; GTPUH, German Trias I Pujol University Hospital; ICU, intensive care unit; IRCCS, Istituti di Ricovero e Cura a Carattere Scientifico; SARI, severe acute respiratory infection; VAHNSI, Valencia Hospital Surveillance Network for the Study of Influenza and Other Infectious Diseases.

^a Participant enrolment possible while in ICU: Sites able to enrol participants during their ICU admission. Other sites may include participants who had an ICU stay, but only if enrolment occurred before ICU admission or after ICU discharge.

^b Retrospective data collection.

Supplementary Table S2. Summary of viral respiratory testing performed by study contributor. id.DRIVE, during the study period, 01 September 2024 – 31 August 2025

Country	Network/Site	Hospital(s)	Pathogen	Subtype/Type	Start	End	Testing Period vs Study Period
Spain	VAHNSI	1. Hospital General Castellón 2. Hospital Marina Baixa 3. Hospital General de Valencia	SARS-CoV-2	-	01/09/2024	31/08/2025	Full
			Influenza	-	01/09/2024	31/08/2025	Full
			Influenza A/B	A and B	01/09/2024	31/08/2025	Full
			RSV	-	01/09/2024	31/08/2025	Full
			RSV A/B	A and B	01/09/2024	31/08/2025	Full
			Adenovirus	-	01/09/2024	31/08/2025	Full
			Parainfluenza (Types 1–4)	-	01/09/2024	31/08/2025	Full
			HMPV	-	01/09/2024	31/08/2025	Full
			HRV/HEV	-	01/09/2024	31/08/2025	Full
			Bocavirus Types 1–4	-	01/09/2024	31/08/2025	Full
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	01/09/2024	30/11/2024	Full
		Hospital Universitario de la Ribera	SARS-CoV-2	-	01/11/2024	31/08/2025	Partial
			Influenza	-	01/11/2024	31/08/2025	Partial
			Influenza A/B	A and B	01/11/2024	31/08/2025	Partial
			RSV	-	01/11/2024	31/08/2025	Partial
			RSV A/B	A and B	01/11/2024	31/08/2025	Partial
			Adenovirus	-	01/11/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	01/11/2024	31/08/2025	Partial
			HMPV	-	01/11/2024	31/08/2025	Partial
			HRV/HEV	-	01/11/2024	31/08/2025	Partial
			Bocavirus Types 1–4	-	01/11/2024	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	01/11/2024	31/08/2025	Partial
	Santiago de Compostela	Hospital Clínico Universitario de Santiago	SARS-CoV-2	-	25/10/2024	31/08/2025	Partial
			Influenza	-	25/10/2024	31/08/2025	Partial
			Influenza A/B	A and B	25/10/2024	31/08/2025	Partial
			RSV	-	25/10/2024	31/08/2025	Partial
			RSV A/B	A and B	25/10/2024	31/08/2025	Partial
			Adenovirus	-	13/11/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	11/11/2024	31/08/2025	Partial
			HMPV	-	13/11/2024	31/08/2025	Partial
			HRV/HEV	-	13/11/2024	31/08/2025	Partial
			Bocavirus Types 1–4	-	None	None	None
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	09/12/2024	01/09/2025	Partial
			SARS-CoV-2	-	30/09/2024	31/08/2025	Partial
			Influenza	-	30/09/2024	31/08/2025	Partial
			Influenza A/B	A and B	30/09/2024	31/08/2025	Partial

Country	Network/Site	Hospital(s)	Pathogen	Subtype/Type	Start	End	Testing Period vs Study Period
	Hospital Clínic de Barcelona	Hospital Clínic de Barcelona	RSV	-	30/09/2024	31/08/2025	Partial
			RSV A/B	A and B	None	None	None
			Adenovirus	-	None	None	None
			Parainfluenza (Types 1–4)	-	None	None	None
			HMPV	-	None	None	None
			HRV/HEV	-	None	None	None
			Bocavirus Types 1–4	-	None	None	None
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	None	None	None
	La Paz	Hospital Universitario La Paz	SARS-CoV-2	-	19/09/2024	31/08/2025	Partial
			Influenza	-	19/09/2024	31/08/2025	Partial
			Influenza A/B	A and B	19/09/2024	31/08/2025	Partial
			RSV	-	19/09/2024	31/08/2025	Partial
			RSV A/B	A and B	19/09/2024	31/08/2025	Partial
			Adenovirus	-	19/09/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	19/09/2024	31/08/2025	Partial
			HMPV	-	19/09/2024	31/08/2025	Partial
	Val d'Hebron	Val d'Hebron	HRV/HEV	-	19/09/2024	31/08/2025	Partial
			Bocavirus Types 1–4	-	19/09/2024	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	19/09/2024	31/08/2025	Partial
			SARS-CoV-2	-	19/12/2024	31/08/2025	Partial
			Influenza	-	19/12/2024	31/08/2025	Partial
			Influenza A/B	A and B	19/12/2024	31/08/2025	Partial
			RSV	-	19/12/2024	31/08/2025	Partial
			RSV A/B	A and B	19/12/2024	31/08/2025	Partial
			Adenovirus	-	15/03/2025	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	15/03/2025	31/08/2025	Partial
			HMPV	-	15/03/2025	31/08/2025	Partial
			HRV/HEV	-	15/03/2025	31/08/2025	Partial
			Bocavirus Types 1–4	-	15/03/2025	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	15/03/2025	31/08/2025	Partial
	German Trias	Hospital Universitario Germans Trias i Pujol	SARS-CoV-2	-	01/09/2024	31/08/2025	Full
			Influenza	-	01/09/2024	31/08/2025	Full
			Influenza A/B	A and B	01/09/2024	31/08/2025	Full
			RSV	-	01/09/2024	31/08/2025	Full
			RSV A/B	A and B	None	None	None
			Adenovirus	-	None	None	None
			Parainfluenza (Types 1–4)	-	None	None	None
			HMPV	-	None	None	None
			HRV/HEV	-	None	None	None
			Bocavirus Types 1–4	-	None	None	None

Country	Network/Site	Hospital(s)	Pathogen	Subtype/Type	Start	End	Testing Period vs Study Period
Germany	Ulm	Universitätsklinikum Ulm	Other Coronaviruses 229E/NL63/OC43/HKU1	-	None	None	None
			SARS-CoV-2	-	31/10/2024	31/08/2025	Partial
			Influenza	-	31/10/2024	31/08/2025	Partial
			Influenza A/B	A and B	31/10/2024	31/08/2025	Partial
			RSV	-	31/10/2024	31/08/2025	Partial
			RSV A/B	A and B	31/10/2024	31/08/2025	Partial
			Adenovirus	-	31/10/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	31/10/2024	31/08/2025	Partial
			HMPV	-	31/10/2024	31/08/2025	Partial
			HRV/HEV	-	31/10/2024	31/08/2025	Partial
			Bocavirus Types 1–4	-	31/10/2024	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	31/10/2024	31/08/2025	Partial
	Frankfurt	Universitätsklinikum Frankfurt	SARS-CoV-2	-	01/09/2024	31/08/2025	Full
			Influenza	-	01/09/2024	31/08/2025	Full
			Influenza A/B	A and B	09/09/2024	31/08/2025	Full
			RSV	-	01/09/2024	31/08/2025	Full
			RSV A/B	A and B	01/09/2024	31/08/2025	Full
			Adenovirus	-	01/09/2024	31/08/2025	Full
			Parainfluenza (Types 1–4)	-	01/09/2024	31/08/2025	Full
			HMPV	-	01/09/2024	31/08/2025	Full
			HRV/HEV	-	01/09/2024	31/08/2025	Full
			Bocavirus Types 1–4	-	07/05/2025	31/08/2025	Partial
Italy	CIRI-IT	1. IRCCS Ospedale Policlinico San Martino 2. Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico 3. Azienda Ospedaliero-Universitaria Sant'Andrea 4. Azienda Ospedaliero Bari Hospital	Other Coronaviruses 229E/NL63/OC43/HKU1	-	09/09/2024	31/08/2025	Full
			SARS-CoV-2	-	18/11/2024	31/08/2025	Partial
			Influenza	-	18/11/2024	31/08/2025	Partial
			Influenza A/B	A and B	18/11/2024	31/08/2025	Partial
			RSV	-	18/11/2024	31/08/2025	Partial
			RSV A/B	A and B	18/11/2024	31/08/2025	Partial
			Adenovirus	-	18/11/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	18/11/2024	31/08/2025	Partial
			HMPV	-	18/11/2024	31/08/2025	Partial
			HRV/HEV	-	18/11/2024	31/08/2025	Partial
			Bocavirus Types 1–4	-	18/11/2024	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	18/11/2024	31/08/2025	Partial
		Azienda ospedaliero-universitaria Senese	SARS-CoV-2	-	18/11/2024	31/08/2025	Partial
			Influenza	-	18/11/2024	31/08/2025	Partial
			Influenza A/B	A and B	18/11/2024	31/08/2025	Partial
			RSV	-	18/11/2024	31/08/2025	Partial
			RSV A/B	A and B	18/11/2024	31/08/2025	Partial

Country	Network/Site	Hospital(s)	Pathogen	Subtype/Type	Start	End	Testing Period vs Study Period
		Azienda ospedaliero-universitaria Pisana	Adenovirus	-	15/01/2024	31/08/2025	Partial
			Parainfluenza (Types 1–4)	-	15/01/2025	31/08/2025	Partial
			HMPV	-	15/01/2025	31/08/2025	Partial
			HRV/HEV	-	15/01/2025	31/08/2025	Partial
			Bocavirus Types 1–4	-	15/01/2025	31/08/2025	Partial
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	15/01/2025	31/08/2025	Partial
			SARS-CoV-2	-	18/09/2024	31/08/2025	Partial
			Influenza	-	18/09/2024	31/08/2025	Partial
			Influenza A/B	A and B	18/09/2024	31/08/2025	Partial
			RSV	-	18/09/2024	31/08/2025	Partial
			RSV A/B	A and B	None	None	None
			Adenovirus	-	None	None	None
			Parainfluenza (Types 1–4)	-	None	None	None
			HMPV	-	None	None	None
			HRV/HEV	-	None	None	None
			Bocavirus Types 1–4	-	None	None	None
			Other Coronaviruses 229E/NL63/OC43/HKU1	-	None	None	None

Abbreviations: CIRI-IT, Centro Interuniversitario per la Ricerca sull'Influenza e le altre Infezioni Trasmissibili; HEV, human enterovirus; HMPV, human metapneumovirus; HRV, human rhinovirus; IRCCS, Istituti di Ricovero e Cura a Carattere Scientifico; RSV, respiratory syncytial virus; SARI, severe acute respiratory infection; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; VAHNSI, Valencia Hospital Surveillance Network for the Study of Influenza and Other Infectious Diseases.

Supplementary Table S3. Chronic conditions and risk factors: diagnostic codes and definitions

Covariate	Definition
Chronic conditions	
Asthma	• Any of the following diagnostic codes (International Classification of Diseases, 10th revision [ICD-10]; https://icd.who.int/browse10/2019/en): J45, J46 • INCLUDING: predominantly allergic asthma, nonallergic asthma, status asthmaticus, acute severe asthma • EXCLUDING: chronic asthmatic (obstructive) bronchitis, chronic obstructive asthma, eosinophilic asthma, lung diseases due to external agents
Lung disease	• Any of the following diagnostic codes (ICD-10): A15-16, A19, A31.0, B33.4, E84.0, J40-44, J47, J60-70, J80-84, J85-86, J90-91, J92.0, J93-94, J95-99 • INCLUDING: tuberculosis (pulmonary, miliary, but not that of other systems), atypical mycobacteria, cystic fibrosis, chronic obstructive pulmonary disease (COPD), bronchiectasis, and other chronic sequelae of infections, chronic lung diseases due to external agents, interstitial lung diseases, pleural diseases, and respiratory failure • EXCLUDING: acute respiratory infections, lung cancer, diseases of pulmonary circulation, pleural plaques without asbestos, previous uncomplicated pneumothorax
Cardiovascular disease	• Any of the following diagnostic codes (ICD-10): A52.0, B37.6, I01-02, I05-09, I11.0, I13.0, I13.2, I20-25, I26-28, I30-43, I44-46, I48, I49.0, I49.5, I50-52, I70-71, Q20-Q28 • INCLUDING: all conditions of heart and large vessels that are chronic or likely to have chronic sequelae, cardiovascular syphilis, endo-, myo- and pericarditis, rheumatic fever, chronic rheumatic heart diseases, congenital malformations, hypertensive (renal) diseases with heart failure, ischaemic heart diseases, diseases of pulmonary circulation, atherosclerosis, cardiomyopathies, most conduction disorders, heart failure, aortic aneurysms & dissection, other heart diseases and their complications • EXCLUDING: uncomplicated hypertension, previous uncomplicated pulmonary embolism (with no lasting cardiac insufficiency), paroxysmal tachycardias, most cases of premature depolarisation
Hypertension	• Any of the following diagnostic codes (ICD-10): I10, I11.9, I12, I13.1, I13.9, I15 • INCLUDING: essential (primary) hypertension, secondary hypertension • EXCLUDING: hypertensive heart/renal disease with (congestive) heart failure
Chronic liver disease	• Any of the following diagnostic codes (ICD-10): B18, B19, K70, K71.1, K71.3, K71.4-9, K72.1, K72.9, K73, K74, K75.2-4, K75.8, K75.9, K76.0-2, K76.5, K76.6, K76.9 • INCLUDING: all conditions of the liver that are chronic or likely to have chronic sequelae • EXCLUDING: acute liver disease, liver cancer/metastasis, liver transplant
Chronic kidney disease	• Any of the following diagnostic codes (ICD-10): N18-19 • INCLUDING: decreased kidney function shown by glomerular filtration rate of less than 60 mL/min per 1.73 m², or markers of kidney damage*, or both, of at least 3 months duration, regardless of the underlying cause <i>*Markers of kidney damage include albuminuria (30 mg/24 hours; Albumin: Creatinine ratio > 3 mg/mmol), urine sediment abnormalities, electrolyte, and other abnormalities due to tubular disorders, abnormalities detected by histology, structural abnormalities detected by imaging, and a history of kidney transplantation (Based on KDIGO and NICE guidelines).</i> • EXCLUDING: acute kidney failure, clinically nonsignificant kidney cysts
Diabetes type I	• Any of the following diagnostic codes (ICD-10): E10 • INCLUDING: Diabetes mellitus type I (brittle, juvenile-onset, ketosis-prone) • EXCLUDING: malnutrition-related diabetes mellitus, diabetes mellitus in pregnancy or puerperium, glycosuria, impaired glucose tolerance, postsurgical hypoinsulinaemia

Covariate	Definition
Diabetes type II	• Any of the following diagnostic codes (ICD-10): E11 • INCLUDING: Diabetes mellitus type II (adult-onset, maturity-onset, obese and non-obese, non-insulin-dependent diabetes of the young) • EXCLUDING: malnutrition-related diabetes mellitus, diabetes mellitus in pregnancy or puerperium, glycosuria, impaired glucose tolerance, postsurgical hypoinsulinaemia
Obesity	• Any of the following diagnostic codes (ICD-10): E66 • INCLUDING: Obesity (body mass index [BMI] >30 kg/m² or >95th percentile in children) For obesity, in the absence of a known BMI, written diagnosis of morbid obesity or obesity in the medical files is valid
Cancer	• Any of the following diagnostic codes (ICD-10): C00-97, D37-48, Z85, Z92.3, Z92.6 • INCLUDING: all malignant neoplasms (both solid and haematologic) with potential to metastasise, either in treatment, active follow-up, or <5 years post-curative treatment • EXCLUDING: benign & in situ neoplasms. Basal cell carcinomas. Any cancer previously treated with curative intent & in complete remission for ≥5 years
Neurological disorders	• Any of the following diagnostic codes (ICD-10): I60-I69, G20-23, G35-37, G45-46, G70-83, G91, G95 • INCLUDING: cerebrovascular disease (including stroke), systemic atrophies primarily affecting the central nervous system (e.g. Huntington disease), extrapyramidal and movement disorders (e.g. Parkinson disease), other degenerative diseases of the nervous system (e.g., Alzheimer's and other forms of dementia), demyelinating diseases of the central nervous system (e.g., multiple sclerosis), diseases of myoneural junction and muscle (e.g., Myasthenia gravis), cerebral palsy and other paralytic syndromes, hydrocephalus, other disease of the spinal cord • EXCLUDING: acute inflammatory disease (meningitis, myelitis, encephalitis, myelitis and encephalomyelitis, and septic intracranial or intraspinal phlebitis), episodic and paroxysmal disorders such as epilepsy, nerve root and plexus disorders, polyneuropathy, and other disorders of the peripheral nervous system
Immunodeficiency (or organ transplant)	• Any of the following diagnostic codes (ICD-10): B20-B24, D80-84, D89, Z94 • INCLUDING: Solid organ transplant Haematopoietic stem cell transplantation Primary immunodeficiency Advanced or untreated human immunodeficiency virus (HIV) infection: people with HIV and CD4 cell counts less than 200/mm³, history of an acquired immunodeficiency syndrome (AIDS)-defining illness without immune reconstitution, or clinical manifestations of symptomatic HIV Iatrogenic immunodeficiencies: systemic treatment of more than two weeks duration, in the three months preceding symptom onset, with any of the following: corticosteroid (≥20 mg prednisolone daily or equivalent when administered for two or more weeks), ciclosporin, tacrolimus, mycophenolate, methotrexate, azathioprine, tumour necrosis factor alpha (TNF-α) blockers and other biological or cytostatic drugs with immunosuppressive effect. The treatment causing immunodeficiency has to be ongoing or expected to still cause immunodeficiency (treatment-dependent durations) The option 'Iatrogenic immunodeficiency' is to be selected when the treatment responsible for the immunodeficiency is prescribed for a condition already identified in this questionnaire (e.g., haematopoietic stem cell transplantation [HSCT] or cancer)

Covariate	Definition
	EXCLUDING: disorders of the immune system which do not lead to immunosuppression (e.g., some autoimmune conditions), adequately treated HIV infection
Severity of chronic conditions	
Asthma severity	Mild intermittent: symptoms ≤ 2 days a week, nighttime symptoms ≤ 2 a month, no impact on regular activities, Forced expiratory volume (FEV₁) $\geq 80\%$, inhaler use ≤ 2 days a week Mild persistent: symptoms > 2 weeks and < 1 a day, nighttime symptoms 3-4 times a month, minor impact on activities, FEV₁ $\geq 80\%$, inhaler use > 2 weeks and < 1 a day Moderate persistent: symptoms daily, nighttime symptoms > 1 a week and not daily, some impact on daily activities, FEV₁ 60-80%, daily use of inhaler Severe persistent: constant symptoms, nighttime symptoms (nearly) every night, significant impact on daily activities, FEV₁ $< 60\%$, inhaler use several times a day, possibly with other medication
COPD severity	GOLD stage I: Mild – FEV₁ $\geq 80\%$ GOLD stage II: Moderate – FEV₁ 50-79% GOLD stage III: Severe – FEV₁ 30-49% GOLD stage IV: Very Severe – FEV₁ $< 30\%$
Risk factors	
Smoking	Never-smoker: < 100 cigarettes during their lifetime Ex-smoker: has smoked ≥ 100 cigarettes over lifetime but has stopped ≥ 3 months ago Occasional smoker: has smoked ≥ 100 cigarettes over lifetime and has still smoked in the 3 months preceding symptom onset, but not daily Daily smoker: has smoked ≥ 100 cigarettes over lifetime and smokes daily

Supplementary Table S4. Treatment and clinical outcomes among SARI patients, by SARS-CoV-2, influenza, and RSV test results. id.DRIVE, 01 September 2024 – 31 August 2025; sites with direct ICU enrolment (N=4 hospitals)

	All SARI Patients N (%)	SARS-CoV-2 cases N (%)	Influenza cases N (%)			RSV cases ^b N (%)
			Total	Influenza A	Influenza B	
Total patients^a	3871	280	598	563	36	309
Medications received during hospital stay for the management of SARI episode						
No	9 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
Yes	3862 (99.8%)	280 (100.0%)	598 (100.0%)	563 (100.0%)	36 (100.0%)	308 (99.7%)
Type of medication received during hospital stay for the management of SARI episode						
Antibiotics	3361 (87%)	212 (75.7%)	488 (81.6%)	459 (81.5%)	30 (83.3%)	252 (81.8%)
Antiviral drug(s)	761 (19.7%)	210 (75%)	492 (82.3%)	463 (82.2%)	30 (83.3%)	28 (9.1%)
Corticosteroid(s)	2364 (61.2%)	149 (53.2%)	377 (63%)	363 (64.5%)	15 (41.7%)	218 (70.8%)
Anti-SARS-CoV-2 antibodies	3 (0.1%)	3 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other monoclonal antibodies and immunomodulators	3 (0.1%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
None of the above	230 (6.0%)	14 (5.0%)	8 (1.3%)	8 (1.4%)	0 (0.0%)	19 (6.2%)
No information	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
Medications received prior to hospital admission for the management of current SARI episode						
No	1684 (43.5%)	97 (34.6%)	344 (57.5%)	316 (56.1%)	29 (80.6%)	165 (53.4%)
Yes	2187 (56.5%)	183 (65.4%)	254 (42.5%)	247 (43.9%)	7 (19.4%)	144 (46.6%)
Type of medication received prior to hospital admission for the management of current SARI episode						
Antibiotics	348 (15.9%)	14 (7.7%)	41 (16.1%)	41 (16.6%)	0 (0.0%)	33 (22.9%)
Antiviral drug(s)	13 (0.6%)	3 (1.6%)	5 (2.0%)	5 (2.0%)	0 (0.0%)	0 (0.0%)
Corticosteroid(s)	215 (9.8%)	5 (2.7%)	34 (13.4%)	34 (13.8%)	0 (0.0%)	28 (19.4%)
Anti-SARS-CoV-2 antibodies	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other monoclonal antibodies and immunomodulators	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
None of the above	1708 (78.1%)	164 (89.6%)	189 (74.4%)	182 (73.7%)	7 (100.0%)	99 (68.8%)
No information	1 (0.0%)	0 (0.0%)	1 (0.4%)	1 (0.4%)	0 (0.0%)	0 (0.0%)
SARI severity level						
Hospital admission without ICU admission	3390 (87.6%)	240 (85.7%)	536 (89.6%)	503 (89.3%)	34 (94.4%)	269 (87.1%)
ICU admission	208 (5.4%)	8 (2.9%)	34 (5.7%)	33 (5.9%)	1 (2.8%)	16 (5.2%)
In-hospital death	435 (11.3%)	35 (12.5%)	55 (12.2%)	53 (9.5%)	2 (5.6%)	36 (11.7%)
Respiratory support^c						
No respiratory support	738 (19.1%)	71 (25.4%)	116 (19.4%)	103 (18.3%)	13 (36.1%)	46 (14.9%)
Oxygen therapy (e.g., nasal cannula, mask)	2547 (65.8%)	163 (58.2%)	412 (68.9%)	392 (69.6%)	21 (58.3%)	215 (69.6%)
Non-invasive ventilation ^d	523 (13.5%)	45 (16.1%)	61 (10.2%)	60 (10.7%)	1 (2.8%)	41 (13.3%)
Invasive mechanical ventilation ^e	53 (1.4%)	1 (0.4%)	8 (1.3%)	7 (1.2%)	1 (2.8%)	7 (2.3%)
ECMO	9 (0.2%)	0 (0.0%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	0 (0.0%)

	All SARI Patients N (%)	SARS-CoV-2 cases N (%)	Influenza cases N (%)			RSV cases ^b N (%)
			Total	Influenza A	Influenza B	
Length of hospital stay						
Number of Days, median (lower, upper quartile)	7 (4, 11)	6 (4, 11)	6 (4, 10)	6 (4, 10)	4 (3, 9)	7 (4, 11)
1-3 days	752 (19.4%)	58 (20.7%)	140 (23.4%)	125 (22.2%)	15 (41.7%)	59 (19.1%)
4-6 days	1045 (27.0%)	85 (30.4%)	172 (28.8%)	163 (29.0%)	9 (25.0%)	87 (28.2%)
7-13 days	1416 (36.6%)	89 (31.8%)	196 (32.8%)	188 (33.4%)	9 (25.0%)	105 (34.0%)
14-27 days	524 (13.5%)	36 (12.9%)	75 (12.5%)	72 (12.8%)	3 (8.3%)	46 (14.9%)
28-41 days	85 (2.2%)	5 (1.8%)	8 (1.3%)	8 (1.4%)	0 (0.0%)	7 (2.3%)
≥42 days	49 (1.3%)	7 (2.5%)	7 (1.2%)	7 (1.2%)	0 (0.0%)	5 (1.6%)
Discharge destination						
Home	2743 (70.9%)	179 (63.9%)	437 (73.1%)	408 (72.5%)	30 (83.3%)	216 (69.9%)
Home with nursing care	321 (8.3%)	25 (8.9%)	41 (6.9%)	40 (7.1%)	1 (2.8%)	18 (5.8%)
Transfer to another hospital	17 (0.4%)	1 (0.4%)	7 (1.2%)	6 (1.1%)	1 (2.8%)	2 (0.6%)
Rehabilitation centre	130 (3.4%)	19 (6.8%)	24 (4.0%)	22 (3.9%)	2 (5.6%)	15 (4.9%)
Nursing home or other long-term care facility	336 (8.7%)	23 (8.2%)	57 (9.5%)	56 (9.9%)	1 (2.8%)	30 (9.7%)
Other	29 (0.7%)	0 (0.0%)	4 (0.7%)	4 (0.7%)	0 (0.0%)	3 (1.0%)
Missing	295 (7.6%)	33 (11.8%)	28 (4.7%)	27 (4.8%)	1 (2.8%)	25 (8.1%)

Abbreviations: ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; N, number; RSV, respiratory syncytial virus; SARI, severe acute respiratory infection; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

^a Test results may include co-infections; categories are not mutually exclusive.

^b Subtype of RSV was not consistently tested throughout the study. Therefore, only the total number of RSV cases is provided.

^c When a patient received multiple types of respiratory support, the highest level was considered.

^d Ventilatory support without tracheal intubation, e.g., high-flow nasal oxygen, Continuous Positive Airway Pressure (CPAP), or Bi-level Intermittent Positive Airway Pressure.

^e Ventilatory support with tracheal intubation.

Supplementary Table S5. Treatment and clinical outcomes among SARI patients, by SARS-CoV-2, influenza, and RSV test results. id.DRIVE, 01 September 2024 – 31 August 2025; sites with no direct ICU enrolment (N=13 sites)

	All SARI Patients N (%)	SARS-CoV-2 cases N (%)	Influenza cases N (%)			RSV cases ^b N (%)
			Total	Influenza A	Influenza B	
Total patients^a	4859	326	651	614	38	245
Medications received during hospital stay for the management of SARI episode						
No	65 (1.3%)	6 (1.8%)	7 (1.1%)	6 (1.0%)	1 (2.6%)	2 (0.8%)
Yes	4794 (98.7%)	320 (98.2%)	644 (98.9%)	608 (99.0%)	37 (97.4%)	243 (99.2%)
Type of medication received during hospital stay for the management of SARI episode						
Antibiotics	4232 (88.3%)	263 (82.2%)	533 (82.8%)	504 (82.9%)	30 (81.1%)	207 (85.2%)
Antiviral drug(s)	628 (13.1%)	147 (45.9%)	431 (66.9%)	413 (67.9%)	19 (51.4%)	7 (2.9%)
Corticosteroid(s)	3524 (73.5%)	236 (73.8%)	482 (74.8%)	457 (75.2%)	26 (70.3%)	216 (88.9%)
Anti-SARS-CoV-2 antibodies	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other monoclonal antibodies and immunomodulators	6 (0.1%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (2.7%)	1 (0.4%)
None of the above	831 (17.3%)	23 (7.2%)	145 (22.5%)	136 (22.4%)	9 (24.3%)	58 (23.9%)
No information	1 (0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Medications received prior to hospital admission for the management of current SARI episode						
No	3155 (64.9%)	229 (70.2%)	398 (61.1%)	387 (63.0%)	11 (28.9%)	155 (63.3%)
Yes	1704 (35.1%)	97 (29.8%)	253 (38.9%)	227 (37.0%)	27 (71.1%)	90 (36.7%)
Type of medication received prior to hospital admission for the management of current SARI episode						
Antibiotics	853 (50.1%)	43 (44.3%)	113 (44.7%)	103 (45.4%)	10 (37.0%)	50 (55.6%)
Antiviral drug(s)	15 (0.9%)	1 (1.0%)	11 (4.3%)	9 (4.0%)	2 (7.4%)	0 (0.0%)
Corticosteroid(s)	512 (30.0%)	17 (17.5%)	67 (26.5%)	62 (27.3%)	5 (18.5%)	32 (35.6%)
Anti-SARS-CoV-2 antibodies	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other monoclonal antibodies and immunomodulators	6 (0.4%)	0 (0.0%)	2 (0.8%)	2 (0.9%)	0 (0.0%)	2 (2.2%)
None of the above	570 (33.5%)	45 (46.4%)	104 (41.1%)	90 (39.6%)	15 (55.6%)	28 (31.1%)
No information	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
SARI severity level						
Hospital admission without ICU admission	4452 (91.6%)	303 (92.9%)	609 (93.5%)	577 (94.0%)	33 (86.8%)	217 (88.6%)
ICU admission	85 (1.7%)	4 (1.2%)	13 (2.0%)	11 (1.8%)	2 (5.3%)	0 (0.0%)
In-hospital death	316 (6.5%)	19 (5.8%)	27 (4.1%)	25 (4.0%)	2 (5.3%)	28 (11.4%)
Missing	6 (0.1%)	0 (0.0%)	2 (0.3%)	1 (0.2%)	1 (2.6%)	0 (0.0%)
Respiratory support^c						
No respiratory support	1121 (23.1%)	106 (32.5%)	146 (22.4%)	132 (21.5%)	14 (36.8%)	31 (12.7%)
Oxygen therapy (e.g., nasal cannula, mask)	3262 (67.1%)	194 (59.5%)	449 (69.0%)	428 (69.7%)	22 (57.9%)	184 (75.1%)
Non-invasive ventilation ^d	441 (9.1%)	20 (6.1%)	50 (7.7%)	49 (8.0%)	1 (2.6%)	27 (11.0%)
Invasive mechanical ventilation ^e	23 (0.5%)	3 (0.9%)	5 (0.8%)	4 (0.7%)	1 (2.6%)	1 (0.4%)

	All SARI Patients N (%)	SARS-CoV-2 cases N (%)	Influenza cases N (%)			RSV cases ^b N (%)
			Total	Influenza A	Influenza B	
ECMO	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Missing	12 (0.2%)	3 (0.9%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	2 (0.8%)
Length of hospital stay						
Number of Days, median (lower, upper quartile)	6 (4, 9)	6 (4, 9)	6 (4, 8.5)	6 (4, 8.75)	5 (3, 7.75)	6 (5, 10)
1-3 days	917 (18.9%)	67 (20.6%)	127 (19.5%)	116 (18.9%)	11 (28.9%)	28 (11.4%)
4-6 days	1660 (34.2%)	110 (33.7%)	233 (35.8%)	220 (35.8%)	14 (36.8%)	95 (38.8%)
7-13 days	1696 (34.9%)	108 (33.1%)	224 (34.4%)	218 (35.5%)	6 (15.8%)	95 (38.8%)
14-27 days	482 (9.9%)	34 (10.4%)	59 (9.1%)	53 (8.6%)	6 (15.8%)	22 (9.0%)
28-41 days	74 (1.5%)	5 (1.5%)	5 (0.8%)	5 (0.8%)	0 (0.0%)	4 (1.6%)
≥42 days	30 (0.6%)	2 (0.6%)	3 (0.5%)	2 (0.3%)	1 (2.6%)	1 (0.4%)
Discharge destination						
Home	3331 (68.6%)	229 (70.2%)	489 (75.1%)	462 (75.2%)	28 (73.7%)	153 (62.4%)
Home with nursing care	455 (9.4%)	19 (5.8%)	65 (10.0%)	60 (9.8%)	5 (13.2%)	30 (12.2%)
Transfer to another hospital	38 (0.8%)	3 (0.9%)	2 (0.3%)	1 (0.2%)	1 (2.6%)	0 (0.0%)
Rehabilitation centre	8 (0.2%)	0 (0.0%)	2 (0.3%)	2 (0.3%)	0 (0.0%)	0 (0.0%)
Nursing home or other long-term care facility	270 (5.6%)	23 (7.1%)	33 (5.1%)	33 (5.4%)	0 (0.0%)	23 (9.4%)
Other	365 (7.5%)	20 (6.1%)	25 (3.8%)	23 (3.7%)	2 (5.3%)	5 (2.0%)
Missing	392 (8.1%)	32 (9.8%)	35 (5.4%)	33 (5.4%)	2 (5.3%)	34 (13.9%)

Abbreviations: ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; N, number; RSV, respiratory syncytial virus; SARI, severe acute respiratory infection; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

^a Test results may include co-infections; categories are not mutually exclusive.

^b Subtype of RSV was not consistently tested throughout the study. Therefore, only the total number of RSV cases is provided.

^c When a patient received multiple types of respiratory support, the highest level was considered.

^d Ventilatory support without tracheal intubation, e.g., high-flow nasal oxygen, Continuous Positive Airway Pressure (CPAP), or Bi-level Intermittent Positive Airway Pressure.

^e Ventilatory support with tracheal intubation.

Supplementary Table S6. Prevalence and clinical characteristics of co-infections among SARI patients. id.DRIVE, 01 September 2024 – 31 August 2025

Variables	Co-infections: Yes			Co-infections ^a : No
	Influenza and SARS-CoV-2 N (%)	RSV and SARS-CoV-2 N (%)	RSV and influenza N (%)	N (%)
Total patients (N)	18	9	19	2252
Age, Years, median (lower, upper quartile)	82 (70.5, 88)	80 (74, 85)	79 (75, 86.5)	78 (65, 87)
Age groups				
18-49 years	2 (11.1%)	0 (0.0%)	0 (0.0%)	187 (8.3%)
50-59 years	1 (5.6%)	0 (0.0%)	1 (5.3%)	173 (7.7%)
60-74 years	3 (16.7%)	3 (33.3%)	3 (15.8%)	579 (25.7%)
≥75 years	12 (66.7%)	6 (66.7%)	15 (78.9%)	1313 (58.3%)
Number of chronic conditions^b				
0	1 (5.6%)	0 (0.0%)	1 (5.3%)	162 (7.2%)
1	3 (16.7%)	1 (11.1%)	1 (5.3%)	340 (15.1%)
2	3 (16.7%)	3 (33.3%)	3 (15.8%)	548 (24.3%)
≥3	10 (55.6%)	5 (55.6%)	14 (73.7%)	1186 (52.7%)
Missing	1 (5.6%)	0 (0.0%)	0 (0.0%)	16 (0.7%)
Chronic conditions^b				
Asthma	4 (22.2%)	1 (11.1%)	2 (10.5%)	214 (9.5%)
Lung disease	6 (33.3%)	3 (33.3%)	10 (52.6%)	686 (30.5%)
Cardiovascular disease	9 (50.0%)	8 (88.9%)	12 (63.2%)	1025 (45.5%)
Congestive heart failure	3 (16.7%)	6 (66.7%)	2 (10.5%)	283 (12.6%)
Hypertension	12 (66.7%)	6 (66.7%)	10 (52.6%)	1393 (61.9%)
Chronic renal disease	3 (16.7%)	2 (22.2%)	6 (31.6%)	464 (20.6%)
End-stage kidney disease	2 (11.1%)	1 (11.1%)	1 (5.3%)	125 (5.6%)
Chronic liver disease	0 (0.0%)	0 (0.0%)	1 (5.3%)	136 (6.0%)
End-stage liver disease	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (0.2%)
Obesity	3 (16.7%)	1 (11.1%)	5 (26.3%)	490 (21.8%)
Type 1 diabetes	0 (0.0%)	0 (0.0%)	1 (5.3%)	11 (0.5%)
Type 2 diabetes	4 (22.2%)	1 (11.1%)	6 (31.6%)	649 (28.8%)
Neurological disorders	5 (27.8%)	0 (0.0%)	5 (26.3%)	494 (21.9%)
Cancer	8 (44.4%)	2 (22.2%)	7 (36.8%)	421 (18.7%)
Solid tumour	4 (22.2%)	1 (11.1%)	6 (31.6%)	310 (13.8%)
Haematological cancer	4 (22.2%)	1 (11.1%)	1 (5.3%)	113 (5.0%)
Immunodeficiency ^c	2 (11.1%)	1 (11.1%)	2 (10.5%)	149 (6.6%)
Cancer and/or immunodeficiency ^d	9 (50.0%)	2 (22.2%)	7 (36.8%)	494 (21.9%)
ICU and in-hospital mortality				
Hospital admission without ICU admission	18 (100.0%)	9 (100.0%)	19 (100.0%)	2023 (89.8%)
ICU admission	0 (0.0%)	0 (0.0%)	0 (0.0%)	75 (3.3%)
In-hospital death	0 (0.0%)	0 (0.0%)	0 (0.0%)	151 (6.7%)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.1%)
Respiratory support^e				
No respiratory support	8 (44.4%)	1 (11.1%)	3 (15.8%)	479 (21.3%)
Oxygen therapy	7 (38.9%)	6 (66.7%)	14 (73.7%)	1518 (67.4%)
Non-invasive ventilation ^f	2 (11.1%)	2 (22.2%)	2 (10.5%)	225 (10.0%)
Invasive mechanical ventilation ^g	0 (0.0%)	0 (0.0%)	0 (0.0%)	25 (1.1%)
Extracorporeal membrane oxygenation	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Missing	1 (5.6%)	0 (0.0%)	0 (0.0%)	4 (0.2%)
Length of hospital stay				
Days, median (lower, upper quartile)	6 (4, 9)	4 (4, 7)	10 (5.5, 17)	6 (4, 10)
1-3 days	4 (22.2%)	2 (22.2%)	3 (15.8%)	446 (19.8%)
4-6 days	6 (33.3%)	4 (44.4%)	3 (15.8%)	738 (32.8%)
7-13 days	7 (38.9%)	2 (22.2%)	5 (26.3%)	767 (34.1%)
14-27 days	1 (5.6%)	1 (11.1%)	7 (36.8%)	245 (10.9%)
28-41 days	0 (0.0%)	0 (0.0%)	1 (5.3%)	31 (1.4%)
≥42 days	0 (0.0%)	0 (0.0%)	0 (0.0%)	25 (1.1%)
Discharge destination				
Home	13 (72.2%)	7 (77.8%)	12 (63.2%)	1595 (70.8%)
Home with nursing care	0 (0.0%)	0 (0.0%)	1 (5.3%)	190 (8.4%)

Variables	Co-infections: Yes			Co-infections ^a : No
	Influenza and SARS-CoV-2 N (%)	RSV and SARS-CoV-2 N (%)	RSV and influenza N (%)	N (%)
Transfer to another hospital	0 (0.0%)	0 (0.0%)	1 (5.3%)	13 (0.6%)
Rehabilitation centre	1 (5.6%)	0 (0.0%)	3 (15.8%)	52 (2.3%)
Nursing home or other long-term care facility	2 (11.1%)	0 (0.0%)	2 (10.5%)	173 (7.7%)
Other	1 (5.6%)	0 (0.0%)	0 (0.0%)	55 (2.4%)
Missing	1 (5.6%)	2 (22.2%)	0 (0.0%)	174 (7.7%)

Abbreviations: COPD, chronic obstructive pulmonary disease; ICU, intensive care unit; N, number; RSV, respiratory syncytial virus; SARI, severe acute respiratory infection; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

^a Participants testing positive for a single pathogen (SARS-CoV-2, Influenza, RSV); may include participants with co-infections of other additional pathogens not routinely tested for across all study sites [adenovirus, parainfluenza 1-4, human metapneumovirus (HMPV), human rhinovirus (HRV), human enterovirus (HEV), and human coronaviruses (229E/NL63/OC43/HKU1)].

^b Chronic conditions defined in Supplementary Table S3.

^c Any of the following diagnostic codes (International Classification of Diseases, 10th revision [ICD-10]): B20-B24, D80-84, D89, Z94. Excluding disorders of the immune system, which do not lead to immunosuppression (e.g., some autoimmune conditions), adequately treated human immunodeficiency virus (HIV) infection.

^d Combination of chronic condition categories: immunodeficiency or organ transplant, and cancer.

^e When a patient received multiple types of respiratory support, the highest level was considered.

^f Ventilatory support without tracheal intubation, e.g., high-flow nasal oxygen, Continuous Positive Airway Pressure (CPAP), or Bi-level Intermittent Positive Airway Pressure.

^g Ventilatory support with tracheal intubation.