

Factors for severe outcomes following SARS-CoV-2 infection in people with cystic fibrosis

Supplementary Information

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Supplementary Table 1 *Number and incidence of SARS-CoV-2 infections in people with cystic fibrosis, by wave and by country.*

Country	Feb-Dec 2020			Wave 1 (Feb-June)			Wave 2 (Jul-Dec)		
	Cases	CF population	Incidence per 1000 (95% CI)	Cases	CF population	Incidence per 1000 (95% CI)	Cases	CF population	Incidence per 1000 (95% CI)
Armenia	2	28	71.4 (8.8 – 235.0)	0	28	0.0 (0.0 - 123.4)	2	28	71.4 (8.8 – 235.0)
Austria	13	793	16.4 (8.8 - 27.9)	0	793	0.0 (0.0 - 4.6)	13	793	16.4 (8.8 - 27.9)
Belgium	43	1298	33.1 (24.1 - 44.4)	6	1298	4.6 (1.7 - 10)	37	1298	28.5 (20.1 - 39.1)
Croatia	4	123	32.5 (8.9 - 81.2)	0	123	0.0 (0.0 - 29.5)	4	123	32.5 (8.9 - 81.2)
Czech Republic	24	615	39.0 (25.2 - 57.5)	0	615	0.0 (0.0 - 6)	24	615	39.0 (25.2 - 57.5)
Denmark	5	512	9.8 (3.2 - 22.6)	2	512	3.9 (0.5 - 14)	3	512	5.9 (1.2 – 17.0)
France	104	6940	15.0 (12.3 - 18.1)	19	6940	2.7 (1.6 - 4.3)	85	6940	12.2 (9.8 - 15.1)
Germany	44	6361	6.9 (5.0 - 9.3)	17	6361	2.7 (1.6 - 4.3)	27	6361	4.2 (2.8 - 6.2)
Greece	6	588	10.2 (3.8 - 22.1)	2	588	3.4 (0.4 - 12.2)	4	588	6.8 (1.9 - 17.3)
Ireland	14	1224	11.4 (6.3 - 19.1)	5	1224	4.1 (1.3 - 9.5)	9	1224	7.4 (3.4 - 13.9)
Israel	19	537	35.4 (21.4 - 54.7)	0	537	0.0 (0.0 - 6.8)	19	537	35.4 (21.4 - 54.7)
Italy	159	5501	28.9 (24.6 - 33.7)	17	5501	3.1 (1.8 - 4.9)	142	5501	25.8 (21.8 - 30.4)
Latvia	1	37	27.0 (0.7 - 141.6)	0	37	0.0 (0.0 - 94.9)	1	37	27.0 (0.7 - 141.6)
Netherlands	40	1394	28.7 (20.6 - 38.9)	4	1394	2.9 (0.8 - 7.3)	36	1394	25.8 (18.2 - 35.6)
North Macedonia	2	119	16.8 (2.0 - 59.4)	0	119	0.0 (0.0 - 30.5)	2	119	16.8 (2.0 - 59.4)
Norway	1	290	3.4 (0.1 - 19.1)	1	290	3.4 (0.1 - 19.1)	0	290	0.0 (0.0 - 12.6)
Poland	2	882	2.3 (0.3 - 8.2)	2	882	2.3 (0.3 - 8.2)	0	882	0.0 (0.0 - 4.2)
Portugal	2	296	6.8 (0.8 - 24.2)	0	296	0.0 (0.0 - 12.4)	2	296	6.8 (0.8 - 24.2)
Russia	30	3137	9.6 (6.5 - 13.6)	6	3137	1.9 (0.7 - 4.2)	24	3137	7.7 (4.9 - 11.4)
Slovak Republic	2	278	7.2 (0.9 - 25.7)	0	278	0.0 (0.0 - 13.2)	2	278	7.2 (0.9 - 25.7)
Slovenia	1	109	9.2 (0.2 - 50.1)	0	109	0.0 (0.0 - 33.3)	1	109	9.2 (0.2 - 50.1)
Spain	58	2192	26.5 (20.2 - 34.1)	11	2192	5.0 (2.5 – 9.0)	47	2192	21.4 (15.8 - 28.4)

	Feb-Dec 2020			Wave 1 (Feb-June)			Wave 2 (Jul-Dec)		
Country	Cases	CF population	Incidence per 1000 (95% CI)	Cases	CF population	Incidence per 1000 (95% CI)	Cases	CF population	Incidence per 1000 (95% CI)
Sweden	19	689	27.6 (16.7 - 42.7)	6	689	8.7 (3.2 - 18.9)	13	689	18.9 (10.1 - 32.0)
Switzerland	9	950	9.5 (4.3 - 17.9)	3	950	3.2 (0.7 - 9.2)	6	950	6.3 (2.3 - 13.7)
Turkey	26	1807	14.4 (9.4 - 21)	3	1807	1.7 (0.3 - 4.8)	23	1807	12.7 (8.1 - 19.0)
United Kingdom	198	9847	20.1 (17.4 - 23.1)	26	9847	2.6 (1.7 - 3.9)	172	9847	17.5 (15.0 - 20.3)
Sum	828	48211	17.2 (16 - 18.4)	130	48211	2.7 (2.3 - 3.2)	698	48211	14.5 (13.4 - 15.6)

Abbreviations: CF=cystic fibrosis, CI=confidence interval, SARS-CoV-2=Severe Acute Respiratory Syndrome Coronavirus 2

The following countries reported zero cases of SARS-CoV-2 in people with CF till 31 December 2020: Albania, Belarus, Bulgaria, Cyprus, Georgia, Lithuania, Luxembourg, Republic of Moldova, Romania, Serbia, Ukraine. One country (Hungary) did not report information to ECFSPR.

Supplementary Table 2
infection who died

Characteristics of people with cystic fibrosis and SARS-CoV-2

		Number of patients (n=11)	
Demographics	Gender	Female	5
		Male	6
	Age	0-11 years	3
		12-17 years	1
		18-29 years	2
		30-39 years	2
		40-49 years	3
	BMI, z score ¹	Missing	1
		<-2	3
-2 - 2		7	
Cystic fibrosis pre-infection characteristics	Lung transplant ²	4	
	CFTR genotype	Other/other	3
		F508del/other	2
		F508del/F508del	6
	Lung disease (ppFEV ₁) ³	Missing	2
		Severe (≤40%)	4
		Moderate (>40-70%)	4
		Mild (>70%)	1
	<i>Pseudomonas aeruginosa</i>	6	
	CF related diabetes	7	
Pancreatic insufficiency	11		
Outcomes	Oxygen therapy	9	
	Respiratory support	7	
	Hospital	10	
	Intensive care	6	
Cause of death	SARS-CoV-2 infection	8	
	Other ⁴	1	
	Unknown ⁵	2	

Abbreviations: BMI=body mass index, CFTR=cystic fibrosis transmembrane conductance regulator, ppFEV₁=percent predicted forced expiratory volume

1 BMI z-score was only calculated for patients aged 2 years and over

2 No patient who died had received transplant of a solid organ other than lung

3 ppFEV₁ was only calculated for patients aged 6 years and over

4 This was a paediatric lung-transplanted patient.

5 Both were adults who died within 3 months of SARS-CoV-2 infection

Supplementary Table 3 *Univariable analysis of the association of demographics and cystic fibrosis characteristics with symptoms of SARS-CoV-2 infection in people with cystic fibrosis*

Characteristics of pwCF		Presence of symptoms		General symptoms		Gastrointestinal symptoms		Pulmonary symptoms	
		Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Gender	male vs female	0.9 (0.6 - 1.2)	0.712	1.1 (0.7 - 1.5)	0.914	1.1 (0.7 - 1.6)	0.898	0.8 (0.6 - 1.0)	0.208
Age	18-29 vs 0-17 years	1.3 (0.9 - 1.8)	0.430	1.7 (1.1 - 2.5)	0.098	0.7 (0.4 - 1.2)	0.674	1.8 (1.3 - 2.6)	0.014
	30-39 vs 0-17 years	1.9 (1.2 - 3.1)	0.112	2.4 (1.5 - 3.8)	<0.001	0.8 (0.4 - 1.5)	0.683	2.1 (1.1 - 4.3)	0.140
	40+ vs 0-17 years	3.8 (1.7 - 8.9)	0.056	4.7 (2.5 - 9.0)	<0.001	0.5 (0.1 - 1.7)	0.674	4.9 (2.8 - 8.8)	<0.001
Genotype	Any F508del vs no F508del	1.9 (1.1 - 3.1)	0.117	1.7 (0.9 - 3.1)	0.378	1.3 (0.3 - 5.3)	0.897	1.2 (0.9 - 1.6)	0.405
BMI underweight ¹	Yes vs No	0.8 (0.4 - 1.7)	0.823	0.9 (0.5 - 1.7)	0.914	1.9 (0.9 - 3.9)	0.674	0.9 (0.5 - 1.6)	0.857
Lung function (FEV1 % predicted)	>40-70% vs >70%	1.2 (0.7 - 2.1)	0.712	1.3 (0.8 - 2.1)	0.600	1.2 (0.7 - 1.9)	0.775	1.5 (1.1 - 2.2)	0.121
	≤40% vs >70%	1.2 (0.7 - 2.0)	0.823	1.3 (0.8 - 2.2)	0.635	1.2 (0.7 - 2.2)	0.778	1.8 (1.1 - 3.1)	0.118
Pancreatic insufficiency	Yes vs No	0.7 (0.5 - 0.9)	0.117	0.6 (0.4 - 0.8)	0.028	0.7 (0.4 - 1.4)	0.674	0.7 (0.5 - 0.9)	0.070
CF related diabetes	Yes vs No	0.8 (0.5 - 1.4)	0.809	1.0 (0.6 - 1.5)	0.914	0.7 (0.3 - 1.4)	0.674	1.1 (0.8 - 1.7)	0.779
Lung transplant	Yes vs No	1.5 (0.9 - 2.4)	0.389	1.3 (0.9 - 1.9)	0.600	1.1 (0.4 - 3.3)	0.936	1.0 (0.7 - 1.5)	0.890
ABPA	Yes vs No	1.2 (0.4 - 3.1)	0.933	1.0 (0.5 - 2.1)	0.994	0.6 (0.1 - 2.4)	0.683	1.8 (1.0 - 3.4)	0.148
Chronic liver GI disease	Yes vs No	1.1 (0.6 - 2.0)	0.897	1.2 (0.8 - 1.8)	0.754	0.7 (0.3 - 1.5)	0.674	1.0 (0.7 - 1.3)	0.857
Systemic arterial hypertension	Yes vs No	1.9 (1.0 - 3.8)	0.216	1.7 (0.9 - 3.2)	0.356	3.0 (1.4 - 6.4)	0.168	2.1 (1.0 - 4.2)	0.147
CFTR modulator therapy	Yes vs No	0.8 (0.6 - 1.1)	0.406	0.8 (0.6 - 1.1)	0.600	0.6 (0.2 - 1.7)	0.676	1.0 (0.7 - 1.4)	0.898

Characteristics of pwCF		Presence of symptoms		General symptoms		Gastrointestinal symptoms		Pulmonary symptoms	
Inhaled antibiotics	Yes vs No	0.7 (0.5 - 1.2)	0.430	1.0 (0.6 - 1.6)	0.948	0.7 (0.4 - 1.2)	0.674	1.1 (0.7 - 1.8)	0.779
Oral antibiotics	Yes vs No	0.6 (0.4 - 0.9)	0.117	0.7 (0.4 - 1.2)	0.600	0.4 (0.1 - 1.4)	0.674	1.3 (0.9 - 1.7)	0.325
Inhaled steroid	Yes vs No	1.1 (0.8 - 1.7)	0.823	1.2 (0.8 - 1.6)	0.675	1.0 (0.5 - 2.2)	0.936	1.3 (1.0 - 1.8)	0.208
Azithromycin	Yes vs No	1.0 (0.6 - 1.5)	0.933	1.1 (0.7 - 1.7)	0.914	0.9 (0.5 - 1.6)	0.897	1.5 (1.0 - 2.3)	0.148
DNase	Yes vs No	0.8 (0.5 - 1.1)	0.347	0.8 (0.6 - 1.0)	0.134	0.6 (0.3 - 1.2)	0.674	0.8 (0.6 - 1.2)	0.369
Hypertonic Saline	Yes vs No	0.8 (0.6 - 1.1)	0.417	0.8 (0.6 - 1.1)	0.600	1.1 (0.6 - 2.0)	0.898	1 (0.7 - 1.4)	1.000
<i>Pseudomonas aeruginosa</i>	Yes vs No	1.4 (1.1 - 1.8)	0.117	1.4 (1.0 - 1.9)	0.238	0.5 (0.3 - 1.0)	0.462	1.6 (1.1 - 2.3)	0.056
<i>Staphylococcus aureus</i>	Yes vs No	1.0 (0.6 - 1.6)	0.997	0.9 (0.6 - 1.5)	0.914	1.1 (0.5 - 2.4)	0.898	0.9 (0.7 - 1.1)	0.369
<i>Burkholderia cepacia</i> complex	Yes vs No	1.0 (0.6 - 1.7)	0.980	1.1 (0.5 - 2.3)	0.914	1 (0.3 - 3.9)	0.943	1.2 (0.6 - 2.3)	0.779
MRSA	Yes vs No	0.9 (0.5 - 1.7)	0.933	1.1 (0.6 - 2.2)	0.914	1.7 (0.6 - 4.7)	0.674	0.7 (0.4 - 1.1)	0.321
<i>Stenotrophomonas maltophilia</i>	Yes vs No	0.9 (0.5 - 1.6)	0.933	0.8 (0.5 - 1.3)	0.675	0.7 (0.3 - 1.8)	0.683	1.4 (0.8 - 2.2)	0.369
<i>Achromobacter</i> species	Yes vs No	0.9 (0.5 - 1.9)	0.933	1.0 (0.6 - 1.7)	0.948	1.7 (0.7 - 3.8)	0.674	1.3 (0.6 - 2.6)	0.704
<i>Aspergillus</i> colonisation	Yes vs No	1.3 (0.9 - 1.9)	0.430	1.2 (0.8 - 1.9)	0.600	1.5 (0.6 - 3.6)	0.674	1.2 (0.9 - 1.7)	0.325

Abbreviations: ABPA= allergic bronchopulmonary aspergillosis, BMI=body mass index, CFTR=cystic fibrosis transmembrane conductance regulator, GI=gastrointestinal, MRSA= methicillin-resistant *Staphylococcus aureus*, FEV1=percent predicted forced expiratory volume, Iva=ivacaftor, Tez=tezacaftor, Lum=lumacaftor, Elexa=elexacaftor

p-values are adjusted for multiple comparison using False Discovery Rate method.

1 A person was considered underweight if their BMI z score was <-2

Supplementary Table 4 *Univariable analysis of the association of demographics and cystic fibrosis characteristics with outcomes of SARS-CoV-2 infection in people with cystic fibrosis*

Characteristics of pwCF		Hospitalization		ICU		Oxygen therapy		Respiratory support	
		Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Gender	male vs female	0.7 (0.5 - 0.9)	0.037	1.2 (0.6 - 2.3)	0.716	0.9 (0.5 - 1.3)	0.610	1.1 (0.5 - 2.2)	0.982
Age	18-29 vs 0-17 years	1.0 (0.8 - 1.4)	0.883	0.7 (0.2 - 2.0)	0.676	1.0 (0.6 - 1.7)	0.892	0.5 (0.2 - 1.6)	0.518
	30-39 vs 0-17 years	1.5 (0.9 - 2.5)	0.191	1.5 (0.4 - 5.8)	0.685	1.6 (0.6 - 4.3)	0.427	1.5 (0.6 - 3.8)	0.616
	40+ vs 0-17 years	2.4 (1.6 - 3.6)	<0.001	2.9 (0.9 - 9.1)	0.202	2.4 (1.4 - 4.2)	0.008	2.9 (1.3 - 6.2)	0.032
Genotype	Any F508del vs no F508del	1.0 (0.7 - 1.3)	0.905	1.8 (1.1 - 3.2)	0.144	0.8 (0.5 - 1.4)	0.541	1.2 (0.6 - 2.3)	0.708
BMI underweight ¹	Yes vs No	3.8 (2.1 - 7.0)	<0.001	1.5 (0.5 - 4.8)	0.685	3.1 (1.7 - 5.7)	<0.001	2.0 (0.7 - 5.6)	0.405
Lung function (FEV1 % predicted)	>40-70% vs >70%	2.7 (2.0 - 3.6)	<0.001	2.3 (1.1 - 5.1)	0.144	5.4 (3.0 - 9.5)	<0.001	5.7 (2.3 - 14.0)	<0.001
	≤40% vs >70%	8.1 (4.0 - 16.5)	<0.001	2.6 (0.7 - 9.7)	0.387	18.2 (9.4 - 35.2)	<0.001	8.5 (2.9 - 25.2)	<0.001
Pancreatic insufficiency	Yes vs No	1.8 (1.2 - 2.5)	0.005	2.3 (0.5 - 10.8)	0.487	1.8 (0.9 - 3.7)	0.224	1.7 (0.6 - 4.6)	0.525
CF related diabetes	Yes vs No	2.6 (1.9 - 3.7)	<0.001	4.6 (2.3 - 9.5)	<0.001	2.1 (1.6 - 2.9)	<0.001	3.2 (1.7 - 5.8)	<0.001
Lung transplant	Yes vs No	3.9 (2.8 - 5.4)	<0.001	6.5 (3.2 - 13.2)	<0.001	3.0 (2.1 - 4.5)	<0.001	4.1 (2.2 - 7.5)	<0.001
ABPA	Yes vs No	2.5 (1.5 - 4.2)	<0.001	1.8 (0.6 - 6.1)	0.499	1.9 (1.1 - 3.3)	0.066	1.1 (0.2 - 5.2)	0.988
Chronic liver GI disease	Yes vs No	1.1 (0.9 - 1.5)	0.459	1.3 (0.5 - 3.5)	0.716	1.5 (1.0 - 2.2)	0.164	1.0 (0.5 - 2.1)	0.988
Systemic arterial hypertension	Yes vs No	3.1 (1.8 - 5.4)	<0.001	5.5 (1.1 - 27.0)	0.144	3.2 (1.7 - 5.9)	<0.001	3.1 (1.1 - 9.2)	0.109

Characteristics of pwCF		Hospitalization		ICU		Oxygen therapy		Respiratory support	
CFTR modulator therapy	Yes vs No	0.7 (0.5 – 1.0)	0.058	0.5 (0.2 - 1.2)	0.313	0.9 (0.6 - 1.3)	0.620	0.6 (0.3 - 1.1)	0.287
Inhaled antibiotics	Yes vs No	1.9 (1.1 - 3.5)	0.049	5.5 (1.2 – 25.0)	0.144	3.1 (1.9 – 5.0)	<0.001	6.8 (1.9 – 25.0)	0.019
Oral antibiotics	Yes vs No	1.5 (1.1 - 2.1)	0.038	3.7 (1.3 - 10.5)	0.140	1.6 (1.0 - 2.7)	0.154	2.0 (0.8 - 4.7)	0.287
Inhaled steroid	Yes vs No	1.4 (0.9 - 2.2)	0.191	0.5 (0.2 – 1.0)	0.165	1.1 (0.7 - 1.8)	0.704	0.8 (0.4 - 1.7)	0.708
Azithromycin	Yes vs No	2.7 (1.9 - 3.8)	<0.001	2.0 (1.0 - 4.1)	0.165	3.3 (2.1 - 5.4)	<0.001	2.5 (1.2 - 5.5)	0.059
DNase	Yes vs No	1.1 (0.7 – 2.0)	0.747	0.6 (0.2 - 1.6)	0.499	1.4 (0.8 - 2.5)	0.395	1.5 (0.6 - 3.7)	0.647
Hypertonic Saline	Yes vs No	0.9 (0.5 - 1.6)	0.883	0.8 (0.3 - 2.4)	0.726	1.1 (0.5 - 2.1)	0.880	0.8 (0.4 - 1.8)	0.742
<i>Pseudomonas aeruginosa</i>	Yes vs No	2.1 (1.5 – 3.0)	<0.001	1.0 (0.5 - 2.3)	0.901	2.6 (1.7 - 3.9)	<0.001	2.3 (1.2 - 4.8)	0.059
<i>Staphylococcus aureus</i>	Yes vs No	0.8 (0.6 - 1.1)	0.180	0.6 (0.2 - 1.4)	0.401	0.7 (0.5 - 1.1)	0.269	0.6 (0.2 - 1.6)	0.592
<i>Burkholderia cepacia</i> complex	Yes vs No	1.0 (0.4 - 2.4)	0.939	1.8 (0.2 - 17.1)	0.716	1.7 (0.7 - 3.8)	0.376	1.0 (0.1 - 8.2)	0.988
MRSA	Yes vs No	1.5 (0.9 - 2.6)	0.191	2.5 (0.6 - 10.2)	0.396	1.3 (0.8 - 2.3)	0.427	Not available	<0.001
<i>Stenotrophomonas maltophilia</i>	Yes vs No	1.6 (1.0 - 2.5)	0.073	1.3 (0.3 – 5.0)	0.726	1.5 (0.8 - 2.8)	0.395	1.3 (0.4 - 4.6)	0.828
<i>Achromobacter</i> species	Yes vs No	2.3 (1.5 - 3.6)	<0.001	2.3 (0.7 - 8.3)	0.396	1.4 (0.7 - 2.9)	0.496	0.4 (0.1 - 3.3)	0.639
<i>Aspergillus</i> colonisation	Yes vs No	1.9 (1.0 - 3.5)	0.068	0.4 (0.0 - 3.5)	0.607	0.8 (0.3 - 1.9)	0.697	1.0 (0.4 - 2.7)	0.988

Abbreviations: ABPA= allergic bronchopulmonary aspergillosis, BMI=body mass index, CFTR=cystic fibrosis transmembrane conductance regulator, GI=gastrointestinal, MRSA= methicillin-resistant *Staphylococcus aureus*, FEV1=percent predicted forced expiratory volume, Iva=ivacaftor, Tez=tezacaftor, Lum=lumacaftor, Elexa=elexacaftor

p-values are adjusted for multiple comparison using False Discovery Rate method.

1 A person was considered underweight if their BMI z score was <-2

Supplementary Table 5 Factors associated with symptoms of SARS-CoV-2 infection in people with cystic fibrosis (mixed effects multivariable logistic regression)

Characteristics of pwCF		Any symptoms		General symptoms		Pulmonary symptoms	
		Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Gender	male vs female	0.8 (0.6 - 1.2)	0.344	1.1 (0.8 - 1.7)	0.521	0.8 (0.7 - 1)	0.086
Age	18-29 vs 0-17 years	1.1 (0.7 - 1.7)	0.677	1.4 (0.9 - 2.3)	0.157	1.7 (1.1 - 2.6)	0.023
	30-39 vs 0-17 years	1.6 (0.9 - 3.0)	0.113	2.0 (1.1 - 3.7)	0.028	2.1 (1.1 - 4.3)	0.035
	40+ vs 0-17 years	2.6 (1.2 - 5.3)	0.010	2.9 (1.6 - 5.2)	<0.001	4.0 (2.0 - 8.1)	<0.001
Genotype	Any F508del vs no F508del	2.1 (1.3 - 3.5)	0.004	1.9 (1.1 - 3.2)	0.018	1.3 (0.9 - 1.9)	0.111
BMI underweight	Yes vs No	0.8 (0.3 - 2.3)	0.743	0.9 (0.4 - 2.5)	0.885	0.8 (0.5 - 1.5)	0.555
Lung function (FEV1 % predicted)	>40-70% vs >70%	1.3 (0.8 - 2.2)	0.233	1.4 (0.8 - 2.3)	0.205	1.3 (0.9 - 1.8)	0.140
	≤40% vs >70%	1.3 (0.7 - 2.4)	0.338	1.3 (0.7 - 2.4)	0.433	1.6 (0.9 - 2.9)	0.091
Pancreatic enzymes	Yes vs No	0.6 (0.4 - 1.0)	0.061	0.5 (0.2 - 0.9)	0.019	0.7 (0.5 - 1.1)	0.162
CF related diabetes	Yes vs No	0.7 (0.5 - 1.2)	0.192	0.9 (0.6 - 1.4)	0.619	0.9 (0.6 - 1.3)	0.550
Lung transplant	Yes vs No	1.1 (0.6 - 2.1)	0.736	1.0 (0.5 - 1.8)	0.916	0.8 (0.5 - 1.1)	0.190
CFTR modulator therapy	Yes vs No	0.8 (0.6 - 1.0)	0.084	0.8 (0.6 - 1.1)	0.199	0.8 (0.6 - 1.2)	0.379
Azithromycin	Yes vs No	0.8 (0.5 - 1.4)	0.493	1.0 (0.6 - 1.6)	0.900	1.4 (0.9 - 2.2)	0.123
<i>Pseudomonas aeruginosa</i>	Yes vs No	1.0 (0.7 - 1.4)	0.790	0.9 (0.6 - 1.3)	0.626	1.1 (0.7 - 1.7)	0.687

Supplementary Table 6 Factors associated with outcomes of SARS-CoV-2 infection in people with cystic fibrosis (mixed effects multivariable logistic regression)

Characteristics of pwCF		Hospitalization		Oxygen therapy	
		Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Gender	male vs female	0.8 (0.5 - 1.2)	0.241	1.1 (0.7 - 1.8)	0.705
Age	18-29 vs 0-17 years	0.6 (0.4 - 1.0)	0.060	0.4 (0.2 - 0.8)	0.009
	30-39 vs 0-17 years	0.8 (0.4 - 1.7)	0.607	0.7 (0.3 - 1.7)	0.443
	40+ vs 0-17 years	1.3 (0.7 - 2.2)	0.427	0.9 (0.5 - 1.8)	0.795
Genotype	Any F508del vs no F508del	0.9 (0.6 - 1.3)	0.472	0.8 (0.4 - 1.3)	0.298
BMI underweight	Yes vs No	1.9 (0.8 - 4.5)	0.119	0.6 (0.2 - 1.9)	0.398
Lung function (FEV1 % predicted)	>40-70% vs >70%	2.4 (1.6 - 3.6)	<0.001	5.2 (3.2 - 8.4)	<0.001
	≤40% vs >70%	5.4 (2.2 - 13.0)	<0.001	20 (10.7 - 37.5)	<0.001
Pancreatic enzymes	Yes vs No	1.2 (0.8 - 1.8)	0.404	1.2 (0.4 - 3.4)	0.712
CF related diabetes	Yes vs No	1.7 (1.1 - 2.6)	0.027	1.4 (0.9 - 2.3)	0.172
Lung transplant	Yes vs No	3.2 (1.7 - 6.1)	<0.001	3.3 (1.4 - 7.4)	0.005
CFTR modulator therapy	Yes vs No	0.6 (0.4 - 1.0)	0.051	0.8 (0.5 - 1.4)	0.487
Azithromycin	Yes vs No	1.8 (1.1 - 2.9)	0.017	2.4 (1.4 - 4.0)	0.002
<i>Pseudomonas aeruginosa</i>	Yes vs No	1.2 (0.7 - 1.9)	0.485	1.1 (0.7 - 1.8)	0.552

ICU and Respiratory support had too few patients to fit multivariable model (note-univariable models were fitted, Supplementary Tables 2 and 3))