Supplementary Table 1. Search strategy for burden of illness SLR

Search conducted	**August 6, 2021**			
Databases searched	EBM Reviews - Cochrane Database of Systematic Reviews 2005 to August 4, 2021, Database Field Guide EBM Reviews - ACP Journal Club 1991 to July 2021, Database Field Guide EBM Reviews - Database of Abstracts of Reviews of Effects 1st Quarter 2016, Database Field Guide EBM Reviews - Cochrane Clinical Answers July 2021, Database Field Guide EBM Reviews - Cochrane Central Register of Controlled Trials July 2021, Database Field Guide EBM Reviews - Cochrane Methodology Register 3rd Quarter 2012, Database Field Guide EBM Reviews - Health Technology Assessment 4th Quarter 2016, Database Field Guide EBM Reviews - NHS Economic Evaluation Database 1st Quarter 2016, Database Field Guide Econlit 1886 to July 29, 2021, Database Field Guide Embase 1974 to 2021 August 05 , Database Field Guide Ovid MEDLINE(R) ALL 1946 to August 05, 2021			
			Term	**Hits**
Disease: COPD	Medline	1	exp Pulmonary Disease, Chronic Obstructive/	212,000
	Embase	2	exp chronic obstructive lung disease/	212,000
	All	3	(Chronic obstructive pulmonary disease$ or Chronic obstructive pulmonary disorder$ or COPD or COAD or Chronic Obstructive Airway Disease$ or Chronic Obstructive Airway Disorder$ or COLD or Chronic Obstructive Lung Disease$ or Chronic Obstructive Lung Disorder$ or Chronic Airflow Obstruction$ or chronic airway obstruction$ or chronic obstructive bronchitis or chronic obstructive bronchopulmonary disease$ or chronic obstructive bronchopulmonary disorder$ or chronic obstructive respiratory disease$ or chronic obstructive respiratory disorder$ or chronic obstructive respiratory track disease$ or chronic obstructive respiratory track disorder$).mp,af,tw.	690,039
Disease: Asthma	Medline	4	exp Asthma/ or exp Asthma-Chronic Obstructive Pulmonary Disease Overlap Syndrome/ or Asthma/	416,024
	Embase	5	exp asthma/ or exp asthma-chronic obstructive pulmonary disease overlap syndrome/	416,024
	All	6	Asthma$.mp,af,tw.	576,234
Patients with COPD or asthma		**7**	**or/1-6**	**1,226,778**
Disease: Covid-19	Medline	8	Coronavirus Infections/ or Coronavirus/	65,633
	Embase	9	Coronavirus infection/ or Coronavirinae/	62,527
	All	10	(covid$ or Coronavirus or Corona virus or Corona-virus or SARS-CoV-2 or SARSCoV-2 or SARS-CoV2 or SARSCoV2 or 2019-nCoV or 2019nCoV or WN-CoV or WNCoV or nCoV or HCoV-19 or HCoV19 or severe acute respiratory syndrome coronavirus 2 or severe acute respiratory syndrome$ or SARS).ti,ab.	366,511
		11	or/8-10	375,312
Patients with COPD/Asthma and COVID-19		**12**	**7 and 11**	**9,094**

		13	limit 12 to yr="2019 -Current"	7,988
Final selected: Relevant outcomes in patients with COPD/asthma and COVID-19		**14**	**Deduplicate**	**5,787**

Abbreviations: COPD, chronic obstructive pulmonary disease; SLR, systematic literature review.

Supplementary Table 2. Search strategy for anti-asthmatic baseline medication SLR

Search conducted	**August 6, 2021**			
Databases searched	EBM Reviews - Cochrane Database of Systematic Reviews 2005 to August 4, 2021, Database Field Guide EBM Reviews - ACP Journal Club 1991 to July 2021, Database Field Guide EBM Reviews - Database of Abstracts of Reviews of Effects 1st Quarter 2016, Database Field Guide EBM Reviews - Cochrane Clinical Answers July 2021, Database Field Guide EBM Reviews - Cochrane Central Register of Controlled Trials July 2021, Database Field Guide EBM Reviews - Cochrane Methodology Register 3rd Quarter 2012, Database Field Guide EBM Reviews - Health Technology Assessment 4th Quarter 2016, Database Field Guide EBM Reviews - NHS Economic Evaluation Database 1st Quarter 2016, Database Field Guide Econlit 1886 to July 29, 2021, Database Field Guide Embase 1974 to 2021 August 05 , Database Field Guide Ovid MEDLINE(R) ALL 1946 to August 05, 2021			
			Term	**Hits**
Disease: COVID-19	Medline	1	Coronavirus Infections/ or Coronavirus/	65,633
	Embase	2	Coronavirus infection/ or Coronavirinae/	62,527
	All	3	(covid$ or Coronavirus or Corona virus or Corona-virus or SARS-CoV-2 or SARSCoV-2 or SARS-CoV2 or SARSCoV2 or 2019-nCoV or 2019nCoV or WN-CoV or WNCoV or nCoV or HCoV-19 or HCoV19 or severe acute respiratory syndrome coronavirus 2 or severe acute respiratory syndrome$ or SARS).ti,ab.	366,511
Patients with COVID-19		**4**	**or/1-3**	**375,312**
Intervention: Biologics	Medline	5	Omalizumab/	11,331
	Embase	6	benralizumab/ or omalizumab/ or mepolizumab/ or reslizumab/ or dupilumab/ or tezepelumab/	15,871
	All	7	(benralizumab or omalizumab or mepolizumab or reslizumab or dupilumab or tezepelumab or Fasenra$ or Xolair$ or Nucala$ or Bosatria$ or Cinqair$ or Cinqaero$ or Dupixent$ or MEDI9929 or MEDI 9929 or MEDI-9929 or AMG 157 or AMG157 or AMG-157).mp,af,tw.	21,516
Intervention: Inhaled corticosteroids	Medline	8	Adrenal Cortex Hormones/ and Administration, Inhalation/	8,682
		9	Beclomethasone/ or Budesonide/ or Budesonide, Formoterol Fumarate Drug Combination/ or Fluticasone/ or Fluticasone-Salmeterol Drug Combination/ or Mometasone Furoate/ or Triamcinolone/ or Triamcinolone Acetonide/	89,621
	Embase	10	(corticosteroid/ or corticosteroid therapy/) and inhalational drug administration/	4,889
		11	beclometasone/ or budesonide/ or flunisolide/ or fluticasone propionate/ or fluticasone/ or mometasone furoate/ or triamcinolone acetonide/ or triamcinolone/	91,147
	All	12	(((inhal$ or nebulis$ or nebuliz$ or HFA or MDI or DPI) and (corticosteroid$ or cortico steroid$ or cortical steroid$ or corticoid$)) or ICS or anti-asthmatic agent$ or antiasthmatic agent$ or anti asthmatic agent$).mp,af,tw.	115,885

		13	(beclomethasone or budesonide or ciclesonide or flunisolid or fluticasone or mometasone or triamcinolone or Qvar$ or Beclovent$ or Becloforte$ or Pulmicort$ or Symbicort$ or Alvesco$ or Aerobid$ or Aerospan$ or Flovent$ or Arnuity$ or Ellipta$ or ArmonAir$ or Advair$ or AirDuo$ or WIXELA$ or Breo$ or Trelegy$ or Asmanex$ or Azmax$ or Dulera$ or Azmacort$).mp,af,tw.	119,434
Intervention: Interferons	Medline	14	Interferons/	105,687
	Embase	15	interferon/	105,687
	All	16	(Interferon$ of IFN$).mp,af,tw	137,394
		17	or/5-16	449,003
Patients with COPD or asthma		**18**	**4 and 17**	**4,599**
Limits		19	Limit 18 to yr="2019-Current"	3,593
Final selected: Relevant outcomes in patients with COPD/asthma and COVID-19		**20**	**Deduplicate**	**2,803**

Abbreviations: COPD, chronic obstructive pulmonary disease; SLR, systematic literature review.

Supplementary Table 3. PICOS for BOI SLR

	Inclusion	Exclusion
Patient population	• Patients with confirmed COVID-19 and asthma/ chronic obstructive pulmonary disease (COPD)	• Non-human
		• Patients with other virus types
Intervention and Comparators	Any treatment/management or no therapy	No exclusion criteria
Outcomes measures	• Burden of illness: incidence, prevalence, rate of disease progression	• Studies not including at least one of the outcomes listed in the inclusion criteria*
	• Healthcare resource utilization (HCRU) – hospitalization, length of stay, intubation, etc.	
	• Survival outcomes or other clinical outcomes	
	• Prognostic factors in patients with asthma/COPD	
	• Treatment patterns	
	• Economic outcomes	
Study design	• Randomized and non-randomized clinical trials	• Non-human/pre-clinical studies • Reviews/Editorials/Notes/Comments/Letters • Case reports, case series• Preprints, abstracts, non-published studies
	• Real-world evidence studies	
	- Prospective observational studies - Retrospective studies - Registry studies - Database studies - Natural history studies and non-interventional studies	
	• Systematic reviews, meta-analyses (for cross-checking only)	
	• Pooled Analyses (for cross-checking only)	
Restrictions	• Year limitation: 2019-current	• Studies before 2019

Abbreviations: BOI, burden of illness; COPD, chronic obstructive pulmonary disease; HCRU, healthcare resource utilization; SLR, systematic literature review.

*When COPD or asthma population is n<20, HCRU, survival, and clinical outcomes will not be included

Supplementary Table 4. PICOs for baseline anti-asthmatic therapies SLR

	Inclusion	Exclusion
Patient population	• Patients with COVID-19	• Non-human
		• Patients with other virus types
Intervention and Comparators	**Biologics:**	
	• benralizumab	
	• omalizumab	
	• mepolizumab	
	• reslizumab	
	• dupilumab	
	• tezepelumab	• Studies not including at least one of the intervention listed in the inclusion criteria
	Inhaled corticosteroids:	
	• beclomethasone	
	• budesonide	
	• ciclesonide	
	• flunisolide	
	• fluticasone	
	• mometasone	
	• triamcinolone	
	Corticosteroids*	
	Hydrofluoroalkane inhale	
	Anti-asthmatics	
Outcomes measures	• Treatment patterns	• Studies not including at least one of the outcomes listed in the inclusion criteria
	• Clinical outcomes - survival, viral shedding, disease severity, others	
	• Healthcare resource utilization - hospitalization, length of stay, intubation	
Study design	• Clinical trials	• Reviews
	• Real-world evidence studies	

	- Prospective observational studies - Retrospective studies - Registry studies - Database studies - Natural history studies and non-interventional studies	• Non-human/pre-clinical studies • Reviews/Editorials/Notes/Comments/Letters • Case reports, case series
	• Systematic reviews, meta-analyses (for cross-checking only)	
	• Pooled Analyses (for cross-checking only)	
Restrictions	Year limitation: 2019-current	Studies prior to 2019

Abbreviations: COPD, chronic obstructive pulmonary disease; PICOs, Population, Intervention, Comparators, Outcomes, and Study Design; SLR, systematic literature review.

*Systemic corticosteroids as baseline treatment only.

Supplementary Table 5. COVID-19 outcomes by use of ICS or biologic

Reference	Study Type	Country	Sample size (n)	Overall Population	Subpopulation	Sub-population (n)	COVID+ Prevalence (n/%)	Hospitaliz-ation (n/%)	Hospitalization Odds Ratio (95% CI)	ICU admission (n/%	ICU Odds Ratio (95% CI)	Mortality (n/%)	Mortality Odds Ratio (95% CI)	Composite (death, ICU, ventilation) (n/%)
Wang_JACI_2020	Retrospective, single center	USA	1,827	COVID-19+, Asthma, Adult	Overall asthma COVID+	1,827	NR	565/30.9%	NR	236/12.9%	NR	98/5.4%	NR	NR
					ICS	310	NR	83/26.8%	Adjusted 0R=0.92 (0.61-1.39)	29/9.4%	Unadjusted OR=0.73 (0.45-1.10)	13/4.2%	Unadjusted OR=0.85 (0.45-1.59)	NR
					ICS/LABA	289	NR	104/36.0%	Adjusted OR=1.08 (0.73-1.59)	41/14.2%	Unadjusted OR=0.84 (0.54-1.3)	15/5.2%	Unadjusted OR=0.65 (0.36-1.18)	NR
					Biologics	16	NR	5/31.3%	NR	3/18.8%	NR	1/6.3%	NR	NR
Izquierdo_ERJ_2020	Retrospective, multicenter	Spain	1,006	COVID-19+, Asthmatic, Adult	Overall asthma COVID+	71,182	1,006/1.4%	263/26.1%	NR	NR	NR	NR	NR	NR
					≥ 1 ICS	42,171	619/1.5%	127/20.5%	Adjusted OR=0.58 (0.44-0.77)	NR	NR	NR	NR	NR
					≥ 1 Biologics	865	18/2.1%	2/11.1%	NR	NR	NR	NR	NR	NR
					Omalizumab	641	9/1.4%	0/0.0%	NR	NR	NR	NR	NR	NR
					Mepolizumab	308	7/2.3%	2/28.6%	NR	NR	NR	NR	NR	NR
					Benralizumab	98	2/2.0%	0/0.0%	NR	NR	NR	NR	NR	NR
					Resilizumab	26	1/3.8%	0/0.0%	NR	NR	NR	NR	NR	NR
Beurnier_ERJ_2020	Prospective, single center	France	768	COVID-19+, Asthma, Adult, Hospitalized	Overall asthma COVID+	37	NR	NR	NR	11/29.7%	NR	NR	NR	NR
					No ICS	12	NR	NR	NR	2/16.7%	NR	NR	NR	NR
					Low/Medium-dose ICS	14	NR	NR	NR	4/28.6%	NR	NR	NR	NR
					High-dose ICS	11	NR	NR	NR	5/45.5%	NR	NR	NR	NR

					Biologic (Omalizumab)	2	NR	NR	NR	1/50.0%	NR	NR	NR	NR
					Oral Corticosteroids	1	NR	NR	NR	1/100.0%	NR	NR	NR	NR
Garcia-Menaya_FP_2020	Retrospective, single center	Spain	113	COVID-19+, Adult, Hospitalized	ICS users	16	NR	NR	NR	NR	0.688	NR	0.905	NR
					Omalizumab	1	NR	NR	NR	NR	1.00	NR	1.00	NR
Caminati_RM_2020	Retrospective, multicenter	Italy	2,000	COVID-19+, hospitalized	Overall asthma COVID+	42	NR	NR	NR	NR	NR	NR	NR	14/33.3%
					ICS/LABA	25	NR	NR	NR	NR	NR	NR	NR	6/24.0%
					ICS/LABA/LAMA	4	NR	NR	NR	NR	NR	NR	NR	3/75.0%
					Biologics	2	NR	NR	NR	NR	NR	NR	NR	1/50.0%
Ferastraoaru_JACI_2021	Retrospective, single-center	USA	951	Asthma, symptomatic COVID	ICS	175	NR	114/65.1%	OR=1.51 (0.9-2.56), p=0.11	NR	NR	NR	NR	NR
					Low dose ICS	15	NR	8/53.3%	OR=1.64 (0.17-15.06), p=0.66	NR	NR	NR	NR	NR
					Medium dose ICS	63	NR	43/68.3%	OR=1.53 (0.51-4.53), p=0.44	NR	NR	NR	NR	NR
					High-dose ICS	97	NR	63/64.9%	OR=0.59 (0.21-1.69), p=0.33)	NR	NR	NR	NR	NR
					Biologics	8	NR	6/75.0%	OR=2.36 (0.273-20.4), p=0.43	NR	NR	NR	NR	NR
Floyd_JACIP_2021	Retrospective, single center	USA	979	Asthma, COVID+, pediatric	Overall population	979	NR	121/12.4%	NR	NR	NR	NR	NR	NR
					ICS or Leukotriene modifier	58	NR	6/10.3%	NR	NR	NR	NR	NR	NR
					ICS/LABA	28	NR	3/10.7%	NR	NR	NR	NR	NR	NR
					Biologic	2	NR	0/0.0%	NR	NR	NR	NR	NR	NR
Heffler_Aller_2020	Retrospective, multicenter	Italy	1,504	COVID-19+, Asthmatic, Adult	Severe asthmatics	26	NR	NR	NR	NR	NR	2/7.70%	NR	NR

					ICS/LABA	26	NR	NR	NR	NR	NR	1/3.8%	NR	NR
					Biologics	21	NR	NR	NR	NR	NR	1/4.8%	NR	NR
Sen_Plos_2021	Retrospective, multicenter	USA	1,288	COPD, COVID+	ICS alone	916	69/7.5%	NR	NR	NR	NR	NR	NR	NR
					ICS/LABA	7,899	344/4.4%	NR	NR	NR	NR	NR	NR	NR
					ICS/LABA/LAMA	4,216	155/3.7%	NR	NR	NR	NR	NR	NR	NR
					ICS users	568	NR	170/29.9%	Adjusted OR=1.12 (0.90-1.38)	74/13.0%	Adjusted OR=1.31 (0.82-2.10)	37/6.5%	Adjusted OR=0.80 (0.43-1.49)	NR
					Non-ICS users	720	NR	201/27.9%		53/7.4%		34/4.7%		NR
Choi_JCM_2020	Retrospective, database analysis	Korea	7,341	COVID-19+, Adult	Overall COVID+	7,341	NR	54/0.7%	NR	NR	NR	227/3.1%	NR	NR
					ICS	114	NR	15/13.2%	NR	NR	NR	10/8.8%	Unadjusted OR= 3.11 (1.60-6.03), p<0.001 Adjusted OR=0.95 (0.43-2.07), p=0.88	NR
					Non-ICS	7,227	NR	39/0.5%	NR	NR	NR	NR	NR	NR
					COPD	3,200	640/20.0%	NR	NR	NR	NR	NR	NR	NR
					COPD ICS users	286	50/17.5%	NR	NR	NR	NR	NR	NR	NR
					Asthma	450	90/20.0%	NR	NR	NR	NR	NR	NR	NR
					Asthma ICS users	219	43/19.6%	NR	NR	NR	NR	NR	NR	NR
Chhiba_JACI_2020	Retrospective, multicenter	USA	1,526	COVID-19+, Adult	Asthma, COVID+ Non-ICS	114	NR	57/50.0%	NR	36/31.6%	NR	NR	NR	NR
					ICS	26	NR	2/9.4%	NR	3/10.5%	NR	NR	NR	NR
					ICS/LABA	80	NR	32/40.6%	Adjusted RR=1.39 (0.90-2.15) p=0.13	46/57.9%	NR	NR	NR	NR

Calmes_JACI_2020	Retrospective, single center	Belgium	596	COVID-19+, Asthma and COPD, Adult, Hospitalized	ICS users	56	NR	NR	NR	NR	Adjusted OR= 1.8 (0.85-3.7), p=0.13	NR	Adjusted OR=1.4 (0.62-3.0), p=0.44	NR
Choi_ERJ_2020	Retrospective, database	Korea	7,590	COVID-19+, Asthma	ICS	66	NR	NR	NR	NR	Among asthma patients, Adjusted OR=3.802 (0.137-105.589), p=0.431	NR	Among asthma patients, Adjusted OR=11.741 (0.765-180.151), p=0.077	NR
					ICS/LABA	84	NR	NR	NR	NR	Among asthma patients, Adjusted OR=0.384 (0.029-5.036), p=0.466	NR	Among asthma patients, Adjusted OR=1.44 (0.130-16.103), p-0.765	NR
Schultze_LRM_2020	Retrospective, database analysis	UK	148,557	COVID-19+, COPD, Asthma, Adult	COPD-ICS users	105,249	NR	NR	NR	NR	NR	326/0.31 % (0.28-0.35)	NR	NR
					COPD LABA/LAMA users	43,308	NR	NR	NR	NR	NR	95/0.22% (0.17-0.27)	Adjusted HR=1.39 (1.10-1.76)	NR
					Asthma-ICS low dose	608,972	NR	NR	NR	NR	NR	304/0.05 % (0.05-0.06)	Adjusted HR=1.14 (0.85-1.54)	NR
					Asthma-ICS high dose	101,077	NR	NR	NR	NR	NR	71/0.07% (0.06-0.09)	Adjusted HR=1.55 (1.10-2.18)	NR
					Asthma-SABA only	108,411	NR	NR	NR	NR	NR	54/0.05% (0.03-0.07)	NR	NR
Graziani_JCM_2020	Retrospective, multicenter	Spain	793	COVID-19+, Adult	COPD, COVID+, ICS users	793	NR	NR	NR	NR	NR	NR	Unadjusted OR=0.68 (0.23-2.01)	NR
Antonicelli_AEJACI_2021	Survey	Italy	558	Severe asthma, COVID+	High-dose ICS/LABA and biologics	129	7/5.43%	7	p=0.09	NR	NR	NR	NR	NR
					ICS-LABA alone	60	0/0%	0	-	NR	NR	NR	NR	NR
So_JAMPD_2021	Retrospective, single-center	USA	6,095	COVID+	ICS users	333	NR	NR	NR	NR	NR	NR	Adjusted OR=0.83 (0.54-1.29), p=0.42	NR
					Non-ICS users	5,762	NR	NR	NR	NR	NR	NR	-	NR
Inselman_JACI_2021	Retrospective, database	USA	5,445	Asthma, COVID+	ICS or ICS/LABA	NR	NR	NR	Multivariate IRR=1.2255 (1.0275-1.4615), p<0.05)	NR	NR	NR	NR	NR

Soldevila_IJID_2021	Cross-sectional, multicenter	Spain	1,306	Elderly, long-term care home, COVID+	ICS	88	NR	NR	NR	NR	NR	NR	Multivariate OR=0.58 (0.3-1.00), p=0.05	NR
Bloom_LRM_2021	Prospective observational, registry	UK	75,463	Asthma, COPD, COVID+	ICS only, patients aged 16-49	NR	NR	NR	NR	NR	NR	NR	HR=0.94 (0.62-1.43), p=0.768	NR
					ICS/LABA, patients aged 16-49	NR	NR	NR	NR	NR	NR	NR	HR=1.02 (0.67-1.54), p=0.934	NR
					Patients aged >50, no ICS	NR	NR	NR	NR	NR	NR	NR	Ref	NR
					Patients aged >50, asthma, no ICS	NR	NR	NR	NR	NR	NR	NR	HR=0.97 (0.89-1.05), p=0.391	NR
					Patients aged >50, asthma, ICS	NR	NR	NR	NR	NR	NR	NR	HR=0.86 (0.80-0.92), p<0.0001	NR
					Patients aged >50, COPD, no ICS	NR	NR	NR	NR	NR	NR	NR	HR=01.16 (1.12-1.22), p<0.0001	NR
					Patients aged >50, COPD, ICS	NR	NR	NR	NR	NR	NR	NR	HR=1.10 (1.04-1.16), p<0.0001	NR
Oddy_JCP_2021	Retrospective, single-center	UK	612	COVID+	Inhalers (Steroids)	NR	NR	NR	NR	NR	Adjusted HR=0.35 (0.15-0.79), p=0.13	NR	Adjusted HR=0.89 (0.20-3.89)	NR
An_Respirology_2021	Retrospective, database	South Korea	6,520	COVID+	ICS/LABA	185	NR	NR	NR	NR	Adjusted OR=0.66 (0.29-1.47), p=0.31	18/9.70%	Adjusted OR=1.40 (0.76-2.60), p=0.28)	NR
					Non-ICS users	6,335	NR	NR	NR	NR		196/3.10 %		NR
Esposito_AJRCCM_2020	Retrospective, case-control, multicenter	USA	46	Interstitial lung disease, COVID+	Overall population	46	NR	NR	NR	NR	NR	15/32.6%	NR	NR
					ICS users	10	NR	NR	NR	NR	NR	1/10.0%	NR	NR
Cosio_IJC_2021	Retrospective, multicenter	Spain	228	COPD, COVID+	Overall population	228	52/22.8%	NR	NR	NR	NR	NR	NR	NR
					ICS/LABA	14	5/35.7%	NR	NR	NR	NR	NR	OR=0.75 (0.24-2.33), p=0.619)	NR
Vila-Carcoles_BMJ_2020	Retrospective, multicenter	Spain	79,083	COVID+, elderly	Overall	79,083	380/0.5%	NR	NR	NR	NR	NR	NR	NR

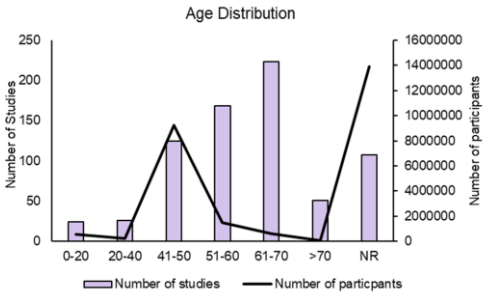
					ICS	6,293	61/1.0%	NR	NR	NR	NR	NR	NR	NR
Huh_IJID_2021	Retrospective, database	South Korea	7,341	COVID+	Overall	36,705	7,341/20.0%	NR	NR	NR	NR	NR	NR	NR
					Ciclesonide	5	2/40.0%	NR	NR	NR	NR	NR	NR	NR
					Other inhaled steroids	230	29/12.6%	NR	NR	NR	NR	NR	NR	NR
Liao_RM_2021	Retrospective, single-center	US	113	Chronic lung disease, COVID+	Overall	928	113/12.2%	NR	NR	NR	NR	NR	NR	NR
					ICS	348	39/11.2%	NR	NR	NR	NR	NR	NR	NR
Hanon_ERJ_2020	Survey	Belgium	676	COVID-19+, Asthmatic, adults	No Biologic	242	3/1.2%	1	NR	NR	NR	NR	NR	NR
					Anti-IgE (omalizumab)	129	0/0.0%	0	NR	NR	NR	NR	NR	NR
					Anti-IL5, anti-IL5R (benralizumab, mepolizumab, reslizumab)	305	6/2.0%	4	NR	NR	NR	NR	NR	NR
Rial_JACI_2021	Retrospective, multicenter	Spain	35	Asthma, COVID+	Omalizumab	14	NR	1	NR	1/7.1	NR	0/0%	NR	NR
					Mepolizumab	11	NR	3	NR	0/0%	NR	1/9.1%	NR	NR
					Reslizumab	3	NR	2	NR	0/0%	NR	0/0%	NR	NR
					Benralizumab	7	NR	2	NR	0/0%	NR	0/0%	NR	NR
Smith_ERJOR_2021	Retrospective, registry	UK	19	Severe asthma, COVID+	Anti-IL-5	735	11/1.5%	6	NR	NR	NR	NR	NR	NR
					Anti-IgE	166	2/1.2%	1	NR	NR	NR	NR	NR	NR
					Anti-IL-4/13	16	0/0%	0	NR	NR	NR	NR	NR	NR
Eger_RM_2020	Prospective observational, registry	Netherlands	9	Asthma, COVID+	Omalizumab	2	NR	2	NR	2/100%	NR	0/0%	NR	NR

					Dupilumab	1	NR	0	NR	0/0%	NR	0/0%	NR	NR
					Mepolizumab	3	NR	2	NR	2/67%	NR	1/33%	NR	NR
					Reslizumab	1	NR	1	NR	1/100%	NR	0/0%	NR	NR
					Benralizumab	2	NR	2	NR	1/50%	NR	0/0%	NR	NR
Adir_JACI_2021	Retrospective, database analysis	Israel	8,242	Asthma, COVID+	Biologics	50	NR	NR	NR	NR	NR	NR	NR	Adjusted HR=1.42 (0.802.88), p=0.332
					No Biologics	8,192	NR	NR	NR	NR	NR	NR	NR	

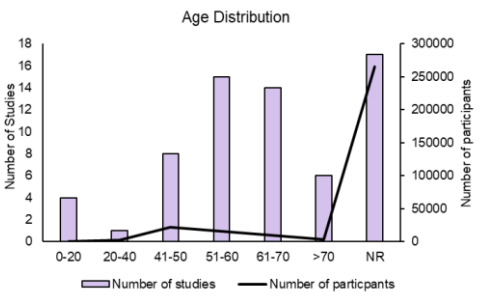
Abbreviations: COPD, Chronic obstructive pulmonary disease; HR, hazard ratio; ICS, inhaled corticosteroids; LABA, long-acting beta agonists; LAMA: long-acting muscarinic antagonist; NR, not reported; OR, odds ratio; Ref, reference.

Supplementary Figure S1: Study characteristics for the burden of illness SLR (A,B) and anti-asthmatic medications SLR (C,D)

A



C



B

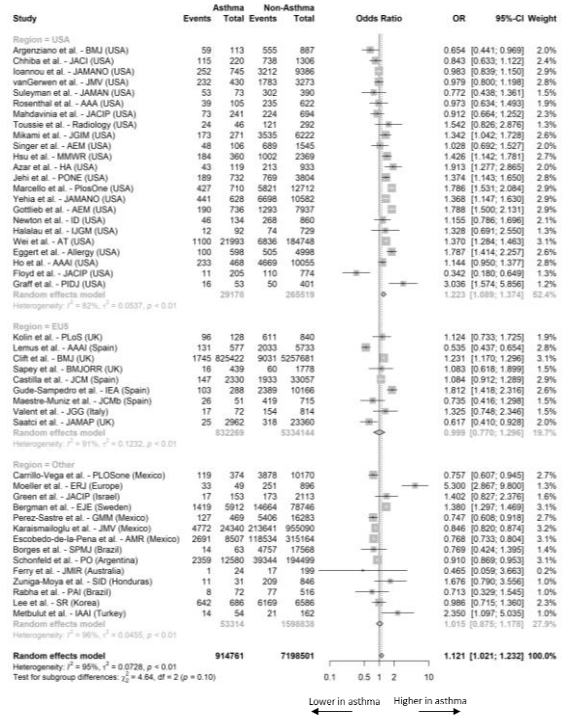
Country	Number of studies	Sample size range
USA	166	19 - 559,955
China	150	18 - 39,420
Italy	60	32 - 42,926
Spain	47	24 - 71,182
Turkey	34	36 - 1500
UK	32	52 - 198,420
Korea	27	28,10,448
Mexico	27	119 - 979,430
France	16	57 - 89,530
Iran	16	45 - 205,654
India	15	29 - 1271
Brazil	11	17 - 31,968
International	11	106 - 14,712
Denmark	8	49 - 5104
Netherlands	7	44 - 769
Germany	6	33 - 10,021
Japan	6	35 - 1444
Sweden	5	250 - 84,658
Belgium	4	105 - 711
Egypt	4	30 - 496
Norway	4	42 - 451
Switzerland	4	99 - 3645
Canada	3	21,922 - 56,606
Israel	3	162 - 80,602
Malaysia	3	46 - 261
Philippines	3	355 - 8212
Poland	3	60 - 169
Saudi Arabia	3	150 - 1519
Australia	2	192 - 223
Chile	2	458 - 1022
Finland	2	28 - 585
Ghana	2	275 - 307
Greece	2	85 - 90
Ireland	2	39 - 193
Kuwait	2	1096 - 3995
Oman	2	143 - 223
Pakistan	2	100 - 204
Portugal	2	226 - 20,293
Romania	2	172 - 814
Russia	2	402 - 1307
Argentina	1	207,079
Austria	1	156
Bangladash	1	1016
Colombia	1	100
Cuba	1	63
Czech Republic	1	7455
England	1	21,977
Gabon	1	572
Honduras	1	877
Indonesia	1	8211
Iraq	1	419
Kyrgzstan	1	11
Morocco	1	41
Nepal	1	50
Nigeria	1	2015
Qatar	1	14,672
Scotland	1	531
South Africa	1	1376
Taiwan	1	100
UAE	1	288
Zambia	1	454,751

D

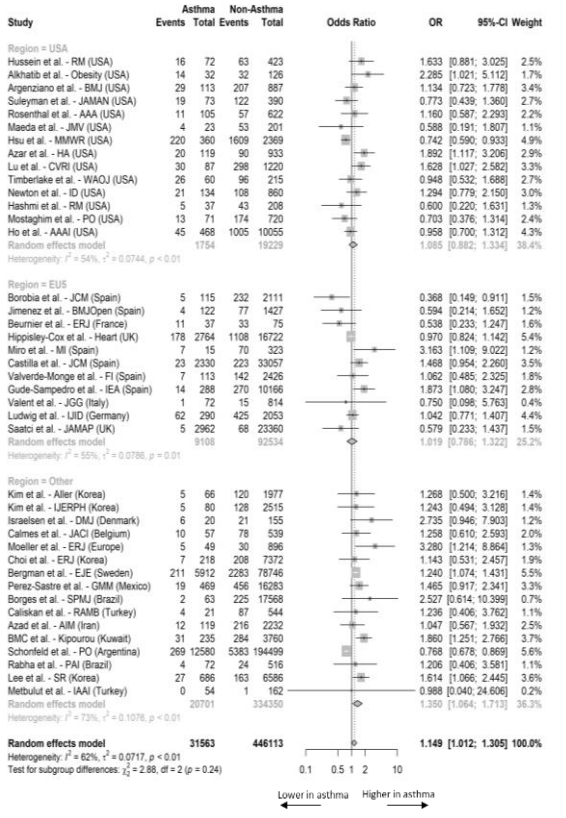
Country	Number of Studies	Sample size range
Spain	15	19-1306
USA	14	46 - 6095
Italy	8	7 - 2000
UK	5	19 - 148,557
International	4	525 - 5746
Korea	4	6520 - 7590
China	3	182 - 548
Belgium	2	596 - 676
France	2	600 - 768
Israel	2	2266 - 8242
Japan	2	26 - 30
Brazail	1	115
Netherlands	1	9
Russia	1	22
Turkey	1	54

Supplementary Figure S2: Forest plots of odds ratios of asthma compared to non-asthma patients for COVID-19 related HCRU and mortality.
Data is presented for all studies with evaluable evidence and stratified by geography. Outcomes included hospitalization (A), ICU admission (B), ventilation (C), and mortality (D)

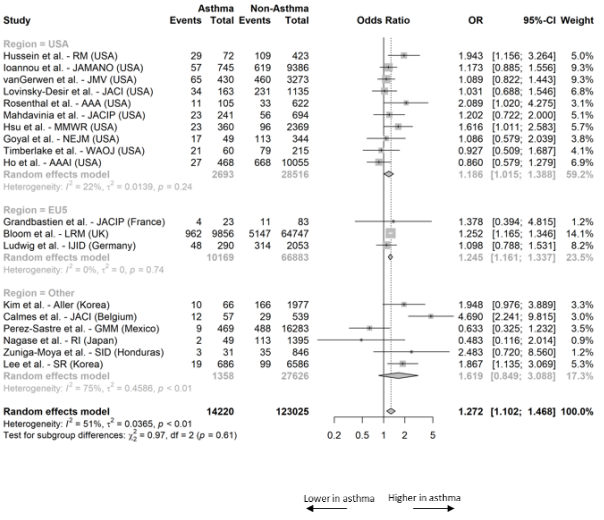
A Hospitalization



B ICU admission

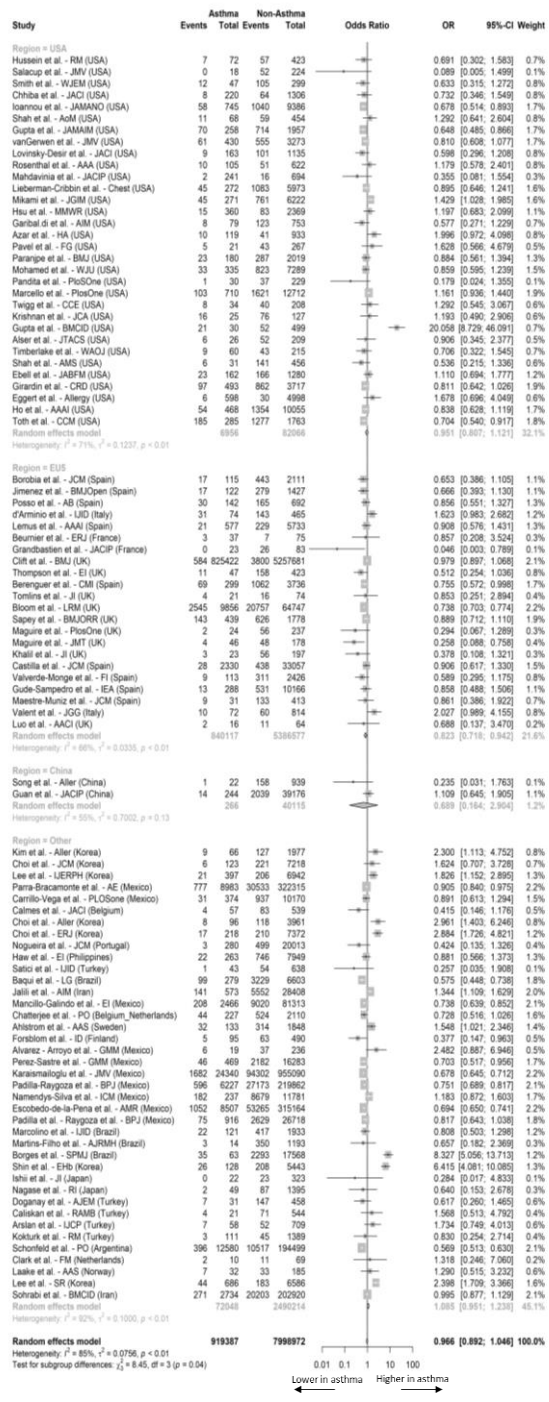


C Ventilation/Intubation



Supplementary Figure S2: Forest plots of odds ratios of asthma compared to non-asthma patients for COVID-19 related HCRU and mortality.
Data is presented for all studies with evaluable evidence and stratified by geography. Outcomes included hospitalization (A), ICU admission (B), ventilation (C), and mortality (D)

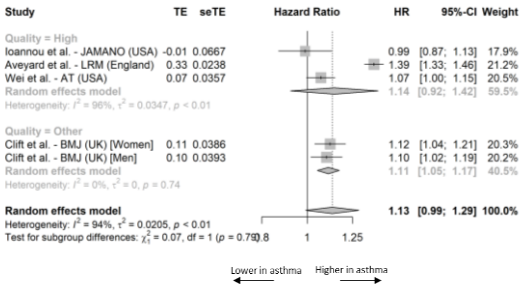
D **Mortality**

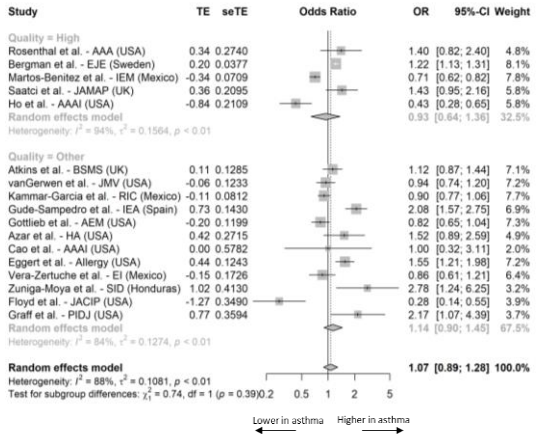


Supplementary Figure S3: Forest plots summarizing adjusted hazard ratios and odds ratios for asthma compared to non-asthma patients for COVID-19 related HCRU and mortality.

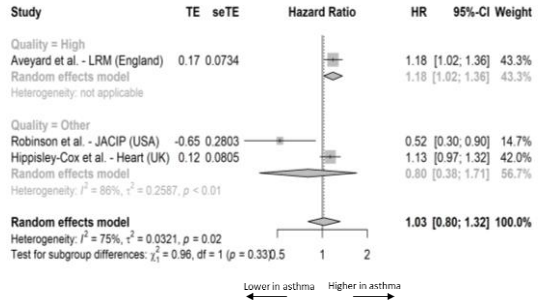
Data is presented for all studies with evaluable evidence. Outcomes included hospitalization (A), ICU admission (B), ventilation (C), and mortality (D), with aHRs reported on the left and aORs reported on the left

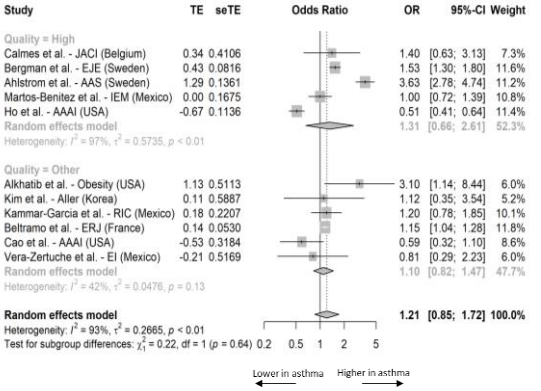
A Hospitalization





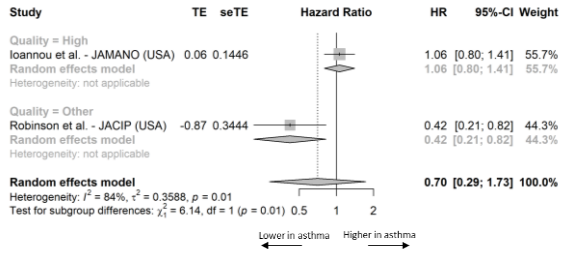
B ICU Admission

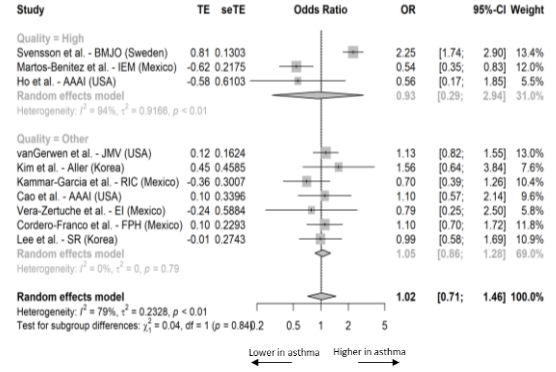




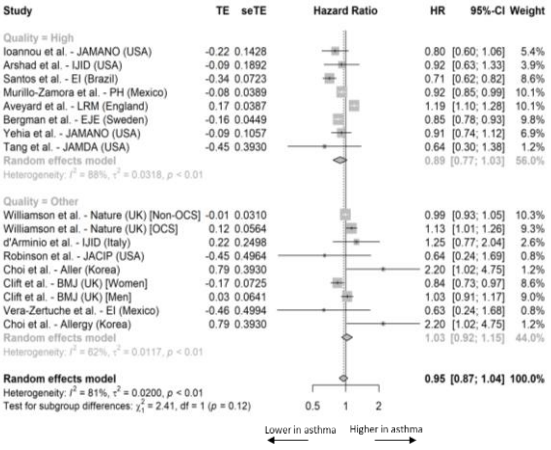
Supplementary Figure S3: Forest plots summarizing adjusted hazard ratios and odds ratios for asthma compared to non-asthma patients for COVID-19 related HCRU and mortality.
Data is presented for all studies with evaluable evidence. Outcomes included hospitalization (A), ICU admission (B), ventilation (C), and mortality (D), with aHRs reported on the left and aORs reported on the left

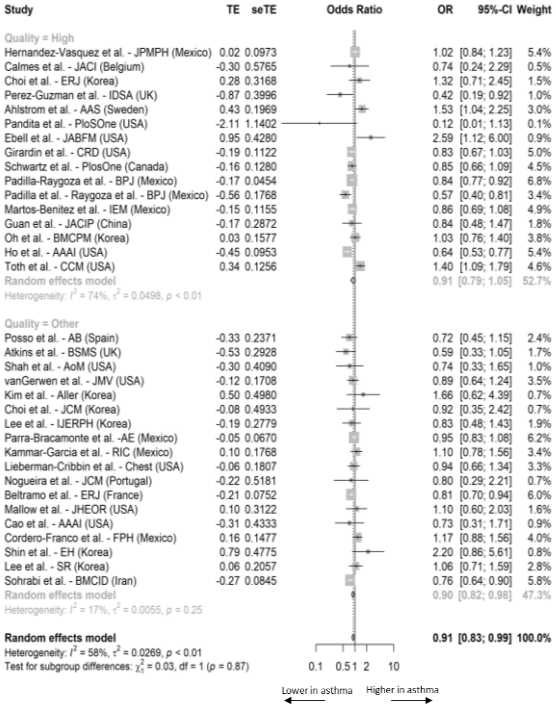
C Ventilation/Intubation





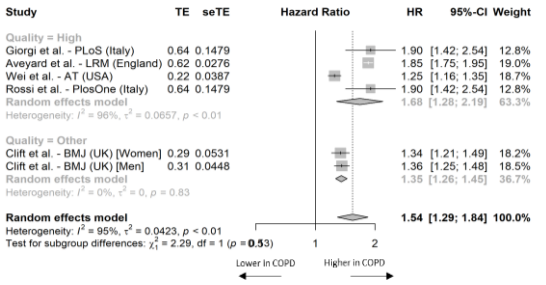
D Mortality



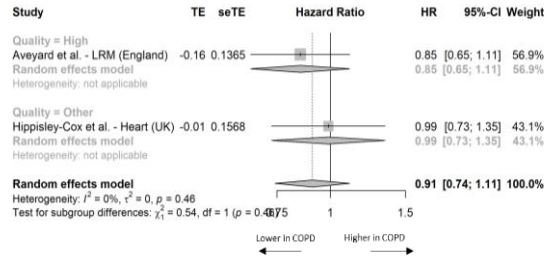


Supplementary Figure S4: Forest plots of pooled hazard ratios comparing COPD to non-COPD patients for COVID-19 related outcomes.
Data is presented for all studies with evaluable evidence. Outcomes included hospitalization (A) ICU admission (B) and mortality (C)

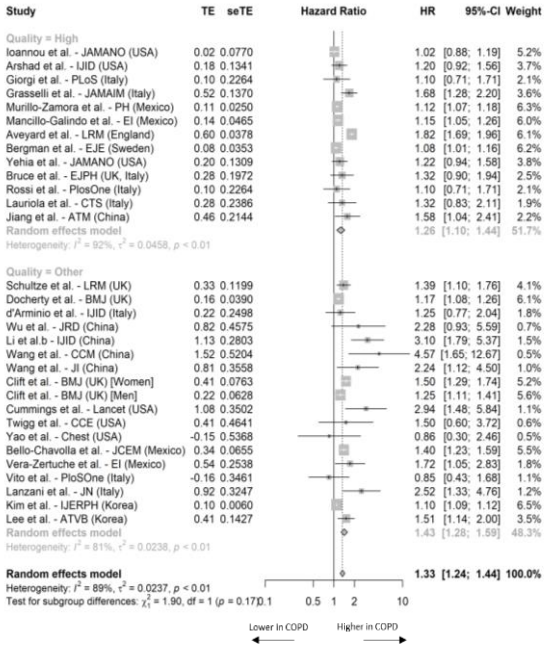
A Hospitalization



B ICU admission

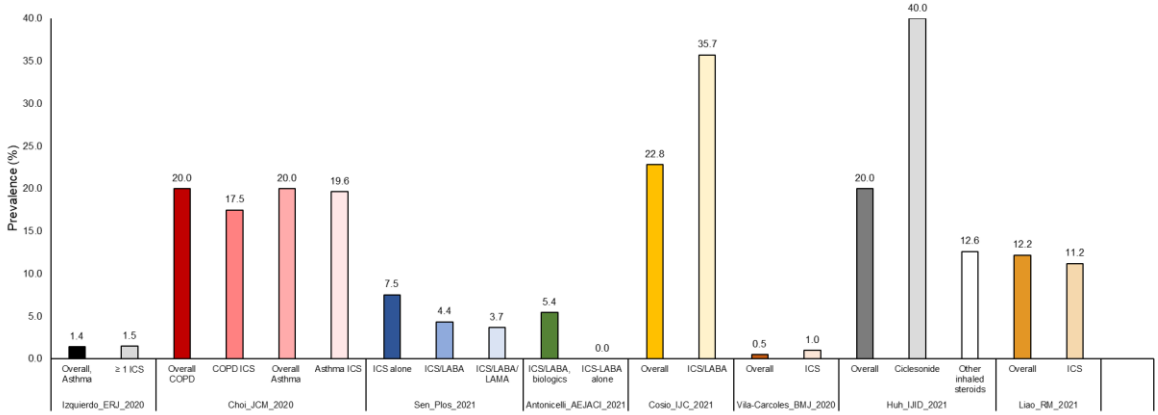


C Mortality

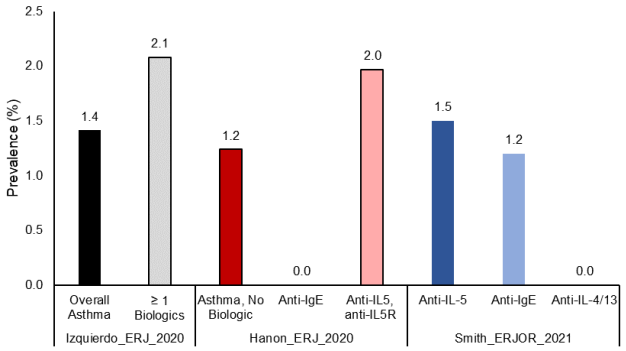


Supplementary Figure S5: Effect of ICS (A) or biologics (B) on prevalence of COVID-19

A

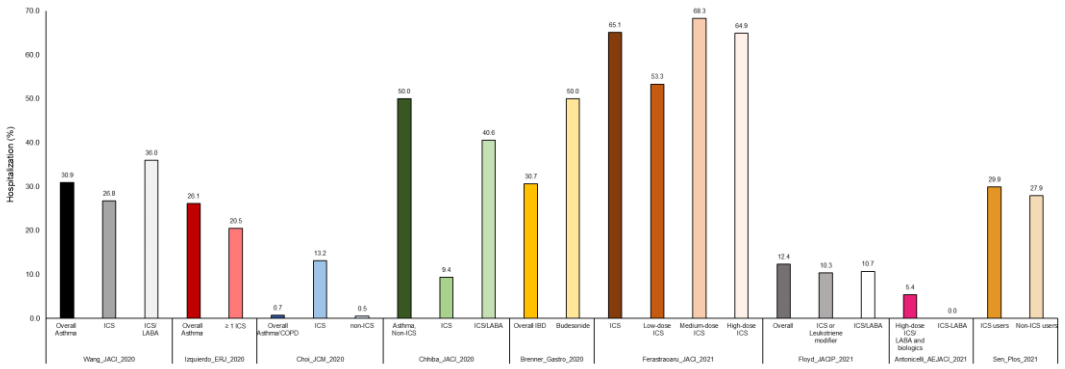


B

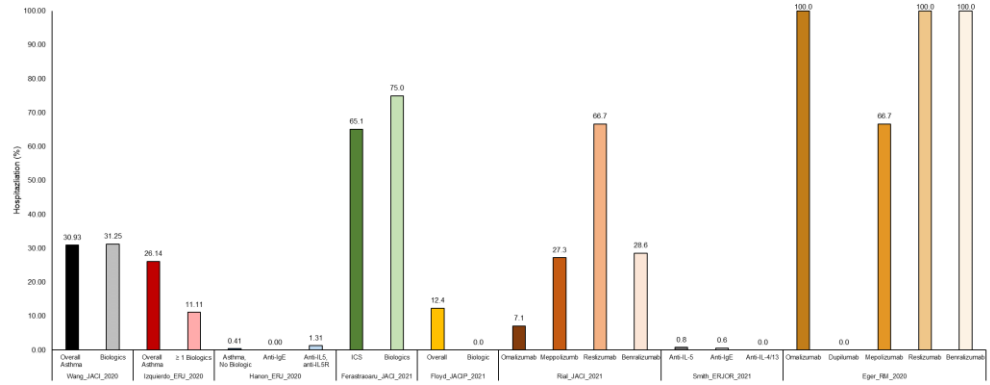


Supplementary Figure S6: Effect of ICS or biologics on HCRU. Studies reporting rates of hospitalization based on ICS use (A) or biologics use (B). Studies reporting rates of ICU admission based on ICS use (C) or biologics (D)

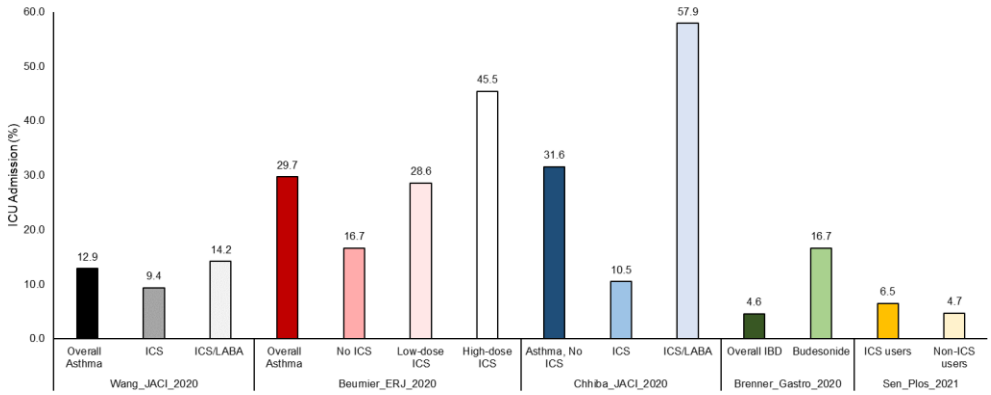
A



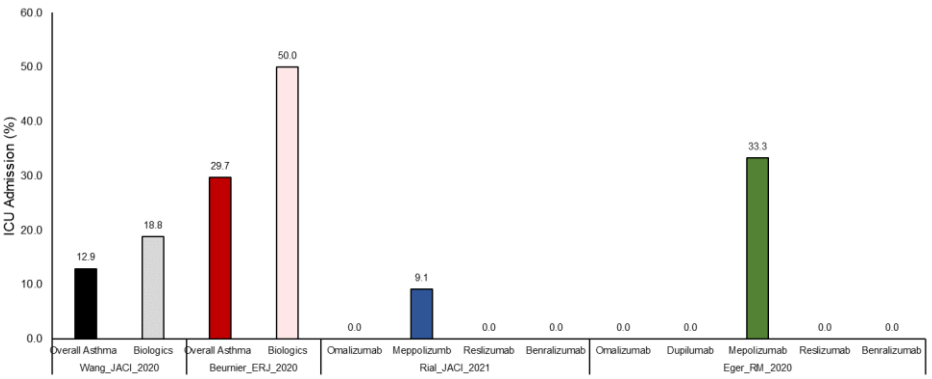
B



C

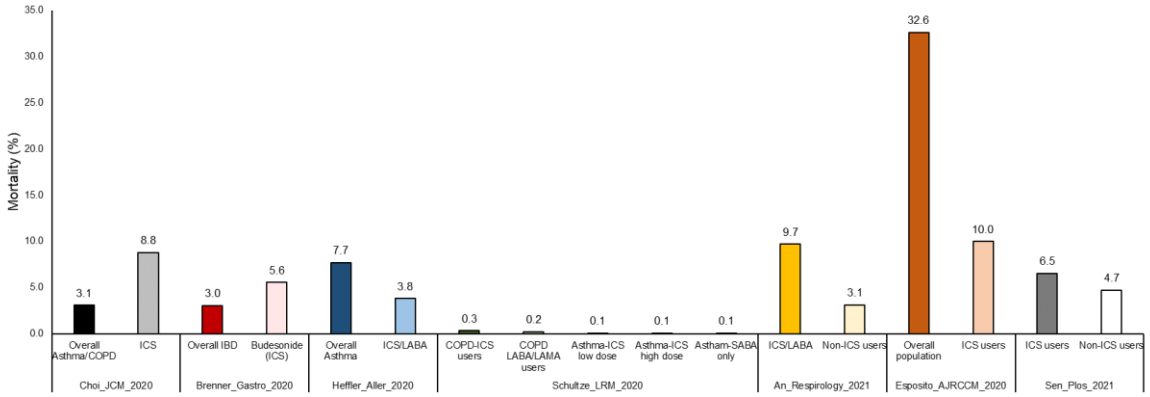


D

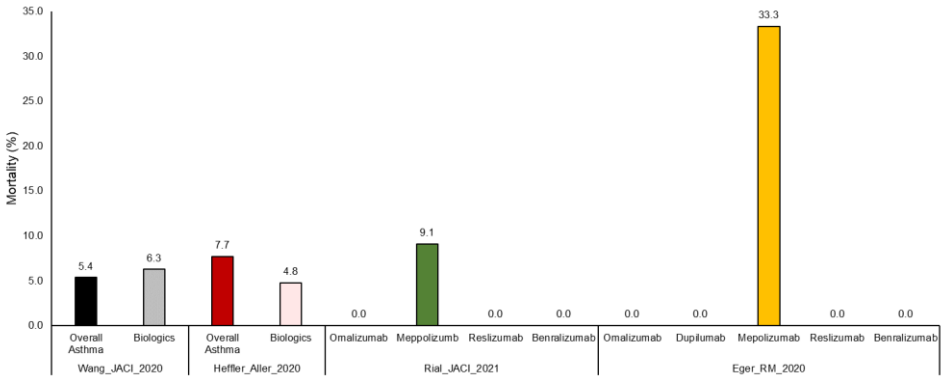


Supplementary Figure S7: Effect of ICS (A) or biologics (B) on mortality

A



B



References for Burden of Illness SLR

1. Clift AK, Coupland CAC, Keogh RH, et al. Living risk prediction algorithm (QCOVID) for risk of hospital admission and mortality from coronavirus 19 in adults: national derivation and validation cohort study. *BMJ*. 2020;371:m3731. doi:10.1136/bmj.m3731

2. Matucci A, Caminati M, Vivarelli E, et al. COVID-19 in severe asthmatic patients during ongoing treatment with biologicals targeting type 2 inflammation: Results from a multicenter Italian survey. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14516

3. Antonicelli L, Tontini C, Manzotti G, et al. Severe asthma in adults does not significantly affect the outcome of COVID-19 disease: Results from the Italian Severe Asthma Registry. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14558

4. Haroun-Diaz E, Vazquez de la Torre M, Ruano FJ, et al. Severe asthma during the COVID-19 pandemic: Clinical observations. *J Allergy Clin Immunol Pract*. 2020;8(8):2787-2789. doi:10.1016/j.jaip.2020.06.033

5. Zhu Z, Hasegawa K, Ma B, Fujiogi M, Camargo CAJ, Liang L. Association of asthma and its genetic predisposition with the risk of severe COVID-19. *J Allergy Clin Immunol*. 2020;146(2):327-329.e4. doi:10.1016/j.jaci.2020.06.001

6. Wang L, Foer D, Bates DW, Boyce JA, Zhou L. Risk factors for hospitalization, intensive care, and mortality among patients with asthma and COVID-19. *Journal of Allergy and Clinical Immunology*. 2020;146(4):808-812. doi:10.1016/j.jaci.2020.07.018

7. Hanon S, Brusselle G, Deschampheleire M, et al. COVID-19 and biologics in severe asthma: data from the Belgian Severe Asthma Registry. *European Respiratory Journal*. 2020;56(6). doi:10.1183/13993003.02857-2020

8. Heffler E, Detoraki A, Contoli M, et al. COVID-19 in Severe Asthma Network in Italy (SANI) patients: Clinical features, impact of comorbidities and treatments. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14532

9. Izquierdo JL, Almonacid C, Gonzalez Y, et al. The Impact of COVID-19 on Patients with Asthma. *Eur Respir J*. 2020;(8803460, ery). doi:10.1183/13993003.03142-2020

10. Graziani D., Soriano J.B., Del Rio-Bermudez C., et al. Characteristics and prognosis of COVID-19 in patients with COPD. *J Clin Med*. 2020;9(10):1-11. doi:10.3390/jcm9103259

11. Schultze A, Walker AJ, MacKenna B, et al. Risk of COVID-19-related death among patients with chronic obstructive pulmonary disease or asthma prescribed inhaled corticosteroids: an observational cohort study using the OpenSAFELY platform. *Lancet Respir Med*. 2020;8(11):1106-1120. doi:10.1016/S2213-2600(20)30415-X

12. Williamson EJ, Walker AJ, Bhaskaran K, et al. Factors associated with COVID-19-related death using OpenSAFELY. *Nature*. 2020;584(7821):430-436. doi:10.1038/s41586-020-2521-4

13. Rabunal R, Suarez-Gil R, Golpe R, et al. Usefulness of a Telemedicine Tool TELEA in the Management of the COVID-19 Pandemic. *Telemed J E Health*. 2020;26(11):1332-1335. doi:10.1089/tmj.2020.0144

14. Burn E., You S.C., Sena A.G., et al. Deep phenotyping of 34,128 adult patients hospitalised with COVID-19 in an international network study. *Nat Commun*. 2020;11(1):5009. doi:10.1038/s41467-020-18849-z

15. Barroso B., Valverde-Monge M., Canas Jose A., et al. Prevalence, characteristics, and outcome of asthmatic patients with type 2 diseases in hospitalized patients with COVID-19 in Madrid, Spain. *J Invest Allergol Clin Immunol*. 2020;30(5):382-384. doi:10.18176/jiaci.0627

16. Zuazua-Gonzalez A, Collazo-Lorduy T, Coello-Casariego G, et al. Surgical Tracheostomies in COVID-19 Patients: Indications, Technique, and Results in a Second-Level Spanish Hospital. *OTO Open*. 2020;4(3):2473974X20957636. doi:10.1177/2473974X20957636

17. Borobia A.M., Carcas A.J., Arnalich F., et al. A cohort of patients with COVID-19 in a major teaching hospital in Europe. *J Clin Med*. 2020;9(6):1-10. doi:10.3390/jcm9061733

18. Jimenez E, Fontan-Vela M, Valencia J, et al. Characteristics, complications and outcomes among 1549 patients hospitalised with COVID-19 in a secondary hospital in Madrid, Spain: a retrospective case series study. Mendoza BH AN Bol LV, Gadin Lopez SM, Alcala AM, Gonzalez SP, de la Gandara AM, Gonzalez AZ, Adarraga JM, Alvarez MAL, Aranda EC, Ramos RML, Alcantud M, Arroyo RA, Sanchez Caballero VS, Caceres AC, Sarasqueta JC, Macho JT, Rodriguez IE, Paez RR, Lopez AE, Cueva Dobao P, Lopez NB, Hinojosa JG, Collantes CS, Aroca AC, Zanon TT, Sanchez Uriz MA, Guillen CB, Lopez Arenas MA, Arandez MG, Gutierrez Del Alamo FJQ, ed. *BMJ Open*. 2020;10(11):e042398. doi:10.1136/bmjopen-2020-042398

19. Posso M, Comas M, Roman M, et al. Comorbidities and Mortality in Patients With COVID-19 Aged 60 Years and Older in a University Hospital in Spain. *Arch Bronconeumol*. 2020;56(11):756-758. doi:10.1016/j.arbres.2020.06.012

20. Rubio-Rivas M., Corbella X., Mora-Lujan J.M., et al. Predicting clinical outcome with phenotypic clusters in covid-19 pneumonia: An analysis of 12,066 hospitalized patients from the spanish registry semi-covid-19. *J Clin Med*. 2020;9(11):1-19. doi:10.3390/jcm9113488

21. Poole S, Brendish NJ, Clark TW. SARS-CoV-2 has displaced other seasonal respiratory viruses: Results from a prospective cohort study. *J Infect*. 2020;(ig9, 7908424). doi:10.1016/j.jinf.2020.11.010

22. Atkins JL, Masoli JAH, Delgado J, et al. Preexisting Comorbidities Predicting COVID-19 and Mortality in the UK Biobank Community Cohort. *J Gerontol A Biol Sci Med Sci*. 2020;75(11):2224-2230. doi:10.1093/gerona/glaa183

23. Kolin DA, Kulm S, Christos PJ, Elemento O. Clinical, regional, and genetic characteristics of Covid-19 patients from UK Biobank. *PLoS ONE*. 2020;15(11):e0241264. doi:10.1371/journal.pone.0241264

24. Brendish NJ, Poole S, Naidu VV, et al. Clinical characteristics, symptoms and outcomes of 1054 adults presenting to hospital with suspected COVID-19: A comparison of patients with and without SARS-CoV-2 infection. *J Infect*. 2020;(ig9, 7908424). doi:10.1016/j.jinf.2020.09.033

25. Sapey E., Gallier S., Mainey C., et al. Ethnicity and risk of death in patients hospitalised for COVID-19 infection in the UK: An observational cohort study in an urban catchment area. *BMJ Open Respir Res*. 2020;7(1):000644. doi:10.1136/bmjresp-2020-000644

26. Docherty AB, Harrison EM, Green CA, et al. Features of 20 133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ*. 2020;369(8900488, bmj, 101090866):m1985. doi:10.1136/bmj.m1985

27. Seaton RA, Gibbons CL, Cooper L, et al. Survey of antibiotic and antifungal prescribing in patients with suspected and confirmed COVID-19 in Scottish hospitals. *J Infect*. 2020;(ig9, 7908424). doi:10.1016/j.jinf.2020.09.024

28. Azoulay E, Fartoukh M, Darmon M, et al. Increased mortality in patients with severe SARS-CoV-2 infection admitted within seven days of disease onset. *Intensive Care Med*. 2020;46(9):1714-1722. doi:10.1007/s00134-020-06202-3

29. Hussein MH, Toraih EA, Attia AS, et al. Asthma in COVID-19 patients: An extra chain fitting around the neck?. *Respir Med*. 2020;175(8908438, rme):106205. doi:10.1016/j.rmed.2020.106205

30. Best J.H., Mohan S.V., Kong A.M., et al. Baseline Demographics and Clinical Characteristics Among 3471 US Patients Hospitalized with COVID-19 and Pulmonary Involvement: A Retrospective Study. *Adv Ther*. 2020;37(12):4981-4995. doi:10.1007/s12325-020-01510-y

31. Alkhatib A.L., Kreniske J., Zifodya J.S., et al. BMI is Associated with Coronavirus Disease 2019 Intensive Care Unit Admission in African Americans. *Obesity*. 2020;28(10):1798-1801. doi:10.1002/oby.22937

32. Salacup G, Lo KB, Gul F, et al. Characteristics and clinical outcomes of COVID-19 patients in an underserved-inner city population: A single tertiary center cohort. *J Med Virol*. 2020;(i9n, 7705876). doi:10.1002/jmv.26252

33. Duanmu Y, Brown IP, Gibb WR, et al. Characteristics of Emergency Department Patients With COVID-19 at a Single Site in Northern California: Clinical Observations and Public Health Implications. *Acad Emerg Med*. 2020;27(6):505-509. doi:10.1111/acem.14003

34. Monday L.M., Abu-Heija A., Shatta M., et al. Characteristics, clinical course, and outcomes of veterans admitted with Covid-19 in Detroit, Michigan. *Infect Dis Clin Pract*. 2020;28(6):342-348. doi:10.1097/IPC.0000000000000906

35. Argenziano MG, Bruce SL, Slater CL, et al. Characterization and clinical course of 1000 patients with coronavirus disease 2019 in New York: retrospective case series. *BMJ*. 2020;369(8900488, bmj, 101090866):m1996. doi:10.1136/bmj.m1996

36. Abrams MP, Wan EY, Waase MP, et al. Clinical and cardiac characteristics of COVID-19 mortalities in a diverse New York City Cohort. *J Cardiovasc Electrophysiol*. 2020;(by4, 9010756). doi:10.1111/jce.14772

37. Smith A.A., Fridling J., Ibhrahim D., Porter P.S. Identifying Patients at Greatest Risk of Mortality due to COVID-19: A New England Perspective. *West J Emerg Med*. 2020;21(4):785-789. doi:10.5811/westjem.2020.6.47957

38. Bergquist S.H., Partin C., Roberts D.L., et al. Non-hospitalized Adults with COVID-19 Differ Noticeably from Hospitalized Adults in Their Demographic, Clinical, and Social Characteristics. *SN Compr Clin Med*. 2020;2(9):1349-1357. doi:10.1007/s42399-020-00453-3

39. Valenzuela RG, Michelen Y, Bracey A, et al. Outcomes in Hispanics With COVID-19 Are Similar to Those of Caucasian Patients in Suburban New York. *Acad Emerg Med*. 2020;(ce1, 9418450). doi:10.1111/acem.14146

40. Chhiba KD, Patel GB, Vu THT, et al. Prevalence and characterization of asthma in hospitalized and nonhospitalized patients with COVID-19. *J Allergy Clin Immunol*. 2020;146(2):307-314.e4. doi:10.1016/j.jaci.2020.06.010

41. Ko JY, Danielson ML, Town M, et al. Risk Factors for COVID-19-associated hospitalization: COVID-19-Associated Hospitalization Surveillance Network and Behavioral Risk Factor Surveillance System. *Clin Infect Dis*. 2020;(a4j, 9203213). doi:10.1093/cid/ciaa1419

42. Ioannou GN, Locke E, Green P, et al. Risk Factors for Hospitalization, Mechanical Ventilation, or Death Among 10131 US Veterans With SARS-CoV-2 Infection. *JAMA netw open*. 2020;3(9):e2022310. doi:10.1001/jamanetworkopen.2020.22310

43. Cates J, Lucero-Obusan C, Dahl RM, et al. Risk for In-Hospital Complications Associated with COVID-19 and Influenza - Veterans Health Administration, United States, October 1, 2018-May 31, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(42):1528-1534. doi:10.15585/mmwr.mm6942e3

44. Palaiodimos L., Kokkinidis D.G., Li W., et al. Severe obesity is associated with higher in-hospital mortality in a cohort of patients with COVID-19 in the Bronx, New York. *Metab Clin Exp*. 2020;108((Palaiodimos, Arora, Southern) Division of Hospital Medicine, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY, United States):154262. doi:10.1016/j.metabol.2020.154262

45. Bhatraju PK, Ghassemieh BJ, Nichols M, et al. Covid-19 in Critically Ill Patients in the Seattle Region - Case Series. *N Engl J Med*. 2020;382(21):2012-2022. doi:10.1056/NEJMoa2004500

46. Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. *JAMA*. 2020;323(20):2052-2059. doi:10.1001/jama.2020.6775

47. Magleby R, Westblade LF, Trzebucki A, et al. Impact of SARS-CoV-2 Viral Load on Risk of Intubation and Mortality Among Hospitalized Patients with Coronavirus Disease 2019. *Clin Infect Dis*. Published online June 30, 2020. doi:10.1093/cid/ciaa851

48. Shah P, Owens J, Franklin J, et al. Demographics, comorbidities and outcomes in hospitalized Covid-19 patients in rural southwest Georgia. *Ann Med*. 2020;52(7):354-360. doi:10.1080/07853890.2020.1791356

49. Arshad S, Kilgore P, Chaudhry ZS, et al. Treatment with hydroxychloroquine, azithromycin, and combination in patients hospitalized with COVID-19. *Int J Infect Dis*. 2020;97:396-403. doi:10.1016/j.ijid.2020.06.099

50. Gupta S, Hayek SS, Wang W, et al. Factors Associated With Death in Critically Ill Patients With Coronavirus Disease 2019 in the US. *JAMA Intern Med*. Published online July 15, 2020. doi:10.1001/jamainternmed.2020.3596

51. van Gerwen M, Alsen M, Little C, et al. Risk factors and outcomes of COVID-19 in New York City; a retrospective cohort study. *J Med Virol*. 2021;93(2):907-915. doi:10.1002/jmv.26337

52. Buckner FS, McCulloch DJ, Atluri V, et al. Clinical Features and Outcomes of 105 Hospitalized Patients With COVID-19 in Seattle, Washington. *Clin Infect Dis*. 2020;71(16):2167-2173. doi:10.1093/cid/ciaa632

53. Suleyman G, Fadel RA, Malette KM, et al. Clinical Characteristics and Morbidity Associated With Coronavirus Disease 2019 in a Series of Patients in Metropolitan Detroit. *JAMA Netw Open*. 2020;3(6):e2012270. doi:10.1001/jamanetworkopen.2020.12270

54. Gold JAW. Characteristics and Clinical Outcomes of Adult Patients Hospitalized with COVID-19 — Georgia, March 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69. doi:10.15585/mmwr.mm6918e1

55. Zhang JJ, Dong X, Cao YY, et al. Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. *Allergy*. 2020;75(7):1730-1741. doi:10.1111/all.14238

56. Riou M, Marcot C, Canuet M, et al. Clinical characteristics of and outcomes for patients with COVID-19 and comorbid lung diseases primarily hospitalized in a conventional pulmonology unit: A retrospective study. *Respir med res*. 2020;79(101746324):100801. doi:10.1016/j.resmer.2020.100801

57. Song J, Zeng M, Wang H, et al. Distinct effects of asthma and COPD comorbidity on disease expression and outcome in patients with COVID-19. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14517

58. Lian J., Jin C., Hao S., et al. High neutrophil-to-lymphocyte ratio associated with progression to critical illness in older patients with COVID-19: a multicenter retrospective study. *Aging (Albany NY)*. 2020;12(14):13849-13859. doi:10.18632/aging.103582

59. Li X, Xu S, Yu M, et al. Risk factors for severity and mortality in adult COVID-19 inpatients in Wuhan. *J Allergy Clin Immunol*. 2020;146(1):110-118. doi:10.1016/j.jaci.2020.04.006

60. Wu J, Wu X, Zeng W, et al. Chest CT Findings in Patients With Coronavirus Disease 2019 and Its Relationship With Clinical Features. *Investigative Radiology*. 2020;55(5):257-261. doi:10.1097/RLI.0000000000000670

61. Zhao M, Wang M, Zhang J, et al. Comparison of clinical characteristics and outcomes of patients with coronavirus disease 2019 at different ages. *Aging (Albany NY)*. 2020;12(11):10070-10086. doi:10.18632/aging.103298

62. Yang JM, Koh HY, Moon SY, et al. Allergic disorders and susceptibility to and severity of COVID-19: A nationwide cohort study. *J Allergy Clin Immunol*. 2020;146(4):790-798. doi:10.1016/j.jaci.2020.08.008

63. Kim S, Jung CG, Lee JY, et al. Characterization of asthma and risk factors for delayed SARS-CoV-2 clearance in adult COVID-19 inpatients in Daegu. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14609

64. Choi J.C., Jung S.-Y., Yoon U.A., et al. Inhaled corticosteroids and COVID-19 risk and mortality: A nationwide cohort study. *J Clin Med*. 2020;9(11):1-13. doi:10.3390/jcm9113406

65. Lee J.Y., Hong S.W., Hyun M., et al. Epidemiological and clinical characteristics of coronavirus disease 2019 in Daegu, South Korea. *Int J Infect Dis*. 2020;98((Lee, Hyun, Kim) Department of Infectious Disease, Keimyung University Dongsan Hospital, Keimyung University School of Medicine, Daegu, South Korea):462-466. doi:10.1016/j.ijid.2020.07.017

66. Kim S.-R., Nam S.-H., Kim Y.-R. Risk factors on the progression to clinical outcomes of covid-19 patients in south korea: Using national data. *Int J Environ Res Public Health*. 2020;17(23):1-9. doi:10.3390/ijerph17238847

67. Lee S.-G., Park G.U., Moon Y.R., Sung K. Clinical characteristics and risk factors for fatality and severity in patients with coronavirus disease in korea: A nationwide population-based retrospective study using the korean health insurance review and assessment service (hira) database. *Int J Environ Res Public Health*. 2020;17(22):1-13. doi:10.3390/ijerph17228559

68. Rahmani H, Davoudi-Monfared E, Nourian A, et al. Interferon beta-1b in treatment of severe COVID-19: A randomized clinical trial. *Int Immunopharmacol*. 2020;88(d17, 100965259):106903. doi:10.1016/j.intimp.2020.106903

69. Shabrawishi M, Al-Gethamy MM, Naser AY, et al. Clinical, radiological and therapeutic characteristics of patients with COVID-19 in Saudi Arabia. *PLoS One*. 2020;15(8). doi:10.1371/journal.pone.0237130

70. Marin-Sanchez A. [Basic clinical characteristics in the first 100 fatal cases of COVID-19 in Colombia]. *Rev Panam Salud Publica*. 2020;44(csl, 9705400):e87. doi:10.26633/RPSP.2020.87

71. Gunal O, Ture E, Bayburtlu M, et al. [Evaluation of Patients Diagnosed with COVID-19 in Terms of Risk Factors]. *Mikrobiyol Bul*. 2020;54(4):575-582. doi:10.5578/mb.69811

72. Chen Y, Wang KJ, Luo YC, et al. [Predictive value of neutrophil/lymphocyte ratio on myocardial injury in severe COVID-19 patients]. *Chung Hua Hsin Hsueh Kuan Ping Tsa Chih*. 2020;48(7):572-579. doi:10.3760/cma.j.cn112148-20200422-00336

73. Meyer C.N. Transmission, start of symptom and morbidity among Danish COVID-19 patient s admitted to hospital. *Dan Med J*. 2020;67(9):1-10.

74. Israelsen SB, Kristiansen KT, Hindsberger B, et al. Characteristics of patients with COVID-19 pneumonia at Hvidovre Hospital, March-April 2020. *Dan Med J*. 2020;67(6).

75. Hernandez-Vasquez A., Azanedo D., Vargas-Fernandez R., Bendezu-Quispe G. Association of comorbidities with pneumonia and death among COVID-19 patients in Mexico: A nationwide cross-sectional study. *J Prev Med Public Health*. 2020;53(4):211-219. doi:10.3961/jpmph.20.186

76. Parra-Bracamonte GM, Lopez-Villalobos N, Parra-Bracamonte FE. Clinical characteristics and risk factors for mortality of patients with COVID-19 in a large data set from Mexico. *Ann Epidemiol*. 2020;(9100013, bx8). doi:10.1016/j.annepidem.2020.08.005

77. Kammar-Garcia A, Vidal-Mayo J de J, Vera-Zertuche JM, et al. IMPACT OF COMORBIDITIES IN MEXICAN SARS-COV-2-POSITIVE PATIENTS: A RETROSPECTIVE ANALYSIS IN A NATIONAL COHORT. *Rev Invest Clin*. 2020;72(3):151-158. doi:10.24875/RIC.20000207

78. Bello-Chavolla OY, Gonzalez-Diaz A, Antonio-Villa NE, et al. Unequal impact of structural health determinants and comorbidity on COVID-19 severity and lethality in older Mexican adults: Considerations beyond chronological aging. *J Gerontol A Biol Sci Med Sci*. 2020;(cba, 9502837). doi:10.1093/gerona/glaa163

79. Ortiz-Brizuela E, Villanueva-Reza M, González-Lara MF, et al. CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF PATIENTS DIAGNOSED WITH COVID-19 IN A TERTIARY CARE CENTER IN MEXICO CITY: A PROSPECTIVE COHORT STUDY. *Rev Invest Clin*. 2020;72(3):165-177. doi:10.24875/RIC.20000211

80. Carrillo-Vega MF, Salinas-Escudero G, García-Peña C, Gutiérrez-Robledo LM, Parra-Rodríguez L. Early estimation of the risk factors for hospitalization and mortality by COVID-19 in Mexico. *PLOS ONE*. 2020;15(9):e0238905. doi:10.1371/journal.pone.0238905

81. Goel N, Spalgais S, Mrigpuri P, Khanna M, Menon B, Kumar R. Characteristics of COVID-19 at a non-COVID tertiary pulmonary care centre in Delhi, India. *Monaldi Arch Chest Dis*. 2020;90(4). doi:10.4081/monaldi.2020.1568

82. Calmes D, Graff S, Maes N, et al. Asthma and COPD Are Not Risk Factors for ICU Stay and Death in Case of SARS-CoV2 Infection. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.09.044

83. Avdeev S, Moiseev S, Brovko M, et al. Low prevalence of bronchial asthma and chronic obstructive lung disease among intensive care unit patients with COVID-19. *Allergy*. 2020;75(10):2703-2704. doi:10.1111/all.14420

84. Al-Wahaibi K., Al-Wahshi Y., Mohamed Elfadil O. Myocardial Injury Is Associated with Higher Morbidity and Mortality in Patients with 2019 Novel Coronavirus Disease (COVID-19). *SN Compr Clin Med*. 2020;((Al-Wahaibi) National Heart Center, Royal Hospital, P.O. Box 1331, Muscat Postal Code 111, Oman). doi:10.1007/s42399-020-00569-6

85. d'Arminio Monforte A., Tavelli A., Bai F., et al. The importance of patients' case-mix for the correct interpretation of the hospital fatality rate in COVID-19 disease. *Int J Infect Dis*. 2020;100((d'Arminio Monforte, Tavelli, Bai, Tomasoni, Falcinella, Castoldi, Barbanotti, Mule, Allegrini, Tesoro, Tagliaferri, Mondatore, Augello, Cona, Ancona, Gazzola, Iannotti, Tincati, Vigano, De Bona, Bini, Marchetti) Clinic of Infectious Diseases, Department of Health Science, ASST Santi Paolo e Carlo, University of Milan, Milan, Italy):67-74. doi:10.1016/j.ijid.2020.09.037

86. Pachiega J., Afonso A.J.S., Sinhorin G., et al. Chronic heart diseases as the most prevalent comorbidities among deaths by COVID-19 in Brazil. *Rev Inst Med Trop Sao Paulo*. 2020;62((Pachiega, Afonso, Sinhorin) Universidade do Estado de MatoGrosso, Faculdade de Ciencias da Saude, Departamento de Medicina, Caceres, MatoGrosso, Brazil):1-5. doi:10.1590/S1678-9946202062045

87. Hippisley-Cox J, Young D, Coupland C, et al. Risk of severe COVID-19 disease with ACE inhibitors and angiotensin receptor blockers: cohort study including 8.3 million people. *Heart*. 2020;106(19):1503-1511. doi:10.1136/heartjnl-2020-317393

88. Cummings MJ, Baldwin MR, Abrams D, et al. Epidemiology, clinical course, and outcomes of critically ill adults with COVID-19 in New York City: a prospective cohort study. *The Lancet*. 2020;395(10239):1763-1770. doi:10.1016/S0140-6736(20)31189-2

89. Maeda T, Obata R, Rizk DO D, Kuno T. The association of interleukin-6 value, interleukin inhibitors, and outcomes of patients with COVID-19 in New York City. *J Med Virol*. 2021;93(1):463-471. doi:10.1002/jmv.26365

90. Mikami T, Miyashita H, Yamada T, et al. Risk Factors for Mortality in Patients with COVID-19 in New York City. *J Gen Intern Med*. 2021;36(1):17-26. doi:10.1007/s11606-020-05983-z

91. Singer AJ, Morley EJ, Meyers K, et al. Cohort of Four Thousand Four Hundred Four Persons Under Investigation for COVID-19 in a New York Hospital and Predictors of ICU Care and Ventilation. *Ann Emerg Med*. 2020;76(4):394-404. doi:10.1016/j.annemergmed.2020.05.011

92. Fox T, Ruddiman K, Lo KB, et al. The relationship between diabetes and clinical outcomes in COVID-19: a single-center retrospective analysis. *Acta Diabetol*. Published online August 17, 2020:1-6. doi:10.1007/s00592-020-01592-8

93. Hsu HE, Ashe EM, Silverstein M, et al. Race/Ethnicity, Underlying Medical Conditions, Homelessness, and Hospitalization Status of Adult Patients with COVID-19 at an Urban Safety-Net Medical Center - Boston, Massachusetts, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(27):864-869. doi:10.15585/mmwr.mm6927a3

94. Garibaldi BT, Fiksel J, Muschelli J, et al. Patient Trajectories Among Persons Hospitalized for COVID-19. *Ann Intern Med*. 2020;174(1):33-41. doi:10.7326/M20-3905

95. Azar KMJ, Shen Z, Romanelli RJ, et al. Disparities In Outcomes Among COVID-19 Patients In A Large Health Care System In California. *Health Affairs*. 2020;39(7):1253-1262. doi:10.1377/hlthaff.2020.00598

96. Shah SJ, Barish PN, Prasad PA, et al. Clinical features, diagnostics, and outcomes of patients presenting with acute respiratory illness: A retrospective cohort study of patients with and without COVID-19. *EClinicalMedicine*. 2020;27:100518. doi:10.1016/j.eclinm.2020.100518

97. Yan CH, Faraji F, Prajapati DP, Ostrander BT, DeConde AS. Self-reported olfactory loss associates with outpatient clinical course in COVID-19. *Int Forum Allergy Rhinol*. 2020;10(7):821-831. doi:10.1002/alr.22592

98. Jehi L, Ji X, Milinovich A, et al. Development and validation of a model for individualized prediction of hospitalization risk in 4,536 patients with COVID-19. *PLOS ONE*. 2020;15(8):e0237419. doi:10.1371/journal.pone.0237419

99. Price-Haywood EG, Burton J, Fort D, Seoane L. Hospitalization and Mortality among Black Patients and White Patients with Covid-19. *New England Journal of Medicine*. 2020;382(26):2534-2543. doi:10.1056/NEJMsa2011686

100. Silver V, Chapple AG, Feibus AH, et al. Clinical Characteristics and Outcomes Based on Race of Hospitalized Patients With COVID-19 in a New Orleans Cohort. *Open forum infect dis*. 2020;7(9):ofaa339. doi:10.1093/ofid/ofaa339

101. Bajaj JS, Garcia-Tsao G, Biggins SW, et al. Comparison of mortality risk in patients with cirrhosis and COVID-19 compared with patients with cirrhosis alone and COVID-19 alone: multicentre matched cohort. *Gut*. 2021;70(3):531-536. doi:10.1136/gutjnl-2020-322118

102. Kim L, Garg S, O'Halloran A, et al. Risk Factors for Intensive Care Unit Admission and In-hospital Mortality among Hospitalized Adults Identified through the U.S. Coronavirus Disease 2019 (COVID-19)-Associated Hospitalization Surveillance Network (COVID-NET). *Clin Infect Dis*. Published online July 16, 2020. doi:10.1093/cid/ciaa1012

103. Thompson JV, Meghani NJ, Powell BM, et al. Patient characteristics and predictors of mortality in 470 adults admitted to a district general hospital in England with Covid-19. *Epidemiol Infect*. 2020;148. doi:10.1017/S0950268820002873

104. Berenguer J, Ryan P, Rodríguez-Baño J, et al. Characteristics and predictors of death among 4035 consecutively hospitalized patients with COVID-19 in Spain. *Clin Microbiol Infect*. 2020;26(11):1525-1536. doi:10.1016/j.cmi.2020.07.024

105. Gregoriano C, Koch D, Haubitz S, et al. Characteristics, predictors and outcomes among 99 patients hospitalised with COVID-19 in a tertiary care centre in Switzerland: an observational analysis. *Swiss Med Wkly*. 2020;150:w20316. doi:10.4414/smw.2020.20316

106. Myrstad M, Ihle-Hansen H, Tveita AA, et al. National Early Warning Score 2 (NEWS2) on admission predicts severe disease and in-hospital mortality from Covid-19 - a prospective cohort study. *Scand J Trauma Resusc Emerg Med*. 2020;28(1):66. doi:10.1186/s13049-020-00764-3

107. Wang W, Zhao Z, Liu X, et al. Clinical features and potential risk factors for discerning the critical cases and predicting the outcome of patients with COVID-19. *Journal of Clinical Laboratory Analysis*. 2020;34(10):e23547. doi:https://doi.org/10.1002/jcla.23547

108. Kim DW, Byeon KH, Kim J, Cho KD, Lee N. The Correlation of Comorbidities on the Mortality in Patients with COVID-19: an Observational Study Based on the Korean National Health Insurance Big Data. *J Korean Med Sci*. 2020;35(26). doi:10.3346/jkms.2020.35.e243

109. Kim ES, Chin BS, Kang CK, et al. Clinical Course and Outcomes of Patients with Severe Acute Respiratory Syndrome Coronavirus 2 Infection: a Preliminary Report of the First 28 Patients from the Korean Cohort Study on COVID-19. *J Korean Med Sci*. 2020;35(13):e142. doi:10.3346/jkms.2020.35.e142

110. Haw NJL, Uy J, Sy KTL, Abrigo MRM. Epidemiological profile and transmission dynamics of COVID-19 in the Philippines. *Epidemiol Infect*. 2020;148. doi:10.1017/S0950268820002137

111. Higuchi T, Nishida T, Iwahashi H, et al. Early clinical factors predicting the development of critical disease in Japanese patients with COVID-19: A single-center, retrospective, observational study. *J Med Virol*. 2021;93(4):2141-2148. doi:10.1002/jmv.26599

112. Shahriarirad R, Khodamoradi Z, Erfani A, et al. Epidemiological and clinical features of 2019 novel coronavirus diseases (COVID-19) in the South of Iran. *BMC Infectious Diseases*. 2020;20(1):427. doi:10.1186/s12879-020-05128-x

113. Satici C, Demirkol MA, Sargin Altunok E, et al. Performance of pneumonia severity index and CURB-65 in predicting 30-day mortality in patients with COVID-19. *Int J Infect Dis*. 2020;98:84-89. doi:10.1016/j.ijid.2020.06.038

114. Trabulus S, Karaca C, Balkan II, et al. Kidney function on admission predicts in-hospital mortality in COVID-19. *PLOS ONE*. 2020;15(9):e0238680. doi:10.1371/journal.pone.0238680

115. Murillo-Zamora E, Hernandez-Suarez CM. Survival in adult inpatients with COVID-19. *Public Health*. 2021;190:1-3. doi:10.1016/j.puhe.2020.10.029

116. Auvinen R, Nohynek H, Syrjänen R, et al. Comparison of the clinical characteristics and outcomes of hospitalized adult COVID-19 and influenza patients - a prospective observational study. *Infect Dis (Lond)*. 2021;53(2):111-121. doi:10.1080/23744235.2020.1840623

117. Caminati M, Vultaggio A, Matucci A, et al. Asthma in a large COVID-19 cohort: Prevalence, features, and determinants of COVID-19 disease severity. *Respir Med*. 2020;176(8908438, rme):106261. doi:10.1016/j.rmed.2020.106261

118. Moeller A., Thanikkel L., Duijts L., et al. COVID-19 in children with underlying chronic respiratory diseases: Survey results from 174 centres. *ERJ Open Res*. 2020;6(4):1-8. doi:10.1183/23120541.00409-2020

119. Garcia-Pachon E, Zamora-Molina L, Soler-Sempere MJ, et al. Asthma prevalence in patients with SARS-CoV-2 infection detected by RT-PCR not requiring hospitalization. *Respir Med*. 2020;171(8908438, rme):106084. doi:10.1016/j.rmed.2020.106084

120. Lemus Calderon JA, Beneyto Martin P, Guzman Rodriguez R, Caligaris Cataldi HS, Senent Sanchez CJ. Differentiating characteristics of patients with asthma in the severe acute respiratory syndrome coronavirus 2 infection. *Ann Allergy Asthma Immunol*. 2020;(cbm, 9503580). doi:10.1016/j.anai.2020.09.004

121. Dominguez-Ortega J, Lopez-Carrasco V, Barranco P, et al. Early experiences of SARS-CoV-2 infection in severe asthmatics receiving biologic therapy. *J Allergy Clin Immunol Pract*. 2020;8(8):2784-2786. doi:10.1016/j.jaip.2020.06.027

122. Caminati M, Lombardi C, Micheletto C, et al. Asthmatic patients in COVID-19 outbreak: Few cases despite many cases. *J Allergy Clin Immunol*. 2020;146(3):541-542. doi:10.1016/j.jaci.2020.05.049

123. Lombardi C, Roca E, Bigni B, Cottini M, Passalacqua G. Clinical course and outcomes of patients with asthma hospitalized for severe acute respiratory syndrome coronavirus 2 pneumonia: A single-center, retrospective study. *Ann Allergy Asthma Immunol*. 2020;125(6):707-709. doi:10.1016/j.anai.2020.07.029

124. Baumer T, Phillips E, Dhadda A, Szakmany T. Epidemiology of the First Wave of COVID-19 ICU Admissions in South Wales-The Interplay Between Ethnicity and Deprivation. *Front Med (Lausanne)*. 2020;7(101648047):569714. doi:10.3389/fmed.2020.569714

125. Beurnier A, Jutant EM, Jevnikar M, et al. Characteristics and outcomes of asthmatic patients with COVID-19 pneumonia who require hospitalisation. *Eur Respir J*. 2020;56(5). doi:10.1183/13993003.01875-2020

126. Grandbastien M, Piotin A, Godet J, et al. SARS-CoV-2 Pneumonia in Hospitalized Asthmatic Patients Did Not Induce Severe Exacerbation. *J Allergy Clin Immunol Pract*. 2020;8(8):2600-2607. doi:10.1016/j.jaip.2020.06.032

127. Lovinsky-Desir S, Deshpande DR, De A, et al. Asthma among hospitalized patients with COVID-19 and related outcomes. *J Allergy Clin Immunol*. 2020;146(5):1027-1034.e4. doi:10.1016/j.jaci.2020.07.026

128. Rosenthal JA, Awan SF, Fintzi J, Keswani A, Ein D. Asthma is associated with increased risk of intubation but not hospitalization or death in coronavirus disease 2019. *Ann Allergy Asthma Immunol*. 2020;(cbm, 9503580). doi:10.1016/j.anai.2020.10.002

129. Mahdavinia M, Foster KJ, Jauregui E, et al. Asthma prolongs intubation in COVID-19. *J Allergy Clin Immunol Pract*. 2020;8(7):2388-2391. doi:10.1016/j.jaip.2020.05.006

130. Cellai M, O'Keefe JB. Characterization of Prolonged COVID-19 Symptoms in an Outpatient Telemedicine Clinic. *Open forum infect dis*. 2020;7(10):ofaa420. doi:10.1093/ofid/ofaa420

131. Toussie D, Voutsinas N, Finkelstein M, et al. Clinical and Chest Radiography Features Determine Patient Outcomes in Young and Middle-aged Adults with COVID-19. *Radiology*. 2020;297(1):E197-E206. doi:10.1148/radiol.2020201754

132. Chao JY, Derespina KR, Herold BC, et al. Clinical Characteristics and Outcomes of Hospitalized and Critically Ill Children and Adolescents with Coronavirus Disease 2019 at a Tertiary Care Medical Center in New York City. *J Pediatr*. 2020;223(jlz, 0375410):14-19.e2. doi:10.1016/j.jpeds.2020.05.006

133. Krass P, Zimbrick-Rogers C, Iheagwara C, Ford CA, Calderoni M. COVID-19 Outbreak Among Adolescents at an Inpatient Behavioral Health Hospital. *J Adolesc Health*. 2020;67(4):612-614. doi:10.1016/j.jadohealth.2020.07.009

134. Robinson LB, Fu X, Bassett IV, et al. COVID-19 severity in hospitalized patients with asthma: A matched cohort study. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.10.021

135. Hurst JH, Heston SM, Chambers HN, et al. SARS-CoV-2 Infections Among Children in the Biospecimens from Respiratory Virus-Exposed Kids (BRAVE Kids) Study. *Clin Infect Dis*. 2020;(a4j, 9203213). doi:10.1093/cid/ciaa1693

136. Otto WR, Geoghegan S, Posch LC, et al. The Epidemiology of Severe Acute Respiratory Syndrome Coronavirus 2 in a Pediatric Healthcare Network in the United States. *J Pediatric Infect Dis Soc*. 2020;9(5):523-529. doi:10.1093/jpids/piaa074

137. Lieberman-Cribbin W, Rapp J, Alpert N, Tuminello S, Taioli E. The Impact of Asthma on Mortality in Patients With COVID-19. *Chest*. 2020;(0231335, d1c). doi:10.1016/j.chest.2020.05.575

138. Mo X., Jian W., Su Z., et al. Abnormal pulmonary function in COVID-19 patients at time of hospital discharge. *Eur Respir J*. 2020;55(6):2001217. doi:10.1183/13993003.01217-2020

139. Jin M, Chen C, Huang J, et al. Clinical characteristics of COVID-19 patients with asthma in Wuhan, China: a retrospective cohort study. *J Asthma*. 2020;(hf7, 8106454):1-9. doi:10.1080/02770903.2020.1850768

140. Sun Y., Dong Y., Wang L., et al. Characteristics and prognostic factors of disease severity in patients with COVID-19: The Beijing experience. *J Autoimmun*. 2020;112((Sun, Wang, Xie, Li, Wang) The Fifth Medical Center of Chinese PLA General Hospital, Beijing 100039, China):102473. doi:10.1016/j.jaut.2020.102473

141. Choi HG, Wee JH, Kim SY, et al. Association between asthma and clinical mortality/morbidity in COVID-19 patients using clinical epidemiologic data from Korean Disease Control & Prevention. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14675

142. Lee S, Kim T, Lee E, et al. Clinical Course and Molecular Viral Shedding Among Asymptomatic and Symptomatic Patients With SARS-CoV-2 Infection in a Community Treatment Center in the Republic of Korea. *JAMA Intern Med*. 2020;(101589534). doi:10.1001/jamainternmed.2020.3862

143. Choi YJ, Park JY, Lee HS, et al. Effect of Asthma and Asthma Medication on the Prognosis of Patients with COVID-19. *Eur Respir J*. 2020;(8803460, ery). doi:10.1183/13993003.02226-2020

144. Licari A., Votto M., Brambilla I., et al. Allergy and asthma in children and adolescents during the COVID outbreak: What we know and how we could prevent allergy and asthma flares. *Allergy Eur J Allergy Clin Immunol*. 2020;75(9):2402-2405. doi:10.1111/all.14369

145. Nogueira P.J., Nobre M.A., Costa A., et al. The role of health preconditions on covid-19 deaths in Portugal: Evidence from surveillance data of the first 20293 infection cases. *J Clin Med*. 2020;9(8):1-16. doi:10.3390/jcm9082368

146. Rabha AC, Oliveira Junior FI de, Oliveira TA de, et al. CLINICAL MANIFESTATIONS OF CHILDREN AND ADOLESCENTS WITH COVID-19: REPORT OF THE FIRST 115 CASES FROM SABARA HOSPITAL INFANTIL. *Rev paul pediatr*. 2020;39(9109353):e2020305. doi:10.1590/1984-0462/2021/39/2020305

147. Niquini RP, Lana RM, Pacheco AG, et al. Description and comparison of demographic characteristics and comorbidities in SARI from COVID-19, SARI from influenza, and the Brazilian general population. *Cad Saude Publica*. 2020;36(7):e00149420. doi:10.1590/0102-311x00149420

148. Santos MM, Lucena EES, Lima KC, Brito AAC, Bay MB, Bonfada D. Survival and predictors of deaths of patients hospitalised due to COVID-19 from a retrospective and multicentre cohort study in Brazil. *Epidemiol Infect*. 2020;148(epi, 8703737):e198. doi:10.1017/S0950268820002034

149. Green I, Merzon E, Vinker S, Golan-Cohen A, Magen E. COVID-19 susceptibility in bronchial asthma. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.11.020

150. Butler MW, O'Reilly A, Dunican EM, et al. Prevalence of comorbid asthma in COVID-19 patients. *J Allergy Clin Immunol*. 2020;146(2):334-335. doi:10.1016/j.jaci.2020.04.061

151. Uchida Y, Uemura H, Yamaba S, et al. Significance of liver dysfunction associated with decreased hepatic CT attenuation values in Japanese patients with severe COVID-19. *J Gastroenterol*. Published online August 9, 2020:1-9. doi:10.1007/s00535-020-01717-4

152. Ashinyo ME, Duti V, Dubik SD, et al. Clinical characteristics, treatment regimen and duration of hospitalization among COVID-19 patients in Ghana: a retrospective cohort study. *Pan Afr Med J*. 2020;37(Suppl 1):9. doi:10.11604/pamj.supp.2020.37.9.25718

153. Baqui P, Bica I, Marra V, Ercole A, Schaar M van der. Ethnic and regional variations in hospital mortality from COVID-19 in Brazil: a cross-sectional observational study. *The Lancet Global Health*. 2020;8(8):e1018-e1026. doi:10.1016/S2214-109X(20)30285-0

154. Attaway A.A., Zein J., Hatipoglu U.S. SARS-CoV-2 infection in the COPD population is associated with increased healthcare utilization: An analysis of Cleveland clinic's COVID-19 registry. *EClinicalMedicine*. 2020;26((Attaway, Zein, Hatipoglu) Respiratory Institute, Cleveland Clinic, 9500 Euclid Avenue A-90, Cleveland, OH 44195, United States):100515. doi:10.1016/j.eclinm.2020.100515

155. Alkhouli M., Nanjundappa A., Annie F., Bates M.C., Bhatt D.L. Sex Differences in Case Fatality Rate of COVID-19: Insights From a Multinational Registry. *Mayo Clin Proc*. 2020;95(8):1613-1620. doi:10.1016/j.mayocp.2020.05.014

156. Caratozzolo S, Zucchelli A, Turla M, et al. The impact of COVID-19 on health status of home-dwelling elderly patients with dementia in East Lombardy, Italy: results from COVIDEM network. *Aging Clin Exp Res*. 2020;32(10):2133-2140. doi:10.1007/s40520-020-01676-z

157. Maddaloni E, D'Onofrio L, Alessandri F, et al. Cardiometabolic multimorbidity is associated with a worse Covid-19 prognosis than individual cardiometabolic risk factors: a multicentre retrospective study (CoViDiab II). Ajassa C AR Alessandri F, Alessi F, Aronica R, Belvisi V, Buzzetti R, Candy M, Caputi A, Carrara A, Casali E, Cavallari EN, Ceccarelli G, Celani L, Ciardi MR, Coraggio L, Curtolo A, D'Agostino C, D'Ettorre G, D'Onofrio L, De Giorgi F, De Girolamo G, Filippi V, Gnessi L, Luordi C, Maddaloni E, Mastroianni CM, Mezzaroma I, Mignogna C, Moretti C, Pugliese F, Recchia G, Ridolfi M, Romani FE, Russo G, Ruberto F, Savelloni G, Siccardi G, Siena A, Sterpetti S, Valeri S, Vera M, Volpicelli L, Watanabe M, Aiuti M, Campagna G, Del Borgo C, Fondaco L, Kertusha B, Leonetti F, Leto G, Lichtner M, Marocco R, Masala R, Zuccala P, Agro FE, Nonnis G, Pascarella G, Pozzilli P, Rigoli A, Strumia A, Alampi D, Rocco M, ed. *Cardiovasc diabetol*. 2020;19(1):164. doi:10.1186/s12933-020-01140-2

158. Giorgi Rossi P, Marino M, Formisano D, et al. Characteristics and outcomes of a cohort of COVID-19 patients in the Province of Reggio Emilia, Italy. *PLoS ONE*. 2020;15(8):e0238281. doi:10.1371/journal.pone.0238281

159. Palmieri L, Vanacore N, Donfrancesco C, et al. Clinical Characteristics of Hospitalized Individuals Dying With COVID-19 by Age Group in Italy. Palmieri L AX Barbariol P, Bella A, Bellino S, Benelli E, Bertinato L, Boros S, Brambilla G, Calcagnini G, Canevelli M, Rita Castrucci M, Censi F, Ciervo A, Colaizzo E, D'Ancona F, Del Manso M, Donfrancesco C, Fabiani M, Facchiano F, Filia A, Floridia M, Galati F, Giuliano M, Grisetti T, Kodra Y, Langer M, Lega I, Lo Noce C, Maiozzi P, Malchiodi Albedi F, Manno V, Martini M, Mateo Urdiales A, Mattei E, Meduri C, Meli P, Minelli G, Nebuloni M, Nistico L, Nonis M, Onder G, Palmisano L, Petrosillo N, Pezzotti P, Pricci F, Punzo O, Puro V, Raparelli V, Rezza G, Riccardo F, Cristina Rota M, Salerno P, Serra D, Siddu A, Stefanelli P, De Bella MT, Tiple D, Unim B, Vaianella L, Vanacore N, Vichi M, Rocco Villani E, Zona A, Brusaferro S, ed. *J Gerontol A Biol Sci Med Sci*. 2020;75(9):1796-1800. doi:10.1093/gerona/glaa146

160. Pezzuto A, Tammaro A, Tonini G, Ciccozzi M. COPD influences survival in patients affected by COVID-19, comparison between subjects admitted to an internal medicine unit, and subjects admitted to an intensive care unit: An Italian experience. *J Med Virol*. 2020;(i9n, 7705876). doi:10.1002/jmv.26585

161. Mushtaq J, Pennella R, Lavalle S, et al. Initial chest radiographs and artificial intelligence (AI) predict clinical outcomes in COVID-19 patients: analysis of 697 Italian patients. *Eur Radiol*. 2020;(cl3, 9114774). doi:10.1007/s00330-020-07269-8

162. Violi F., Cangemi R., Romiti G.F., et al. IS ALBUMIN PREDICTOR OF MORTALITY IN COVID-19 ? *Antioxid Redox Signal*. 2020;((Violi, Pignatelli) Sapienza University of Rome, 9311, Internal Medicine and Medical Specialties, Roma, Lazio, Italy;). doi:10.1089/ars.2020.8142

163. Grasselli G, Greco M, Zanella A, et al. Risk Factors Associated With Mortality Among Patients With COVID-19 in Intensive Care Units in Lombardy, Italy. *JAMA Intern Med*. 2020;180(10):1345-1355. doi:10.1001/jamainternmed.2020.3539

164. Cellina M, Gibelli D, Valenti Pittino C, Toluian T, Marino P, Oliva G. Risk Factors of Fatal Outcome in Patients With COVID-19 Pneumonia. *Disaster med public health prep*. 2020;(101297401):1-8. doi:10.1017/dmp.2020.346

165. Grasselli G, Zangrillo A, Zanella A, et al. Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the Lombardy Region, Italy. *JAMA*. 2020;323(16):1574. doi:10.1001/jama.2020.5394

166. Lovell N, Maddocks M, Etkind SN, et al. Characteristics, Symptom Management, and Outcomes of 101 Patients With COVID-19 Referred for Hospital Palliative Care. *J Pain Symptom Manage*. 2020;60(1):e77-e81. doi:10.1016/j.jpainsymman.2020.04.015

167. Karagiannidis C., Mostert C., Hentschker C., et al. Case characteristics, resource use, and outcomes of 10 021 patients with COVID-19 admitted to 920 German hospitals: an observational study. *Lancet Respir Med*. 2020;8(9):853-862. doi:10.1016/S2213-2600%2820%2930316-7

168. Daubin C, Justet A, Vabret A, Bergot E, Terzi N. Is a COPD patient protected against SARS-CoV-2 virus?. *Med Mal Infect*. 2020;(0311416). doi:10.1016/j.medmal.2020.09.015

169. Harrison SL, Fazio-Eynullayeva E, Lane DA, Underhill P, Lip GYH. Comorbidities associated with mortality in 31,461 adults with COVID-19 in the United States: A federated electronic medical record analysis. *PLoS Med*. 2020;17(9):e1003321. doi:10.1371/journal.pmed.1003321

170. Somani SS, Richter F, Fuster V, et al. Characterization of Patients Who Return to Hospital Following Discharge from Hospitalization for COVID-19. *J Gen Intern Med*. 2020;35(10):2838-2844. doi:10.1007/s11606-020-06120-6

171. Fang M., Wang D., Tang O., Selvin E. Prevalence of chronic disease in laboratory-confirmed covid-19 cases and u.S. adults (2017-2018). *Diabetes Care*. 2020;43(10):e127-e128. doi:10.2337/dc20-1640

172. Adrish M, Chilimuri S, Sun H, Mantri N, Yugay A, Zahid M. The Association of Renin-Angiotensin-Aldosterone System Inhibitors With Outcomes Among a Predominantly Ethnic Minority Patient Population Hospitalized With COVID-19: The Bronx Experience. *Cureus*. 2020;12(9):e10217. doi:10.7759/cureus.10217

173. Luo H., Liu S., Wang Y., et al. Age differences in clinical features and outcomes in patients with COVID-19, Jiangsu, China: A retrospective, multicentre cohort study. *BMJ Open*. 2020;10(10):e039887. doi:10.1136/bmjopen-2020-039887

174. Lian J, Jin X, Hao S, et al. Analysis of Epidemiological and Clinical Features in Older Patients With Coronavirus Disease 2019 (COVID-19) Outside Wuhan. *Clin Infect Dis*. 2020;71(15):740-747. doi:10.1093/cid/ciaa242

175. Shi S, Qin M, Cai Y, et al. Characteristics and clinical significance of myocardial injury in patients with severe coronavirus disease 2019. *Eur Heart J*. 2020;41(22):2070-2079. doi:10.1093/eurheartj/ehaa408

176. Wang J, Zhu X, Xu Z, et al. Clinical and CT findings of COVID-19: differences among three age groups. *BMC Infect Dis*. 2020;20(1):434. doi:10.1186/s12879-020-05154-9

177. He Y, Xie M, Zhao J, Liu X. Clinical Characteristics and Outcomes of Patients with Severe COVID-19 and Chronic Obstructive Pulmonary Disease (COPD). *Med Sci Monit*. 2020;26(dxw, 9609063):e927212. doi:10.12659/MSM.927212

178. Hu X, Hu C, Yang Y, et al. Clinical characteristics and risk factors for severity of COVID-19 outside Wuhan: a double-center retrospective cohort study of 213 cases in Hunan, China. *Therap adv respir dis*. 2020;14(101316317):1753466620963035. doi:10.1177/1753466620963035

179. Xu H., Hou K., Xu R., et al. Clinical Characteristics and Risk Factors of Cardiac Involvement in COVID-19. *J Am Heart Assoc*. 2020;9(18):e016807. doi:10.1161/JAHA.120.016807

180. Li X., Wang L., Yan S., et al. Clinical characteristics of 25 death cases with COVID-19: A retrospective review of medical records in a single medical center, Wuhan, China. *Int J Infect Dis*. 2020;94((Li, Wang, Yan, Yang, Xiang, Zhu, Gong) Department of Infectious Diseases, Renmin Hospital of Wuhan University, Wuhan, China):128-132. doi:10.1016/j.ijid.2020.03.053

181. Wei Y., Zeng W., Huang X., et al. Clinical characteristics of 276 hospitalized patients with coronavirus disease 2019 in Zengdu District, Hubei Province: A single-center descriptive study. *BMC Infect Dis*. 2020;20(1):549. doi:10.1186/s12879-020-05252-8

182. Wu F, Zhou Y, Wang Z, et al. Clinical characteristics of COVID-19 infection in chronic obstructive pulmonary disease: a multicenter, retrospective, observational study. *J thorac dis*. 2020;12(5):1811-1823. doi:10.21037/jtd-20-1914

183. Huang Y., Tu M., Wang S., et al. Clinical characteristics of laboratory confirmed positive cases of SARS-CoV-2 infection in Wuhan, China: A retrospective single center analysis. *Travel Med Infect Dis*. 2020;36((Huang, Wang, Chen, Zhou, Chen, Zhou, Wang, Liu, Guo) Department of Plastic Surgery, Zhongnan Hospital of Wuhan University, Wuhan 430071, China):101606. doi:10.1016/j.tmaid.2020.101606

184. Zhang G., Hu C., Luo L., et al. Clinical features and short-term outcomes of 221 patients with COVID-19 in Wuhan, China. *J Clin Virol*. 2020;127((Zhang) Department of Respiratory and Critical Care Medicine, Zhongnan Hospital of Wuhan University, Wuhan 430071, China):104364. doi:10.1016/j.jcv.2020.104364

185. Li P, Chen L, Liu Z, et al. Clinical features and short-term outcomes of elderly patients with COVID-19. *Int J Infect Dis*. 2020;97(c3r, 9610933):245-250. doi:10.1016/j.ijid.2020.05.107

186. Du Y., Tu L., Zhu P., et al. Clinical Features of 85 Fatal Cases of COVID-19 from Wuhan: A Retrospective Observational Study. *Am J Respir Crit Care Med*. 2020;201(11):1372-1379. doi:10.1164/RCCM.202003-0543OC

187. Wang T, Tang C, Chen R, et al. Clinical Features of Coronavirus Disease 2019 Patients With Mechanical Ventilation: A Nationwide Study in China. *Crit Care Med*. 2020;48(9):e809-e812. doi:10.1097/CCM.0000000000004473

188. Feng Z, Li J, Yao S, et al. Clinical Factors Associated with Progression and Prolonged Viral Shedding in COVID-19 Patients: A Multicenter Study. *Aging dis*. 2020;11(5):1069-1081. doi:10.14336/AD.2020.0630

189. Xiong Q, Xu M, Li J, et al. Clinical sequelae of COVID-19 survivors in Wuhan, China: a single-centre longitudinal study. *Clin Microbiol Infect*. 2020;(dy9, 9516420). doi:10.1016/j.cmi.2020.09.023

190. Guan WJ, Liang WH, Zhao Y, et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. *Eur Respir J*. 2020;55(5). doi:10.1183/13993003.00547-2020

191. Wang L, He W, Yu X, et al. Coronavirus disease 2019 in elderly patients: Characteristics and prognostic factors based on 4-week follow-up. *J Infect*. 2020;80(6):639-645. doi:10.1016/j.jinf.2020.03.019

192. Gao Y, Li T, Han M, et al. Diagnostic utility of clinical laboratory data determinations for patients with the severe COVID-19. *J Med Virol*. 2020;92(7):791-796. doi:10.1002/jmv.25770

193. Cai Q, Chen F, Wang T, et al. Obesity and COVID-19 Severity in a Designated Hospital in Shenzhen, China. *Diabetes Care*. 2020;43(7):1392-1398. doi:10.2337/dc20-0576

194. Zhang J., Yu M., Tong S., Liu L.-Y., Tang L.-V. Predictive factors for disease progression in hospitalized patients with coronavirus disease 2019 in Wuhan, China. *J Clin Virol*. 2020;127((Zhang, Tong, Liu) Department of Thoracic Surgery, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430022, China):104392. doi:10.1016/j.jcv.2020.104392

195. Wang L, He WB, Yu XM, Hu DL, Jiang H. Prolonged prothrombin time at admission predicts poor clinical outcome in COVID-19 patients. *World j clin cases*. 2020;8(19):4370-4379. doi:10.12998/wjcc.v8.i19.4370

196. Liu D, Cui P, Zeng S, et al. Risk factors for developing into critical COVID-19 patients in Wuhan, China: A multicenter, retrospective, cohort study. *EClinicalMedicine*. 2020;25(101733727):100471. doi:10.1016/j.eclinm.2020.100471

197. Cen Y, Chen X, Shen Y, et al. Risk factors for disease progression in patients with mild to moderate coronavirus disease 2019-a multi-centre observational study. *Clin Microbiol Infect*. 2020;(dy9, 9516420). doi:10.1016/j.cmi.2020.05.041

198. Guan W jie, Ni Z yi, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*. 2020;382(18):1708-1720. doi:10.1056/NEJMoa2002032

199. Li K, Wu J, Wu F, et al. The Clinical and Chest CT Features Associated With Severe and Critical COVID-19 Pneumonia. *Invest Radiol*. 2020;55(6):327-331. doi:10.1097/RLI.0000000000000672

200. Mo P, Xing Y, Xiao Y, et al. Clinical characteristics of refractory COVID-19 pneumonia in Wuhan, China. *Clinical Infectious Diseases*. 2020;(ciaa270). doi:10.1093/cid/ciaa270

201. Chen R, Liang W, Jiang M, et al. Risk Factors of Fatal Outcome in Hospitalized Subjects With Coronavirus Disease 2019 From a Nationwide Analysis in China. *Chest*. 2020;158(1):97-105. doi:10.1016/j.chest.2020.04.010

202. Chen Q, Zheng Z, Zhang C, et al. Clinical characteristics of 145 patients with corona virus disease 2019 (COVID-19) in Taizhou, Zhejiang, China. *Infection*. Published online April 28, 2020:1-9. doi:10.1007/s15010-020-01432-5

203. Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China. *JAMA*. 2020;323(11):1061. doi:10.1001/jama.2020.1585

204. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet*. 2020;395(10229):1054-1062. doi:10.1016/S0140-6736(20)30566-3

205. Liu K, Fang YY, Deng Y, et al. Clinical characteristics of novel coronavirus cases in tertiary hospitals in Hubei Province. *Chin Med J (Engl)*. Published online February 7, 2020. doi:10.1097/CM9.0000000000000744

206. Wang Z, Yang B, Li Q, Wen L, Zhang R. Clinical Features of 69 Cases with Coronavirus Disease 2019 in Wuhan, China. *Clin Infect Dis*. Published online March 16, 2020. doi:10.1093/cid/ciaa272

207. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020;395(10223):497-506. doi:10.1016/S0140-6736(20)30183-5

208. Xu X, Yu C, Qu J, et al. Imaging and clinical features of patients with 2019 novel coronavirus SARS-CoV-2. *Eur J Nucl Med Mol Imaging*. 2020;47(5):1275-1280. doi:10.1007/s00259-020-04735-9

209. Xu XW, Wu XX, Jiang XG, et al. Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. *BMJ*. 2020;368:m606. doi:10.1136/bmj.m606

210. Yang X, Yu Y, Xu J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med*. 2020;8(5):475-481. doi:10.1016/S2213-2600(20)30079-5

211. Zhu W, Xie K, Lu H, Xu L, Zhou S, Fang S. Initial clinical features of suspected coronavirus disease 2019 in two emergency departments outside of Hubei, China. *J Med Virol*. 2020;92(9):1525-1532. doi:10.1002/jmv.25763

212. Liu W, Tao ZW, Wang L, et al. Analysis of factors associated with disease outcomes in hospitalized patients with 2019 novel coronavirus disease. *Chin Med J (Engl)*. 2020;133(9):1032-1038. doi:10.1097/CM9.0000000000000775

213. Chen T, Dai Z, Mo P, et al. Clinical Characteristics and Outcomes of Older Patients with Coronavirus Disease 2019 (COVID-19) in Wuhan, China: A Single-Centered, Retrospective Study. *J Gerontol A Biol Sci Med Sci*. 2020;75(9):1788-1795. doi:10.1093/gerona/glaa089

214. Feng Y, Ling Y, Bai T, et al. COVID-19 with Different Severities: A Multicenter Study of Clinical Features. *Am J Respir Crit Care Med*. 2020;201(11):1380-1388. doi:10.1164/rccm.202002-0445OC

215. Zhang R, Ouyang H, Fu L, et al. CT features of SARS-CoV-2 pneumonia according to clinical presentation: a retrospective analysis of 120 consecutive patients from Wuhan city. *Eur Radiol*. Published online April 11, 2020:1-10. doi:10.1007/s00330-020-06854-1

216. Zheng F, Tang W, Li H, Huang YX, Xie YL, Zhou ZG. Clinical characteristics of 161 cases of corona virus disease 2019 (COVID-19) in Changsha. *Eur Rev Med Pharmacol Sci*. 2020;24(6):3404-3410. doi:10.26355/eurrev_202003_20711

217. Chen J, Bai H, Liu J, et al. Distinct Clinical Characteristics and Risk Factors for Mortality in Female Inpatients With Coronavirus Disease 2019 (COVID-19): A Sex-stratified, Large-scale Cohort Study in Wuhan, China. *Clin Infect Dis*. 2020;71(12):3188-3195. doi:10.1093/cid/ciaa920

218. Zhang SY, Lian JS, Hu JH, et al. Clinical characteristics of different subtypes and risk factors for the severity of illness in patients with COVID-19 in Zhejiang, China. *Infect Dis Poverty*. 2020;9(1):85. doi:10.1186/s40249-020-00710-6

219. Cheng Y, Luo R, Wang K, et al. Kidney disease is associated with in-hospital death of patients with COVID-19. *Kidney Int*. 2020;97(5):829-838. doi:10.1016/j.kint.2020.03.005

220. Guo T, Fan Y, Chen M, et al. Cardiovascular Implications of Fatal Outcomes of Patients With Coronavirus Disease 2019 (COVID-19). *JAMA Cardiol*. 2020;5(7):811. doi:10.1001/jamacardio.2020.1017

221. Liang W hua, Guan W jie, Li C chen, et al. Clinical characteristics and outcomes of hospitalised patients with COVID-19 treated in Hubei (epicentre) and outside Hubei (non-epicentre): a nationwide analysis of China. *Eur Respir J*. 2020;55(6). doi:10.1183/13993003.00562-2020

222. Liu Y, Du X, Chen J, et al. Neutrophil-to-lymphocyte ratio as an independent risk factor for mortality in hospitalized patients with COVID-19. *J Infect*. 2020;81(1):e6-e12. doi:10.1016/j.jinf.2020.04.002

223. Shi S, Qin M, Shen B, et al. Association of Cardiac Injury With Mortality in Hospitalized Patients With COVID-19 in Wuhan, China. *JAMA Cardiol*. 2020;5(7):802. doi:10.1001/jamacardio.2020.0950

224. Wang D, Yin Y, Hu C, et al. Clinical course and outcome of 107 patients infected with the novel coronavirus, SARS-CoV-2, discharged from two hospitals in Wuhan, China. *Crit Care*. 2020;24(1):188. doi:10.1186/s13054-020-02895-6

225. Xu PP, Tian RH, Luo S, et al. Risk factors for adverse clinical outcomes with COVID-19 in China: a multicenter, retrospective, observational study. *Theranostics*. 2020;10(14):6372-6383. doi:10.7150/thno.46833

226. Zhao XY, Xu XX, Yin HS, et al. Clinical characteristics of patients with 2019 coronavirus disease in a non-Wuhan area of Hubei Province, China: a retrospective study. *BMC Infectious Diseases*. 2020;20(1):311. doi:10.1186/s12879-020-05010-w

227. Huang M, Yang Y, Shang F, et al. Clinical Characteristics and Predictors of Disease Progression in Severe Patients with COVID-19 Infection in Jiangsu Province, China: A Descriptive Study. *The American Journal of the Medical Sciences*. 2020;360(2):120-128. doi:10.1016/j.amjms.2020.05.038

228. Hao SR, Yan R, Zhang SY, et al. Interferon-alpha2b spray inhalation did not shorten virus shedding time of SARS-CoV-2 in hospitalized patients: a preliminary matched case-control study. *J Zhejiang Univ Sci B*. 2020;21(8):628-636. doi:10.1631/jzus.B2000211

229. Wan S, Xiang Y, Fang W, et al. Clinical features and treatment of COVID-19 patients in northeast Chongqing. *J Med Virol*. 2020;92(7):797-806. doi:10.1002/jmv.25783

230. Hu L, Chen S, Fu Y, et al. Risk Factors Associated With Clinical Outcomes in 323 Coronavirus Disease 2019 (COVID-19) Hospitalized Patients in Wuhan, China. *Clin Infect Dis*. 2020;71(16):2089-2098. doi:10.1093/cid/ciaa539

231. An C, Lim H, Kim DW, Chang JH, Choi YJ, Kim SW. Machine learning prediction for mortality of patients diagnosed with COVID-19: a nationwide Korean cohort study. *Sci rep*. 2020;10(1):18716. doi:10.1038/s41598-020-75767-2

232. Boari GEM, Chiarini G, Bonetti S, et al. Prognostic factors and predictors of outcome in patients with COVID-19 and related pneumonia: a retrospective cohort study. *Biosci Rep*. 2020;(a6d, 8102797). doi:10.1042/BSR20203455

233. Bravi F, Flacco ME, Carradori T, et al. Predictors of severe or lethal COVID-19, including Angiotensin Converting Enzyme inhibitors and Angiotensin II Receptor Blockers, in a sample of infected Italian citizens. *PLoS ONE*. 2020;15(6):e0235248. doi:10.1371/journal.pone.0235248

234. Barbu MG, Thompson RJ, Thompson DC, Cretoiu D, Suciu N. The Impact of SARS-CoV-2 on the Most Common Comorbidities-A Retrospective Study on 814 COVID-19 Deaths in Romania. *Front Med (Lausanne)*. 2020;7(101648047):567199. doi:10.3389/fmed.2020.567199

235. Javanian M., Masrour-Roudsari J., Bayani M., Ebrahimpour S. Coronavirus disease 2019 (COVID-19): What we need to know. *Caspian J Int Med*. 2020;11(2):235-236. doi:10.22088/cjim.11.2.23

236. Qin W, Hu BZ, Zhang Z, et al. [Clinical characteristics and death risk factors of severe COVID-19]. *Chung Hua Chieh Ho Ho Hu Hsi Tsa Chih*. 2020;43(8):648-653. doi:10.3760/cma.j.cn112147-20200320-00380

237. Boixeda R, Campins L, Juanola J, Force L, en nombre del grupo COCOHMAT, Integrantes del Grupo COCOHMAT (COhorte COvid del Hospital de MATaro). [Is chronic obstructive pulmonary disease a protective factor in SARS-CoV-2 infection? The importance of bronchodilator treatment]. Oyon J FM Llinares A, Arkesteijn A, Erraiz A, Rejon T, Igual E, Carmona M, Munoz A, Prado P, Ventura A, Ferreiro B, Guanyabens E, Perez L, Sanchez A, Delgado J, Bitlloch M, Moron N, Sancho F, Oller A, Borrellas C, Plensa E, Aranega R, Lopera C, Arbones L, Fernandez J, Rex A, Parra M, Serrallonga A, Solano MF, Larrousse M, Mauri M, Falga C, Bacca S, Fernandez P, Pacho L, Martin M, Robles A, Vila X, Ovejero L, Ortega P,

Martinez S, Ortiz I, Vidal A, Calderon P, Baena J, Badia I, Ruiz A, ed. *Rev Clin Esp*. 2020;220(8):526-529. doi:10.1016/j.rce.2020.07.001

238. Kragholm K, Andersen MP, Gerds TA, et al. Association between male sex and outcomes of Coronavirus Disease 2019 (Covid-19) - a Danish nationwide, register-based study. *Clin Infect Dis*. 2020;(a4j, 9203213). doi:10.1093/cid/ciaa924

239. Phelps M, Christensen DM, Gerds T, et al. Cardiovascular comorbidities as predictors for severe COVID-19 infection or death. *Eur Heart J Qual Care Clin Outcomes*. 2020;(101677796). doi:10.1093/ehjqcco/qcaa081

240. Hernandez-Galdamez DR, Gonzalez-Block MA, Romo-Duenas DK, et al. Increased Risk of Hospitalization and Death in Patients with COVID-19 and Pre-existing Noncommunicable Diseases and Modifiable Risk Factors in Mexico. *Arch Med Res*. 2020;51(7):683-689. doi:10.1016/j.arcmed.2020.07.003

241. Medetalibeyoglu A., Senkal N., Capar G., Kose M., Tukek T. Characteristics of the initial patients hospitalized for COVID-19: A single-center report. *Turk J Med Sci*. 2020;50(5):1436-1439. doi:10.3906/sag-2004-98

242. Guner R, Hasanoglu I, Kayaaslan B, et al. COVID-19 experience of the major pandemic response center in the capital: Results of the pandemic's first month in Turkey. *TURK J MED SCI*. 2020;(9441758). doi:10.3906/sag-2006-164

243. Barman HA, Atici A, Sahin I, et al. Prognostic significance of cardiac injury in COVID-19 patients with and without coronary artery disease. *Coron Artery Dis*. Published online June 19, 2020. doi:10.1097/MCA.0000000000000914

244. Almazeedi S, Al-Youha S, Jamal MH, et al. Characteristics, risk factors and outcomes among the first consecutive 1096 patients diagnosed with COVID-19 in Kuwait. *EClinicalMedicine*. 2020;24(101733727):100448. doi:10.1016/j.eclinm.2020.100448

245. Itelman E, Wasserstrum Y, Segev A, et al. Clinical Characterization of 162 COVID-19 patients in Israel: Preliminary Report from a Large Tertiary Center. *Isr Med Assoc J*. 2020;22(5):271-274.

246. Islam MZ, Riaz BK, Islam ANMS, et al. Risk factors associated with morbidity and mortality outcomes of COVID-19 patients on the 28th day of the disease course: a retrospective cohort study in Bangladesh. *Epidemiol Infect*. 2020;148(epi, 8703737):e263. doi:10.1017/S0950268820002630

247. Rahim F, Amin S, Noor M, et al. Mortality of Patients With Severe COVID-19 in the Intensive Care Unit: An Observational Study From a Major COVID-19 Receiving Hospital. *Cureus*. 2020;12(10):e10906. doi:10.7759/cureus.10906

248. Aalinezhad M, Alikhani F, Akbari P, Rezaei MH, Soleimani S, Hakamifard A. Relationship between CT Severity Score and Capillary Blood Oxygen Saturation in Patients with COVID-19 Infection. *Indian J Crit Care Med*. 2021;25(3):279-283. doi:10.5005/jp-journals-10071-23752

249. Abayomi A, Osibogun A, Kanma-Okafor O, et al. Morbidity and mortality outcomes of COVID-19 patients with and without hypertension in Lagos, Nigeria: a retrospective cohort study. *Glob Health Res Policy*. 2021;6(1):26. doi:10.1186/s41256-021-00210-6

250. Abe T, Igwe J, Egbuche O, et al. Cardiovascular complications in COVID-19 patients with or without diabetes mellitus. *Endocrinol Diabetes Metab*. 2021;4(2):e00218. doi:10.1002/edm2.218

251. Abrishami A, Baharvand Z, Zarei E, et al. Epicardial adipose tissue, inflammatory biomarkers and COVID-19: Is there a possible relationship? *Int Immunopharmacol*. 2021;90((Abrishami, Baharvand, Zarei) Department of Radiology, Shahid Labbafinejad Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic of):107174. doi:10.1016/j.intimp.2020.107174

252. Adir Y, Humbert M, Saliba W. COVID-19 risk and outcomes in adult asthmatic patients treated with biologics or systemic corticosteroids: Nationwide real-world evidence. *J Allergy Clin Immunol*. 2021;(h53, 1275002). doi:10.1016/j.jaci.2021.06.006

253. Aggarwal A, Shrivastava A, Kumar A, Ali A. Clinical and Epidemiological Features of SARS-CoV-2 Patients in SARI Ward of a Tertiary Care Centre in New Delhi. *J Assoc Physicians India*. 2020;68(7):19-26.

254. Agrupis KA, Suzuki S, Smith C, et al. Epidemiological and clinical characteristics of the first 500 confirmed COVID-19 inpatients in a tertiary infectious disease referral hospital in Manila, Philippines. *Trop Med Health*. 2021;49(1):48. doi:10.1186/s41182-021-00340-0

255. Ahlstrom B, Frithiof R, Hultstrom M, Larsson IM, Strandberg G, Lipcsey M. The swedish covid-19 intensive care cohort: Risk factors of ICU admission and ICU mortality. *Acta Anaesthesiol Scand*. 2021;(0370270). doi:10.1111/aas.13781

256. Akchurin O, Meza K, Biswas S, et al. COVID-19 in Patients with CKD in New York City. *Kidney360*. 2021;2(1):63-70. doi:10.34067/KID.0004142020

257. Akkus C, Yilmaz H, Mizrak S, Adibelli Z, Akdas O, Duran C. Development of pancreatic injuries in the course of covid-19. *Acta Gastro-Enterol Belg*. 2020;83(4):585-592.

258. Al Yazidi LS, Al Maskari N, Al Reesi M. CHILDREN WITH ASTHMA HOSPITALISED WITH COVID-19: MULTICENTRE EXPERIENCE. *J Paediatr Child Health*. 2021;57(3):464-466. doi:10.1111/jpc.15415

259. Alam MR, Kabir MdR, Reza S. Comorbidities might be a risk factor for the incidence of COVID-19: Evidence from a web-based survey. *Preventive Med Reports*. 2021;21((Alam, Kabir) Department of Food Technology and Nutrition Science, Noakhali Science and Technology University, Bangladesh):101319. doi:10.1016/j.pmedr.2021.101319

260. Alberca RW, Lima JC, Ramos YAL, et al. COVID-19 Disease Course in Former Smokers, Smokers and COPD Patients. *Front Physiol*. 2020;11((Alberca, Lima, Oliveira, Gozzi-Silva, Ramos, Andrade, Beserra, Oliveira, Branco, Pietrobon, Pereira, Teixeira, Fernandes, Duarte, Benard, Sato) Laboratorio de Dermatologia e Imunodeficiencias (LIM-56), Departamento de Dermatologia, Faculdade de Medicina FMUSP, Universidade de Sao Paulo, Sao Paulo, Brazil):637627. doi:10.3389/fphys.2020.637627

261. Aleanizy FS, Alqahtani FY, Alanazi MS, et al. Clinical characteristics and risk factors of patients with severe COVID-19 in Riyadh, Saudi Arabia: A retrospective study. *J Infect Public Health*. 2021;14(9):1133-1138. doi:10.1016/j.jiph.2021.07.014

262. Al-Haidari KAA, Faiq T, Ghareeb O. Clinical trial of black seeds against covid - 19 in Kirkuk city/ Iraq. *Indian J Forensic Med Toxicol*. 2021;15(3):3393-3399. doi:10.37506/ijfmt.v15i3.15825

263. Al-Salameh A, Desailloud R, Lalau JD, et al. Characteristics and outcomes of COVID-19 in hospitalized patients with and without diabetes. *Diabetes Metab Res Rev*. 2021;37(3):e3388. doi:10.1002/dmrr.3388

264. Alser O, Mokhtari A, Naar L, et al. Multisystem outcomes and predictors of mortality in critically ill patients with COVID-19: Demographics and disease acuity matter more than comorbidities or treatment modalities. *J Trauma Acute Care Surg*. 2021;90(5):880-890. doi:10.1097/TA.0000000000003085

265. Alsofayan YM, Althunayyan SM, Khan AA, Hakawi AM, Assiri AM. Clinical characteristics of COVID-19 in Saudi Arabia: A national retrospective study. *Journal of Infection and Public Health*. 2020;13(7):920-925. doi:10.1016/j.jiph.2020.05.026

266. Alvarez-Arroyo L, Carrera-Hueso FJ, El-Qutob D, et al. Descriptive study of a cohort of covid-19 hospitalized patients in Spain. *Gac Med Mex*. 2021;157(1):76-83. doi:10.24875/GMM.M21000525

267. Aly MM, Meshref TS, Abdelhameid MA, et al. Can Hematological Ratios Predict Outcome of COVID-19 Patients? A Multicentric Study. *J blood med*. 2021;12(101550884):505-515. doi:10.2147/JBM.S316681

268. Ameri P, Canale C, Giovinazzo S, et al. Pulmonary embolism in patients with COVID-19: characteristics and outcomes in the Cardio-COVID Italy multicenter study. *Clin Res Cardiol*. 2021;110(7):1020-1028. doi:10.1007/s00392-020-01766-y

269. Ancochea J, Soriano JB, Izquierdo JL. Evidence of gender differences in the diagnosis and management of coronavirus disease 2019 patients: An analysis of electronic health records using natural language processing and machine learning. *J Women's Health*. 2021;30(3):393-404. doi:10.1089/jwh.2020.8721

270. Benayas-Pena I, Andres-Esteban EM, Quintana-Diaz M, et al. Outcomes of hospitalized patients with COVID-19 according to level of frailty. *PeerJ*. 2021;9((Andres-Esteban, Quintana-Diaz, Ramirez-Cervantes, Benayas-Pena, Silva-Obregon, Juarez-Vela) Grupo PBM, Instituto de Investigacion-IdiPaz, Madrid, Madrid, Spain):e11260. doi:10.7717/peerj.11260

271. Parker K, McGrath E, Arora H, et al. COVID-19 among Minority Children in Detroit, Michigan during the Early National Surge of the Pandemic. *Glob Pediatr Health*. 2021;8((Ang, Kannikeswaran, McGrath, Abdel-Haq, Arora, Lua, Thomas, Asmar) Children's Hospital of Michigan, Detroit, MI, United States). doi:10.1177/2333794X211022710

272. Angeli F, Bachetti T. Temporal changes in co-morbidities and mortality in patients hospitalized for COVID-19 in Italy. *Eur J Intern Med*. 2020;82((Angeli) Department of Medicine and Surgery, University of Insubria-Varese, Italy):123-125. doi:10.1016/j.ejim.2020.10.019

273. Arentz S, Hunter J, Yang G, et al. Zinc for the prevention and treatment of SARS-CoV-2 and other acute viral respiratory infections: a rapid review. *Adv Integr Med*. 2020;7(4):252-260. doi:10.1016/j.aimed.2020.07.009

274. Armentia A, Cortes SF, Simon AM, et al. Inhaled corticosteroids may have a protective effect against coronavirus infection. *Allergol Immunopathol (Madr)*. 2021;49(1):113-117. doi:10.15586/aei.v49i1.40

275. Arslan Y, Dogan D, Ocal N, et al. The boundaries between survival and nonsurvival at COVID-19: Experience of tertiary care pandemic hospital. *Int J Clin Pract*. 2021;(cvt, 9712381):e14461. doi:10.1111/ijcp.14461

276. Artero A, Madrazo M, Fernandez-Garces M, et al. Severity Scores in COVID-19 Pneumonia: a Multicenter, Retrospective, Cohort Study. *J Gen Intern Med*. 2021;36(5):1338-1345. doi:10.1007/s11606-021-06626-7

277. Asch DA, Doshi JA, Sheils NE, et al. Variation in US Hospital Mortality Rates for Patients Admitted with COVID-19 during the First 6 Months of the Pandemic. *JAMA Intern Med*. 2021;181(4):471-478. doi:10.1001/jamainternmed.2020.8193

278. Asghar MS, Haider Kazmi SJ, Ahmed Khan N, et al. Clinical Profiles, Characteristics, and Outcomes of the First 100 Admitted COVID-19 Patients in Pakistan: A Single-Center Retrospective Study in a Tertiary Care Hospital of Karachi. *Cureus*. 12(6):e8712. doi:10.7759/cureus.8712

279. Ashimov J, Kudaiberdiev T, Gaybyldaev J, Zaripov D, Akhmedova I, Abibillaev D. The effects of tocilizumab on clinical and laboratory features of patients with severe COVID-19: A single center experience. *Heart Vessels Transpl*. 2020;4(4):220. doi:10.24969/HVT.2020.220

280. Ashish A, Unsworth A, Martindale J, et al. CPAP management of COVID-19 respiratory failure: A first quantitative analysis from an inpatient service evaluation. *BMJ Open Respir Res*. 2020;7(1):e000692. doi:10.1136/bmjresp-2020-000692

281. Asirvatham ES, Sarman CJ, Saravanamurthy SP, Mahalingam P, Maduraipandian S, Lakshmanan J. Who is dying from COVID-19 and when? An Analysis of fatalities in Tamil Nadu, India. *Clin Epidemiol Global Health*. 2021;9((Asirvatham) Technical Adviser (Health Systems&Policy), Health Systems Research India Initiative, (HSRII), Thiruvananthapuram, Kerala 695004, India):275-279. doi:10.1016/j.cegh.2020.09.010

282. Aung H, Avraam E, Ashraf M, et al. Outcomes of Continuous Positive Airway Pressure in the Management of Patients with Coronavirus (COVID-19) Pneumonia who are not Suitable for Invasive Ventilation. *Open Respir Med J*. 2021;15(101480481):23-27. doi:10.2174/1874306402115010023

283. Aveyard P, Gao M, Lindson N, et al. Association between pre-existing respiratory disease and its treatment, and severe COVID-19: a population cohort study. *Lancet Respir Med*. 2021;(101605555). doi:10.1016/S2213-2600(21)00095-3

284. Ayten O, Saylan B. Retrospective analysis of severe covid-19 pneumonia patients treated with lopinavir/ritonavir: A comparison with survivor and non-survivor patients. *South Afr J Infect Dis*. 2020;35(1):1-7. doi:10.4102/SAJID.V35I1.233

285. Azad MH, Mousavi GS, Khorrami F, et al. Clinical and epidemiological characteristics of hospitalized COVID-19 patients in Hormozgan, Iran: A retrospective, multicenter study. *Arch Iran Med*. 2021;24(5):434-444. doi:10.34172/AIM.2021.62

286. Basaran S, Simsek-Yavuz S, Cagatay A, et al. The effect of tocilizumab, anakinra and prednisolone on antibody response to SARS-CoV-2 in patients with COVID-19: A prospective cohort study with multivariate analysis of factors affecting the antibody response. *Int J Infect Dis*. 2021;105((Basaran, Simsek-Yavuz, Cagatay, Oncul, Ozsut, Eraksoy) Department of Infectious Diseases and Clinical Microbiology, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey):756-762. doi:10.1016/j.ijid.2021.03.031

287. Bastola A, Shrestha S, Nepal R, et al. Clinical mortality review of covid-19 patients at sukraraj tropical and infectious disease hospital, nepal; a retrospective study. *Trop Med Infect Dis*. 2021;6(3):137. doi:10.3390/tropicalmed6030137

288. Batirel A, Tekin S, Batirel H, Bakan N, Akalan Kuyumcu C. The effectiveness of hydroxychloroquine versus vydroxychloroquine plus Lopinavir/ritonavir therapy in SARSCoV- 2 Pneumonia. *Mediterr J Infect Microbe Antimicrob*. 2021;10((Batirel) University of Health Sciences Turkey, Kartal Dr. Lutfi Kirdar City Hospital, Clinic of Infectious Diseases and Clinical Microbiology, Istanbul, Turkey):8. doi:10.4274/mjima.galenos.2021.2020.8

289. Bedolla-Barajas M, Morales-Romero J, Bedolla-Pulido TR, et al. Low prevalence of asthma in Mexican children and adults with a positive rtRT-PCR test for SARS-CoV-2: a cross-sectional study during the 2020 pandemic. *Allergol Immunopathol (Madr)*. 2021;49(3):1-7. doi:10.15586/aei.v49i3.7

290. Beken B, Ozturk GK, Aygun FD, Aydogmus C, Akar HH. Asthma and allergic diseases are not risk factors for hospitalization in children with coronavirus disease 2019. *Ann Allergy Asthma Immunol*. 2021;126(5):569-575. doi:10.1016/j.anai.2021.01.018

291. Quaglino R, Bellan M, Soddu D, et al. Respiratory and psychophysical sequelae among patients with covid-19 four months after hospital discharge. *JAMA Netw Open*. 2021;4(1):36142. doi:10.1001/jamanetworkopen.2020.36142

292. Bello-Chavolla OY, Bahena-Lopez JP, Antonio-Villa NE, et al. Predicting Mortality Due to SARS-CoV-2: A Mechanistic Score Relating Obesity and Diabetes to COVID-19 Outcomes in Mexico. *J Clin Endocrinol Metab*. 2020;105(8). doi:10.1210/clinem/dgaa346

293. Bello-Chavolla OY, Antonio-Villa NE, Ortiz-Brizuela E, et al. Validation and repurposing of the MSL-COVID-19 score for prediction of severe COVID-19 using simple clinical predictors in a triage setting: The Nutri-CoV score. *PLoS ONE*. 2020;15(12):e0244051. doi:10.1371/journal.pone.0244051

294. Beltramo G, Cottenet J, Mariet AS, et al. Chronic respiratory diseases are predictors of severe outcome in COVID-19 hospitalised patients: a nationwide study. *Eur Respir J*. 2021;(8803460, ery). doi:10.1183/13993003.04474-2020

295. Bergman J, Nordstrom P, Ballin M, Nordstrom A. Risk factors for COVID-19 diagnosis, hospitalization, and subsequent all-cause mortality in Sweden: a nationwide study. *Eur J Epidemiol*. 2021;36(3):287-298. doi:10.1007/s10654-021-00732-w

296. Bertaina M, Nunez-Gil IJ, Fernandez-Ortiz A, et al. Non-invasive ventilation for SARS-CoV-2 acute respiratory failure: A subanalysis from the HOPE COVID-19 registry. *Emerg Med J*. 2021;38(5):359-365. doi:10.1136/emermed-2020-210411

297. Besharat S, Rahimi F, Afaghi S, et al. Chest ct imaging characteristics of covid-19 pneumonia in surviving and non-surviving hospitalized patients: A retrospective study in a referral center in tehran, iran. *Iran J Radiol*. 2021;18(2):e106339. doi:10.5812/iranjradiol.106339

298. Beypinar I, Bayav M, Ucan A, Efe S. The effect of body composition on prognosis in critically ill covid-19 patients. *Annals of Clinical and Analytical Medicine*. 2021;12(6):680-684. doi:10.4328/ACAM.20383

299. Bhandari S, Shaktawat AS, Sharma R, et al. A preliminary clinico-epidemiological portrayal of COVID-19 pandemic at a premier medical institution of North India. *Ann Thorac Med*. 2020;15(3):146-150. doi:10.4103/atm.ATM_182_20

300. Bharat V, Singhal M, Varma A, Jindal S. Comparison of clinical, haematological, biochemical findings and significance of co-morbidities amongst COVID-19 positive survivors and nonsurvivors. *J Clin Diagn Res*. 2021;15(4):EC22-EC26. doi:10.7860/JCDR/2021/47148.14811

301. Biko D., Dewitt A., Pinto E., et al. Association of T2 lymphatic imaging in single ventricle patients after superior cavopulmonary connection with acute post-fontan outcomes. *Pediatr Radiol*. 2018;48(1 Supplement 1):S130. doi:10.1007/520.1433-7339

302. Bjornstad EC, Askenazi D, Krallman KA, Goldstein SL, Zappitelli M, Basu RK. Preliminary assessment of acute kidney injury in critically ill children associated with SARS-CoV-2 infection: A multicenter cross-sectional analysis. *Clin J Am Soc Nephrol*. 2021;16(3):446-448. doi:10.2215/CJN.11470720

303. Bloom CI, Drake TM, Docherty AB, et al. Risk of adverse outcomes in patients with underlying respiratory conditions admitted to hospital with COVID-19: a national, multicentre prospective cohort study using the ISARIC WHO Clinical Characterisation Protocol UK. Alex B BB Barclay WS, Bogaert D, Chand M, Cooke GS, Filipe AD, Fletcher T, Green CA, Harrison EM, Hiscox JA, Ho AY, Horby PW, Ijaz S, Khoo S, Klenerman P, Law A, Lim WS, Mentzer AJ, Merson L, Meynert AM, Noursadeghi M, Moore SC, Palmarini M, Paxton WA, Pollakis G, Price N, Rambaut A, Robertson DL, Russell CD, Sancho Shimizu V, Scott JT, Silva T, Sigfrid L, Solomon T, Sriskandan S, Stuart D, Summers C, Tedder RS, Thomson EC, Thompson AR, Thwaites RS, Turtle LC, Zambon M, Hardwick H, Donohue C, Lyons R, Griffiths F, Oosthuyzen W, Norman L, Pius R, Fairfield CJ, Knight SR, Mclean KA, Murphy D, Shaw CA, Dalton J, Girvan M, Saviciute E, Roberts S, Harrison J, Marsh L, Connor M, Halpin S, Jackson C, Gamble C, Leeming G, Law A, Wham M, Clohisey S, Hendry R, Scott Brown J, Greenhalf W, Shaw V, McDonald S, Keating S, Ahmed KA, Armstrong JA, Ashworth M, Asiimwe IG, Bakshi S, Barlow SL, Booth L, Brennan B, Bullock K, Catterall BW, Clark JJ, Clarke EA, Cole S, Cooper L, Cox H, Davis C, Dincarslan O, Dunn C, Dyer P, Elliott A, Evans A, Finch L, Fisher LW, Foster T, Garcia Dorival I, Greenhalf W, Gunning P, Hartley C, Jensen RL, Jones CB, Jones TR, Khandaker S, King K, Kiy RT, Koukorava C, Lake A, Lant S, Latawiec D, Lavelle Langham L, Lefteri D, Lett L, Livoti LA, Mancini M, McDonald S, McEvoy L, McLauchlan J, Metelmann S, Miah NS, Middleton J, Mitchell J, Moore SC, Murphy EG, Penrice Randal R, Pilgrim J, Prince T, Reynolds W, Ridley PM, Sales D, Shaw VE, Shears RK, Small B, Subramaniam KS, Szemiel A, Taggart A, Tanianis Hughes J, Thomas J, Trochu E, Tonder LV, Wilcock E, Zhang JE, Flaherty L, Maziere N, Cass E, Carracedo AD, Carlucci N, Holmes A, Massey H, Adeniji K, Agranoff D, Agwuh K, Ail D, Alegria A, Angus B, Ashish A, Atkinson D, Bari S, Barlow G, Barnass S, Barrett N, Bassford C, Baxter D, Beadsworth M, Bernatoniene J, Berridge J, Best N, Bothma P, Brealey D, Brittain Long R, Bulteel N, Burden T, Burtenshaw A, Caruth V,

Chadwick D, Chambler D, Chee N, Child J, Chukkambotla S, Clark T, Collini P, Cosgrove C, Cupitt J, Cutino Moguel MT, Dark P, Dawson C, Dervisevic S, Donnison P, Douthwaite S, DuRand I, Dushianthan A, Dyer T, Evans C, Eziefula C, Fegan C, Finn A, Fullerton D, Garg S, Garg S, Garg A, Gkrania Klotsas E, Godden J, Goldsmith A, Graham C, Hardy E, Hartshorn S, Harvey D, Havalda P, Hawcutt DB, Hobrok M, Hodgson L, Hormis A, Jacobs M, Jain S, Jennings P, Kaliappan A, Kasipandian V, Kegg S, Kelsey M, Kendall J, Kerrison C, Kerslake I, Koch O, Koduri G, Koshy G, Laha S, Laird S, Larkin S, Leiner T, Lillie P, Limb J, Linnett V, Little J, MacMahon M, MacNaughton E, Mankregod R, Masson H, Matovu E, McCullough K, McEwen R, Meda M, Mills G, Minton J, Mirfenderesky M, Mohandas K, Mok Q, Moon J, Moore E, Morgan P, Morris C, Mortimore K, Moses S, Mpenge M, Mulla R, Murphy M, Nagel M, Nagarajan T, Nelson M, Otahal I, Pais M, Panchatsharam S, Paraiso H, Patel B, Pattison N, Pepperell J, Peters M, Phull M, Pintus S, Pooni J, Post F, Price D, Prout R, Rae N, Reschreiter H, Reynolds T, Richardson N, Roberts M, Roberts D, Rose A, Rousseau G, Ryan B, Saluja T, Shah A, Shanmuga P, Sharma A, Shawcross A, Sizer J, Shankar Hari M, Smith R, Snelson C, Spittle N, Staines N, Stambach T, Stewart R, Subudhi P, Szakmany T, Tatham K, Thomas J, Thompson C, Thompson R, Tridente A, Tupper Carey D, Twagira M, Ustianowski A, Vallotton N, Vincent Smith L, Visuvanathan S, Vuylsteke A, Waddy S, Wake R, Walden A, Welters I, Whitehouse T, Whittaker P, Whittington A, Wijesinghe M, Williams M, Wilson L, Wilson S, Winchester S, Wiselka M, Wolverson A, Wooton DG, Workman A, Yates B, Young P, ed. *Lancet Respir Med*. 2021;9(7):699-711. doi:10.1016/S2213-2600(21)00013-8

304. Kipourou DK, Leyrat C, Alsheridah N, et al. Probabilities of ICU admission and hospital discharge according to patient characteristics in the designated COVID-19 hospital of Kuwait. *BMC Public Health*. 2021;21(1):799. doi:10.1186/s12889-021-10759-z

305. Bongiovanni M, Marra AM, De Lauretis A, et al. Clinical characteristics and outcome of COVID-19 pneumonia in elderly subjects. *J Infect*. 2021;82(2):e33-e34. doi:10.1016/j.jinf.2020.08.023

306. Borczuk AC, Salvatore SP, Seshan SV, et al. COVID-19 pulmonary pathology: a multi-institutional autopsy cohort from Italy and New York City. *Mod Pathol*. 2020;33(11):2156-2168. doi:10.1038/s41379-020-00661-1

307. Fernandes VA, Oliveira JA de Q, Marcolino MS, et al. Clinical characteristics and outcomes among Brazilian patients with severe acute respiratory syndrome coronavirus 2 infection: An observational retrospective study. *Sao Paulo Med J*. 2020;138(6):490-497. doi:10.1590/1516-3180.2020.00365.r1.08092020

308. Boyd S, Martin-Loeches I. The incidence of venous thromboembolism in critically ill patients with COVID-19 compared with critically ill non-COVID patients. *Ir J Med Sci*. 2021;(gxb, 7806864, 7806865). doi:10.1007/s11845-020-02503-0

309. Boytsov SA, Pogosova NV, Paleev FN, et al. Clinical Characteristics and Factors Associated with Poor Outcomes in Hospitalized Patients with Novel Coronavirus Infection COVID-19. *Kardiologiia*. 2021;61(2):4-14. doi:10.18087/cardio.2021.2.n1532

310. Bozan O, Kocer MT, Koca Y, et al. Clinical findings and prognosis of hospitalized elderly COVID-19 patients. *Turk Geriatr Derg*. 2021;24(1):41. doi:10.31086/tjgeri.2021.194

311. Myers J, Austin C, Sexson A, et al. Heterogeneity in COVID-19 patient volume, characteristics and outcomes across US Department of Veterans Affairs facilities: An observational cohort study. *BMJ Open*. 2021;11(3):e044646. doi:10.1136/bmjopen-2020-044646

312. Brojakowska A, Eskandari A, Bisserier M, et al. Comorbidities, sequelae, blood biomarkers and their associated clinical outcomes in the Mount Sinai Health System COVID-19 patients. *PLoS ONE*. 2021;16(7):e0253660. doi:10.1371/journal.pone.0253660

313. Bruce E, Carter B, Quinn TJ, et al. Multiple House Occupancy is Associated with Mortality in Hospitalised Patients with Covid-19. *Eur J Public Health*. 2021;(d0w, 9204966). doi:10.1093/eurpub/ckab085

314. Bustos P, Tambley C, Acevedo A, et al. Quantitative detection of SARS-CoV-2 RNA in nasopharyngeal samples from infected patients with mild disease. *J Med Virol*. 2021;93(4):2439-2445. doi:10.1002/jmv.26761

315. Caliskan T, Saylan B. Smoking and comorbidities are associated with COVID-19 severity and mortality in 565 patients treated in Turkey: A retrospective observational study. *Rev Assoc Med Bras*. 2020;66(12):1679-1684. doi:10.1590/1806-9282.66.12.1679

316. Campos-Murguia A, Roman-Calleja BM, Gonzalez-Regueiro JA, et al. Liver fibrosis in patients with metabolic associated fatty liver disease is a risk factor for adverse outcomes in COVID-19. *Dig Liver Dis*. 2021;53(5):525-533. doi:10.1016/j.dld.2021.01.019

317. Cao L, Lee S, Krings JG, et al. Asthma in patients with suspected and diagnosed coronavirus disease 2019. *Ann Allergy Asthma Immunol*. 2021;126(5):535-541.e2. doi:10.1016/j.anai.2021.02.020

318. Cao Z, Li T, Liang L, et al. Clinical characteristics of Coronavirus Disease 2019 patients in Beijing, China. *PLoS One*. 2020;15(6):e0234764. doi:10.1371/journal.pone.0234764

319. Capone S, Abramyan S, Ross B, et al. Characterization of Critically Ill COVID-19 Patients at a Brooklyn Safety-Net Hospital. *Cureus*. 2020;12(8):e9809. doi:10.7759/cureus.9809

320. Castilla J, Guevara M, Miqueleiz A, et al. Risk Factors of Infection, Hospitalization and Death from SARS-CoV-2: A Population-Based Cohort Study. *J Clin Med*. 2021;10(12):2608. doi:10.3390/jcm10122608

321. Chadli A, Haraj NE, El Aziz S, et al. COVID-19: Patient care after discharge from the Intensive Care Unit. *Int J Clin Pract*. 2021;(cvt, 9712381):e14270. doi:10.1111/ijcp.14270

322. Chatterjee A, Wu G, Primakov S, et al. Can predicting COVID-19 mortality in a European cohort using only demographic and comorbidity data surpass age-based prediction: An externally validated study. *PLoS ONE*. 2021;16(4):e0249920. doi:10.1371/journal.pone.0249920

323. Chavarot N, Gueguen J, Bonnet G, et al. COVID-19 severity in kidney transplant recipients is similar to nontransplant patients with similar comorbidities. *Am J Transplant*. 2021;21(3):1285-1294. doi:10.1111/ajt.16416

324. Chen YJ, Jian WH, Liang ZY, et al. Earlier diagnosis improves COVID-19 prognosis: a nationwide retrospective cohort analysis. *Ann transl med*. 2021;9(11):941. doi:10.21037/atm-20-7210

325. Chen R, Liang W, Jiang M, et al. Risk Factors of Fatal Outcome in Hospitalized Subjects With Coronavirus Disease 2019 From a Nationwide Analysis in China. *Chest*. 2020;158(1):97-105. doi:10.1016/j.chest.2020.04.010

326. Chen F, Sun W, Sun S, Li Z, Wang Z, Yu L. Clinical characteristics and risk factors for mortality among inpatients with COVID-19 in Wuhan, China. *Clin Transl Med*. 2020;10(2):e40. doi:10.1002/ctm2.40

327. Chen FF, Zhong M, Liu Y, et al. The characteristics and outcomes of 681 severe cases with COVID-19 in China. *J Crit Care*. 2020;60:32-37. doi:10.1016/j.jcrc.2020.07.003

328. Cheng K, Li H, Xu J, Xiong W, Zhou X, Zheng J. Diagnosis and treatment of 471 patients with 2019 novel coronavirus disease (COVID-19). *Ann Transl Med*. 2021;9(2):163. doi:10.21037/atm-21-236

329. Chilimuri S, Sun H, Alemam A, et al. Predictors of Mortality in Adults Admitted with COVID-19: Retrospective Cohort Study from New York City. *West J Emerg Med*. 2020;21(4):779-784. doi:10.5811/westjem.2020.6.47919

330. Choi YJ, Park JY, Lee HS, et al. Variable effects of underlying diseases on the prognosis of patients with COVID-19. *PLoS ONE*. 2021;16(7):e0254258. doi:10.1371/journal.pone.0254258

331. Ciceri F, Castagna A, Rovere-Querini P, et al. Early predictors of clinical outcomes of COVID-19 outbreak in Milan, Italy. *Clin Immunol*. 2020;217:108509. doi:10.1016/j.clim.2020.108509

332. Clark JR, Batra A, Shlobin NA, et al. Acute-care hospital reencounters in COVID-19 patients. *GeroScience*. 2021;((Clark, Batra, Shlobin, Hoffman, Orban, Koralnik, Liotta) Ken and Ruth Davee Department of Neurology, Northwestern University Feinberg School of Medicine, 625 N. Michigan Ave, Suite 1150, Chicago, IL 60630, United States). doi:10.1007/s11357-021-00378-2

333. Conte C, Ruggeri A, Camici P, et al. Epicardial adipose tissue characteristics, obesity and clinical outcomes in COVID-19: A post-hoc analysis of a prospective cohort study. *Nutr Metab Cardiovasc Dis*. 2021;31(7):2156-2164. doi:10.1016/j.numecd.2021.04.020

334. Cordero-Franco HF, De La Garza-Salinas LH, Gomez-Garcia S, Moreno-Cuevas JE, Vargas-Villarreal J, Gonzalez-Salazar F. Risk Factors for SARS-CoV-2 Infection, Pneumonia, Intubation, and Death in Northeast Mexico. *Front public health*. 2021;9(101616579):645739. doi:10.3389/fpubh.2021.645739

335. Corradini E, Ventura P, Ageno W, et al. Clinical factors associated with death in 3044 COVID-19 patients managed in internal medicine wards in Italy: results from the SIMI-COVID-19 study of the Italian Society of Internal Medicine (SIMI). Tombolini E TT Crisafulli E, Sainaghi PP, Zileri Dal Verme L, Piano S, De Lorenzo R, Arcidiacono G, Podda M, Muratori L, Gabiati C, Salinaro F, Luciani M, Barnini C, Morra di Cella S, Dalbeni A, Friso S, Luciani M, Mearelli F, Malerba P, Cavallone F, D'Ardes D, Notargiacomo S, De Giorgi A, Mansi M, Buzzetti E, Ricci A, Martelli F, ed. *Intern emerg medicine*. 2021;16(4):1005-1015. doi:10.1007/s11739-021-02742-8

336. Cosio BG, Shafiek H, Toledo-Pons N, et al. Characterization of COPD Admissions During the First COVID-19 Outbreak. *Int J Chron Obstruct Pulmon Dis*. 2021;16(101273481):1549-1554. doi:10.2147/COPD.S312493

337. Costa VO, Teixeira FM, Ferreira JP, et al. Evaluation of the Risk of Clinical Deterioration among Inpatients with COVID-19. *Adv Virol*. 2021;2021((Costa, Teixeira, Ferreira) Medicine, Faculdade de Ciencias Medicas e da Saude de Juiz de Fora-SUPREMA, Juiz de Fora 36033-003, Brazil):6689669. doi:10.1155/2021/6689669

338. Covino M, De Matteis G, Santoro M, et al. Clinical characteristics and prognostic factors in COVID-19 patients aged ≥80 years. *Geriatr Gerontol Int*. 2020;20(7):704-708. doi:10.1111/ggi.13960

339. Covino M, De Matteis G, Burzo ML, et al. Predicting In-Hospital Mortality in COVID-19 Older Patients with Specifically Developed Scores. *J Am Geriatr Soc*. 2021;69(1):37-43. doi:10.1111/jgs.16956

340. Cunningham JW, Vaduganathan M, Claggett BL, et al. Clinical Outcomes in Young US Adults Hospitalized with COVID-19. *JAMA Intern Med*. 2021;181(3):379-381. doi:10.1001/jamainternmed.2020.5313

341. Daher A, Cornelissen C, Muller A, et al. Follow up of patients with severe coronavirus disease 2019 (COVID-19): Pulmonary and extrapulmonary disease sequelae. *Respir Med*. 2020;174((Daher, Cornelissen, Muller, Bergs, Dreher, Muller) Department of Pneumology and Intensive Care Medicine, University Hospital RWTH Aachen, Aachen, Germany):106197. doi:10.1016/j.rmed.2020.106197

342. Daniel P, Zehtabchi S, Mecklenburg M, et al. Non-invasive positive pressure ventilation versus endotracheal intubation in treatment of COVID-19 patients requiring ventilatory support. *Am J Emerg Med*. 2021;43((Daniel, Zehtabchi) Department of Emergency Medicine, SUNY Downstate Health Sciences University, Brooklyn, NY, United States):103-108. doi:10.1016/j.ajem.2021.01.068

343. DE Lorenzo R, Cinel E, Cilla M, et al. Physical and psychological sequelae at three months after acute illness in COVID-19 survivors. *Panminerva Med*. 2021;(0421110, oqn). doi:10.23736/S0031-0808.21.04399-8

344. de la Rica R, Borges M, Aranda M, et al. Low Albumin Levels Are Associated with Poorer Outcomes in a Case Series of COVID-19 Patients in Spain: A Retrospective Cohort Study. *Microorganisms*. 2020;8(8):E1106. doi:10.3390/microorganisms8081106

345. Diaz-Campos RM, Garcia-Moguel I, Pina-Maiquez I, Fernandez-Rodriguez C, Melero-Moreno C. Prevalence and Influence of COVID-19 in Asthma Control and Lung Function in Severe Asthma Patients Receiving Biological Treatment. *J Investig Allergol Clin Immunol*. 2021;31(4):362-363. doi:10.18176/jiaci.0695

346. Dinesh A, Mallick T, Arreglado TM, Altonen BL, Engdahl R. Outcomes of COVID-19 Admissions in the New York City Public Health System and Variations by Hospitals and Boroughs During the Initial Pandemic Response. *Front public health*. 2021;9(101616579):570147. doi:10.3389/fpubh.2021.570147

347. Ding N, Zhou Y, Yang G, Chai X. A nomogram for predicting acute respiratory distress syndrome in COVID-19 patients. *Asian Pac J Trop Med*. 2021;14(6):274-280. doi:10.4103/1995-7645.318303

348. Doganay F, Elkonca F, Seyhan AU, Yilmaz E, Ak R, Batirel A. Shock index as a predictor of mortality among the Covid-19 patients. *Am J Emerg Med*. 2021;40((Doganay) Specialist of Emergency Medicine, Edremit State Hospital, Department of Emergency Medicine, Balikesir, Turkey):106-109. doi:10.1016/j.ajem.2020.12.053

349. Dong G, Du Z, Zhu J, et al. The clinical characteristics and prognosis of COVID-19 patients with comorbidities: a retrospective analysis of the infection peak in Wuhan. *Ann transl med*. 2021;9(4):280. doi:10.21037/atm-20-4052

350. Dreher M, Kersten A, Bickenbach J, et al. The Characteristics of 50 Hospitalized COVID-19 Patients With and Without ARDS. *Dtsch Arztebl Int*. 2020;117(16):271-278. doi:10.3238/arztebl.2020.0271

351. Drobnik J, Suslo R, Pobrotyn P, et al. COVID-19 among Healthcare Workers in the University Clinical Hospital in Wroclaw, Poland. *Int J Environ Res Public Health*. 2021;18(11). doi:10.3390/ijerph18115600

352. Ebell MH, Cai X, Lennon R, et al. Development and Validation of the COVID-NoLab and COVID-SimpleLab Risk Scores for Prognosis in 6 US Health Systems. *J Am Board Fam Med*. 2021;34(Suppl):S127-S135. doi:10.3122/jabfm.2021.S1.200464

353. Eger K, Hashimoto S, Braunstahl GJ, et al. Poor outcome of SARS-CoV-2 infection in patients with severe asthma on biologic therapy. *Respir Med*. 2020;177(8908438, rme):106287. doi:10.1016/j.rmed.2020.106287

354. Eggert L, Cao S, Jiang S, et al. Asthma as a predictor of more severe outcomes in COVID-19 infection. *J Allergy Clin Immunol*. 2021;147(2 Supplement):AB44. doi:10.1016/j.jaci.2020.12.191

355. Elghoudi A, Aldhanhani H, Ghatasheh G, Sharif E, Narchi H. Covid-19 in Children and Young Adolescents in Al Ain, United Arab Emirates- a Retrospective Cross-Sectional Study. *Front pediatr*. 2020;8(101615492):603741. doi:10.3389/fped.2020.603741

356. Erdem AB, Oguzturk H, Tumer M, Kayipmaz AE, Isik B, Korkut S. Reliability of the pneumonia severity score (PSI) index in patients diagnosed with COVID-19 pneumonia to determine outpatient discharge. *Signa Vitae*. 2021;17(2):48-53. doi:10.22514/sv.2020.16.0074

357. Pena JE de la, Rascon-Pacheco RA, Ascencio-Montiel I de J, et al. Hypertension, Diabetes and Obesity, Major Risk Factors for Death in Patients with COVID-19 in Mexico. *Arch Med Res*. 2021;52(4):443-449. doi:10.1016/j.arcmed.2020.12.002

358. Estiri H, Strasser ZH, Klann JG, Naseri P, Wagholikar KB, Murphy SN. Predicting COVID-19 mortality with electronic medical records. *npj digit med*. 2021;4(1):15. doi:10.1038/s41746-021-00383-x

359. Fagard K, Devriendt E, Gielen E, Flamaing J. COVID-19: Risk factors for severe disease and death in patients aged 70 and over: A retrospective study. *Eur Geriatr Med*. 2020;11(SUPPL 1):S4. doi:10.1007/s41999-020-00428-6

360. Fan Y, Guo T, Yan F, et al. Association of Statin Use With the In-Hospital Outcomes of 2019-Coronavirus Disease Patients: A Retrospective Study. *Front Med (Lausanne)*. 2020;7(101648047):584870. doi:10.3389/fmed.2020.584870

361. Fang H, Liu Q, Xi M, et al. Impact of comorbidities on clinical prognosis in 1280 patients with different types of COVID-19. *J Investig Med*. 2021;69(1):75-85. doi:10.1136/jim-2020-001555

362. Farzan S, Rai S, Cerise J, et al. Asthma and COVID-19: An early inpatient and outpatient experience at a US children's hospital. *Pediatr Pulmonol*. 2021;56(8):2522-2529. doi:10.1002/ppul.25514

363. Lampros A, Poignon C, Blaize M, et al. Occurrence of invasive pulmonary fungal infections in patients with severe COVID-19 admitted to the ICU. *Am J Respir Crit Care Med*. 2021;203(3):307-317. doi:10.1164/rccm.202009-3400OC

364. Feng X, Li P, Ma L, et al. Clinical Characteristics and Short-Term Outcomes of Severe Patients With COVID-19 in Wuhan, China. *Front Med (Lausanne)*. 2020;7:491. doi:10.3389/fmed.2020.00491

365. Ferastraoaru D, Hudes G, Jerschow E, et al. Eosinophilia in Asthma Patients Is Protective Against Severe COVID-19 Illness. *J Allergy Clin Immunol Pract*. 2021;9(3):1152-1162.e3. doi:10.1016/j.jaip.2020.12.045

366. Ferry OR, Moloney EC, Spratt OT, Whiting GFM, Bennett CJ. A virtual ward model of care for patients with COVID-19: Retrospective single-center clinical study. *J Med Internet Res*. 2021;23(2):e25518. doi:10.2196/25518

367. Fisman DN, Tuite R, Greer AL, Hillmer M. Derivation and Validation of Clinical Prediction Rules for COVID-19 Mortality in Ontario, Canada. *Open Forum Infect Dis*. 2020;7(11). doi:10.1093/ofid/ofaa463

368. Floyd GC, Dudley JW, Xiao R, et al. Prevalence of asthma in hospitalized and non-hospitalized children with COVID-19. *J Allergy Clin Immunol Pract*. 2021;9(5):2077-2079.e2. doi:10.1016/j.jaip.2021.02.038

369. Fong WCG, Borca F, Phan H, et al. Asthma did not increase in-hospital COVID-19-related mortality in a tertiary UK hospital. *Clin Exp Allergy*. 2021;51(7):939-941. doi:10.1111/cea.13855

370. Forsblom E, Kortela E, Jarvinen A, et al. Male predominance in disease severity and mortality in a low Covid-19 epidemic and low case-fatality area-a population-based registry study. *Infect Dis*. 2021;((Forsblom, Kortela, Holmberg, Jarvinen) Division of Infectious Diseases, Inflammation Center, Helsinki University Hospital, Helsinki, Finland). doi:10.1080/23744235.2021.1936157

371. Moulton EA, Munoz FM, Hulten KG, et al. Coronavirus Disease 2019 in children cared for at texas children's hospital: Initial clinical characteristics and outcomes. *J Pediatric Infect Dis Soc*. 2021;9(3):373-377. doi:10.1093/JPIDS/PIAA072

372. Gabriel SG, Garcia MJD, Manas GP, Garcia NM, Dominguez MS, Andres EM. Biological markers and follow-up after discharge home of patients with covid-19 pneumonia. *Emerg*. 2021;33(3):174-180.

373. Gad GS. Awake prone positioning versus non invasive ventilation for COVID-19 patients with acute hypoxemic respiratory failure. *Egypt J Anaesth*. 2021;37(1):85-90. doi:10.1080/11101849.2021.1889944

374. Gao S, Jiang F, Jin W, et al. Risk factors influencing the prognosis of elderly patients infected with COVID-19: a clinical retrospective study in Wuhan, China. *Aging (Albany NY)*. 2020;12(13):12504-12516. doi:10.18632/aging.103631

375. Gao C, Cai Y, Zhang K, et al. Association of hypertension and antihypertensive treatment with COVID-19 mortality: a retrospective observational study. *Eur Heart J*. 2020;41(22):2058-2066. doi:10.1093/eurheartj/ehaa433

376. Gao L, Jiang D, Wen XS, et al. Prognostic value of NT-proBNP in patients with severe COVID-19. *Respir Res*. 2020;21(1):83. doi:10.1186/s12931-020-01352-w

377. Garazzino S, Denina M, Tovo PA, et al. Epidemiology, Clinical Features and Prognostic Factors of Pediatric SARS-CoV-2 Infection: Results From an Italian Multicenter Study. *Front Pediatr*. 2021;9((Garazzino, Denina, Tovo, Pruccoli) Pediatric Infectious Diseases Unit, Regina Margherita Children's Hospital, University of Turin, Turin, Italy):649358. doi:10.3389/fped.2021.649358

378. Garcia-Pachon E, Ruiz-Alcaraz S, Baeza-Martinez C, et al. Symptoms in patients with asthma infected by SARS-CoV-2. *Respir Med*. 2021;185(8908438, rme):106495. doi:10.1016/j.rmed.2021.106495

379. Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 - COVID-NET, 14 States, March 1-30, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(15):458-464. doi:10.15585/mmwr.mm6915e3

380. Gavriliu LC, Murariu C, Spataru R, Potop V. Characteristics of the pediatric patients diagnosed with SARS-CoV-2 infection in a Romanian children's hospital: A retrospective study. *PeerJ*. 2021;9((Gavriliu, Spataru) Carol Davila University of Medicine and Farmacy, Bucharest, Romania):e11560. doi:10.7717/peerj.11560

381. Genc AB, Yaylaci S, Dheir H, et al. The predictive and diagnostic accuracy of long pentraxin-3 in COVID-19 pneumonia. *Turk J Med Sci*. 2021;51(2):448-453. doi:10.3906/sag-2011-32

382. Ghanei M, Keyvani H, Haghdoost A, et al. The risk factors and related hospitalizations for cases with positive and negative COVID-19 tests: A case-control study. *Int Immunopharmacol*. 2021;98(d17, 100965259):107894. doi:10.1016/j.intimp.2021.107894

383. Girardin JL, Seixas A, Ramos Cejudo J, et al. Contribution of pulmonary diseases to COVID-19 mortality in a diverse urban community of New York. *Chron respir dis*. 2021;18(101197408):1479973120986806. doi:10.1177/1479973120986806

384. Goel D, Kumar S. Co-morbid conditions in COVID-19 patients in Uttarakhand state of India. *J Glob Health*. 2021;11((Goel, Kumar) Department of Biotechnology, Hemvati Nandan Bahuguna Garhwal University, Srinagar (Garhwal), Uttarakhand, India):03029. doi:10.7189/jogh.11.03029

385. Gomez Antunez M, Muino Miguez A, Bendala Estrada AD, et al. Clinical Characteristics and Prognosis of COPD Patients Hospitalized with SARS-CoV-2. *Int J Chron Obstruct Pulmon Dis*. 2020;15(101273481):3433-3445. doi:10.2147/COPD.S276692

386. Goncalves Mendes Neto A, Lo KB, Wattoo A, et al. Bacterial infections and patterns of antibiotic use in patients with COVID-19. *J Med Virol*. 2021;93(3):1489-1495. doi:10.1002/jmv.26441

387. Gonzalez-Ochoa AJ, Raffetto JD, Hernandez AG, et al. Sulodexide in the Treatment of Patients with Early Stages of COVID-19: A Randomized Controlled Trial. *Thromb Haemost*. 2021;121(7):94-954. doi:10.1055/a-1414-5216

388. Gottlieb M, Sansom S, Frankenberger C, Ward E, Hota B. Clinical Course and Factors Associated With Hospitalization and Critical Illness Among COVID-19 Patients in Chicago, Illinois. *Acad Emerg Med*. 2020;27(10):963-973. doi:10.1111/acem.14104

389. Graff K, Smith C, Silveira L, et al. Risk Factors for Severe COVID-19 in Children. *Pediatr Infect Dis J*. 2021;40(4):e137-e145. doi:10.1097/INF.0000000000003043

390. Guan WJ, Liang WH, Shi Y, et al. Chronic Respiratory Diseases and the Outcomes of COVID-19: A Nationwide Retrospective Cohort Study of 39,420 Cases. *J Allergy Clin Immunol Pract*. 2021;9(7):2645-2655.e14. doi:10.1016/j.jaip.2021.02.041

391. Gude-Sampedro F, Fernandez-Merino C, Ferreiro L, et al. Development and validation of a prognostic model based on comorbidities to predict COVID-19 severity: a population-based study. *Int J Epidemiol*. 2021;50(1):64-74. doi:10.1093/ije/dyaa209

392. Guglielmetti L, Leoni MC, Fronti E, et al. Severe COVID-19 pneumonia in Piacenza, Italy - A cohort study of the first pandemic wave. *J Infect Public Health*. 2021;14(2):263-270. doi:10.1016/j.jiph.2020.11.012

393. Gunal O, Sezer O, Ustun GU, et al. Angiotensin-converting enzyme-1 gene insertion/deletion polymorphism may be associated with COVID-19 clinical severity: A prospective cohort study. *Ann Saudi Med*. 2021;41(3):141-146. doi:10.5144/0256-4947.2021.141

394. Gupta R, Agrawal R, Bukhari Z, et al. Higher comorbidities and early death in hospitalized African-American patients with Covid-19. *BMC Infect Dis*. 2021;21(1):78. doi:10.1186/s12879-021-05782-9

395. Habbu P, Shaikh AK, Deshmukh V. An interpretable mortality prediction model for COVID-19 patients in Solapur-Maharashtra. *Int J Pharm Sci Rev Res*. 2021;66(1):16-19. doi:10.47583/ijpsrr.2021.v66i01.004

396. Hagg S, Jylhava J, Wang Y, et al. Age, Frailty, and Comorbidity as Prognostic Factors for Short-Term Outcomes in Patients With Coronavirus Disease 2019 in Geriatric Care. *J Am Med Dir Assoc*. 2020;21(11):1555. doi:10.1016/j.jamda.2020.08.014

397. Halalau A, Odish F, Imam Z, et al. Epidemiology, Clinical Characteristics, and Outcomes of a Large Cohort of COVID-19 Outpatients in Michigan. *Int J Gen Med*. 2021;14(101515487):1555-1563. doi:10.2147/IJGM.S305295

398. Halvatsiotis P, Kotanidou A, Tzannis K, et al. Demographic and clinical features of critically ill patients with COVID-19 in Greece: The burden of diabetes and obesity. *Diabetes Res Clin Pract*. 2020;166:108331. doi:10.1016/j.diabres.2020.108331

399. Hamed E, Alnuaimi AS, Syed MA, et al. Clinical characteristics of 51,815 patients presenting with positive and negative SARS-CoV-2 swab results in primary health care settings: Priority populations for vaccination. *J Infect*. 2021;82(4):84-123. doi:10.1016/j.jinf.2020.11.014

400. Hansen ESH, Backer V, Moeller AL, et al. Severe outcomes of covid-19 among patients with copd and asthma. *ERJ Open Res*. 2021;7(1):1-9. doi:10.1183/23120541.00594-2020

401. Hashmi MD, Alnababteh M, Vedantam K, Alunikummannil J, Oweis ES, Shorr AF. Assessing the need for transfer to the intensive care unit for Coronavirus-19 disease: Epidemiology and risk factors. *Respir Med*. 2020;174((Hashmi, Alnababteh, Vedantam, Alunikummannil, Oweis, Shorr) From the Medstar Washington Hospital Center, Washington, DC 20010, United States):106203. doi:10.1016/j.rmed.2020.106203

402. He J, Zhang B, Zhou Q, et al. The prognostic value of myocardial injury in COVID-19 patients and associated characteristics. *Immun Inflamm Dis*. 2021;(101635460). doi:10.1002/iid3.484

403. Hejripour SZ, Aslinezhad E, Aval MA, Moradi H, Darvishi M. Association between ct scan findings and mortality in covid-19 cases. *Indian J Forensic Med Toxicol*. 2021;15(2):1806-1812. doi:10.37506/ijfmt.v15i2.14601

404. Heo J, Ha B, Seog W, et al. Prediction of patients requiring intensive care for COVID-19: development and validation of an integer-based score using data from Centers for Disease Control and Prevention of South Korea. *J Intensive Care*. 2021;9(1):16. doi:10.1186/s40560-021-00527-x

405. Hikmawati I, Setiyabudi R. Epidemiology of COVID-19 in Indonesia: common source and propagated source as a cause for outbreaks. *J Infect Dev Ctries*. 2021;15(5):646-652. doi:10.3855/JIDC.14240

406. Ho KS, Howell D, Rogers L, Narasimhan B, Verma H, Steiger D. The relationship between asthma, eosinophilia, and outcomes in coronavirus disease 2019 infection. *Ann Allergy Asthma Immunol*. 2021;127(1):42-48. doi:10.1016/j.anai.2021.02.021

407. Ruiz-Hornillos J, Kilimajer Astudillo J, Seoane-Rodríguez M, Henríquez-Santana A. Risk of SARS-CoV-2 exposure in a hospital-based allergy practice. *Clin Exp Allergy*. 2021;51(1):141-143. doi:10.1111/cea.13786

408. Huang QM, Zhang PD, Li ZH, et al. Genetic Risk and COPD Independently Predict the Risk of Incident Severe COVID-19. *Ann Am Thorac Soc*. 2021;(101600811). doi:10.1513/AnnalsATS.202102-171OC

409. Huang H, Song B, Xu Z, et al. Predictors of coronavirus disease 2019 severity: A retrospective study of 64 cases. *Jpn J Infect Dis*. 2021;74(1):54-60. doi:10.7883/yoken.JJID.2020.298

410. Huang D, Wang T, Chen Z, Yang H, Yao R, Liang Z. A novel risk score to predict diagnosis with coronavirus disease 2019 (COVID-19) in suspected patients: A retrospective, multicenter, and observational study. *J Med Virol*. 2020;92(11):2709-2717. doi:10.1002/jmv.26143

411. Husain Q, Houston S, Shargorodsky J, Kokinakos K, Kuo YH, Zaidi F. Characteristics of COVID-19 smell and taste dysfunction in hospitalized patients. *Am J Otolaryngol Head Neck Med Surg*. 2021;42(6):103068. doi:10.1016/j.amjoto.2021.103068

412. Ihle-Hansen H, Berge T, Tveita A, et al. COVID-19: Symptoms, course of illness and use of clinical scoring systems for the first 42 patients admitted to a Norwegian local hospital. *Tidsskr Nor Laegeforen*. 2020;140(7). doi:10.4045/tidsskr.20.0301

413. Ikari Y, Torii S, Hasegawa M, et al. Association between statin use prior to admission and lower coronavirus disease 2019 (COVID-19) severity in patients with cardiovascular disease or risk factors. *Circ J*. 2021;85(6):939-943. doi:10.1253/circj.CJ-21-0087

414. Imam Z, Odish F, Gill I, et al. Older age and comorbidity are independent mortality predictors in a large cohort of 1305 COVID-19 patients in Michigan, United States. *J Intern Med*. 2020;288(4):469-476. doi:10.1111/joim.13119

415. Inselman JW, Rank MA, Zawada SK, Jeffery MM. Which people with asthma are most likely to be hospitalized with COVID-19 in the United States?. *J Allergy Clin Immunol Pract*. 2021;9(5):2080-2082. doi:10.1016/j.jaip.2021.02.050

416. Ip RJ, Arnautovic J, Meka K, et al. Atrial Fibrillation as a Predictor of Mortality in High Risk COVID-19 Patients: A Multicentre Study of 171 Patients. *Heart Lung Circul*. 2021;30(8):1151-1156. doi:10.1016/j.hlc.2021.02.010

417. Ishii M, Terai H, Kabata H, et al. Clinical characteristics of 345 patients with coronavirus disease 2019 in Japan: A multicenter retrospective study. *J Infect*. 2020;81(5):e3-e5. doi:10.1016/j.jinf.2020.08.052

418. Tahir Z, Al Jarrah A, Izzy S, et al. Characteristics and outcomes of latinx patients with COVID-19 in comparison with other ethnic and racial groups. *Open Forum Infect Dis*. 2020;7(10):1-11. doi:10.1093/ofid/ofaa401

419. Jarkovsky J, Benesova K, Majek O, et al. Covidogram as a simple tool for predicting severe course of COVID-19: Population-based study. *BMJ Open*. 2021;11(2):e045442. doi:10.1136/bmjopen-2020-045442

420. Jarrett SA, Lo KB, Shah S, et al. Comparison of Patient Clinical characteristics and Outcomes Between Different COVID-19 Peak Periods: A Single Center Retrospective Propensity Matched Analysis. *Cureus*. 2021;13(6):e15777. doi:10.7759/cureus.15777

421. Je D, O'Brolchain A, Ulett KB, et al. Demographics, clinical characteristics and outcomes among 197 patients with COVID-19 in the Gold Coast area. *Intern Med J*. 2021;51(5):666-672. doi:10.1111/imj.15260

422. Ji H, Dai Q, Xu K, et al. Epidemiology of 631 cases of COVID-19 identified in Jiangsu Province between January 1st and March 20th 2020: Factors associated with disease severity and analysis of zero mortality. *Med Sci Monit*. 2021;27((Bao, Wu, Ji, Dai, Xu, Ai, Huang, Wu, Hu, Zhu) Department of Acute Infectious Disease Control and Prevention, Jiangsu Provincial Center for Disease Control and Prevention, Nanjing, Jiangsu, China):e929986. doi:10.12659/MSM.929986

423. Jiang Y, He S, Zhang C, et al. Clinical characteristics of 60 discharged cases of 2019 novel coronavirus-infected pneumonia in Taizhou, China. *Ann Transl Med*. 2020;8(8):547. doi:10.21037/atm.2020.04.20

424. Jiang M, Li C, Zheng L, et al. A biomarker-based age, biomarkers, clinical history, sex (ABCS)-mortality risk score for patients with coronavirus disease 2019. *Ann transl med*. 2021;9(3):230. doi:10.21037/atm-20-6205

425. Jiang Y, Abudurexiti S, An MM, Cao D, Wei J, Gong P. Risk factors associated with 28-day all-cause mortality in older severe COVID-19 patients in Wuhan, China: a retrospective observational study. *Sci rep*. 2020;10(1):22369. doi:10.1038/s41598-020-79508-3

426. Jimeno S, Ventura PS, Castellano JM, et al. Prognostic implications of neutrophil-lymphocyte ratio in COVID-19. *Eur J Clin Invest*. 2021;51(1):e13404. doi:10.1111/eci.13404

427. Johnsen S, Sattler SM, Miskowiak KW, et al. Descriptive analysis of long COVID sequelae identified in a multidisciplinary clinic serving hospitalised and non-hospitalised patients. *ERJ open res*. 2021;7(3). doi:10.1183/23120541.00205-2021

428. Jungo S, Moreau N, Mazevet ME, et al. Prevalence and risk indicators of first-wave COVID-19 among oral health-care workers: A French epidemiological survey. *PLoS ONE*. 2021;16(2):e0246586. doi:10.1371/journal.pone.0246586

429. Cavalcante Pinto Junior V, Moura LFWG, Bezerra AS, et al. Prevalence of COVID-19 in children, adolescents and adults in remote education situations in the city of Fortaleza, Brazil. *Int J Infect Dis*. 2021;108((Cavalcante Pinto Junior, Bezerra, de Sousa Dantas, Amaral, Lima) Northeast Biotechnology Network, Graduate Program of Biotechnology, State University of Ceara, Campus do Itaperi, Fortaleza, CE, Brazil):20-26. doi:10.1016/j.ijid.2021.04.086

430. Kaminsky LW, Dalessio S, Al-Shaikhly T, Al-Sadi R. Penicillin Allergy Label Increases Risk of Worse Clinical Outcomes in COVID-19. *J Allergy Clin Immunol Pract*. 2021;(101597220). doi:10.1016/j.jaip.2021.06.054

431. Kang IS, Kong KA. Body mass index and severity/fatality from coronavirus disease 2019: A nationwide epidemiological study in Korea. *PLoS ONE*. 2021;16(6 June):e0253640. doi:10.1371/journal.pone.0253640

432. Kara O, Kara M, Akin ME, Ozcakar L. Grip strength as a predictor of disease severity in hospitalized COVID-19 patients. *Heart Lung*. 2021;50(6):743-747. doi:10.1016/j.hrtlng.2021.06.005

433. Kara AA, Boncuoglu E, Kiymet E, et al. Evaluation of predictors of severe-moderate COVID-19 infections at children: A review of 292 children. *J Med Virol*. 2021;(i9n, 7705876). doi:10.1002/jmv.27237

434. Karaismailoglu E, Karaismailoglu S. Two novel nomograms for predicting the risk of hospitalization or mortality due to COVID-19 by the naive Bayesian classifier method. *J Med Virol*. 2021;93(5):3194-3201. doi:10.1002/jmv.26890

435. Karolyi M, Pawelka E, Mader T, et al. Hydroxychloroquine versus lopinavir/ritonavir in severe COVID-19 patients: Results from a real-life patient cohort. *Wien Klin Wochenschr*. 2021;133(7-8):284-291. doi:10.1007/s00508-020-01720-y

436. Kavalci G. Comparison of the treatment cost of covid-19 and non-covid-19 patients in the intensive care unit. *Erciyes med J*. 2021;43(4):393-396. doi:10.14744/etd.2020.97572

437. Khalil K, Agbontaen K, McNally D, et al. Clinical characteristics and 28-day mortality of medical patients admitted with COVID-19 to a central London teaching hospital. *J Infect*. 2020;81(3):e85-e89. doi:10.1016/j.jinf.2020.06.027

438. Khan AR, Misdary C, Yegya-Raman N, et al. Montelukast in hospitalized patients diagnosed with COVID-19. *J Asthma*. 2021;(hf7, 8106454):1-7. doi:10.1080/02770903.2021.1881967

439. Khan MS, Dogra R, Miriyala LKV, et al. Clinical characteristics and outcomes of patients with Corona Virus Disease 2019 (COVID-19) at Mercy Health Hospitals, Toledo, Ohio. *PLoS ONE*. 2021;16(4):e0250400. doi:10.1371/journal.pone.0250400

440. Khose S, Chan HK, Wang HE, Moore JX. Predictors for County Level Variations in Initial 4-week COVID-19 Incidence and Case Fatality Risk in the United States. *Res Sq*. 2020;(101768035). doi:10.21203/rs.3.rs-131858/v1

441. Kim HS, Kang M, Kang G. Renin-angiotensin system modulators and other risk factors in COVID-19 patients with hypertension: a Korean perspective. *BMC Infect Dis*. 2021;21(1):175. doi:10.1186/s12879-021-05848-8

442. Kim E, Kim H, Kim YC, Park JY, Jung J, Lee JP. Evaluation of the prognosis of covid-19 patients according to the presence of underlying diseases and drug treatment. *Int J Environ Res Public Health*. 2021;18(10):5342. doi:10.3390/ijerph18105342

443. Kim HJ, Han D, Kim JH, et al. An easy-to-use machine learning model to predict the prognosis of patients with COVID-19: Retrospective cohort study. *J Med Internet Res*. 2020;22(11):e24225. doi:10.2196/24225

444. Kivrak M, Guldogan E, Colak C. Prediction of death status on the course of treatment in SARS-COV-2 patients with deep learning and machine learning methods. *Comput Methods Programs Biomed*. 2021;201((Kivrak, Guldogan, Colak) Inonu University, Faculty of Medicine, Department of Biostatistics and Medical Informatics, Malatya, Turkey):105951. doi:10.1016/j.cmpb.2021.105951

445. Klapholz M, Pentakota SR, Zertuche JP, et al. Matched Cohort Study of Convalescent COVID-19 Plasma Treatment in Severely or Life Threateningly Ill COVID-19 Patients. *Open Forum Infect Dis*. 2021;8(2):ofab001. doi:10.1093/ofid/ofab001

446. Knight D, Munipalli B, Halkar MG, et al. Symptoms and Clinical Outcomes of Coronavirus Disease 2019 in the Outpatient Setting. *SN Compr Clin Med*. 2021;3(1):247-254. doi:10.1007/s42399-021-00746-1

447. Kocayigit H, Ozmen Suner K, Tomak Y, et al. Characteristics and outcomes of critically ill patients with covid-19 in Sakarya, Turkey: A single centre cohort study. *Turk J Med Sci*. 2021;51(2):440-447. doi:10.3906/sag-2005-57

448. Kokturk N, Babayigit C, Kul S, et al. The predictors of COVID-19 mortality in a nationwide cohort of Turkish patients. *Respir Med*. 2021;183(8908438, rme):106433. doi:10.1016/j.rmed.2021.106433

449. Kompaniyets L, Agathis NT, Nelson JM, et al. Underlying Medical Conditions Associated with Severe COVID-19 Illness among Children. *JAMA Netw Open*. 2021;((Kompaniyets, Agathis, Nelson, Preston, Ko, Belay, Pennington, Danielson, Desisto, Chevinsky, Schieber, Yusuf, Baggs, Mac Kenzie, Wong, Boehmer, Gundlapalli, Goodman) COVID-19 Response, US Centers for Disease Control and Prevention, MS S107-5, 4770 Buford Hwy, Atlanta, GA 30341, United States):e2111182. doi:10.1001/jamanetworkopen.2021.11182

450. Krishnamoorthy G, Arsene C, Jena N, et al. Racial disparities in COVID-19 hospitalizations do not lead to disparities in outcomes. *Public Health*. 2021;190(qi7, 0376507):93-98. doi:10.1016/j.puhe.2020.11.021

451. Krishnan S, Patel K, Desai R, et al. Clinical comorbidities, characteristics, and outcomes of mechanically ventilated patients in the State of Michigan with SARS-CoV-2 pneumonia. *J Clin Anesth*. 2020;67:110005. doi:10.1016/j.jclinane.2020.110005

452. Laake JH, Buanes EA, Smastuen MC, et al. Characteristics, management and survival of ICU patients with coronavirus disease-19 in Norway, March-June 2020. A prospective observational study. *Acta Anaesthesiol Scand*. 2021;65(5):618-628. doi:10.1111/aas.13785

453. Lanini S, Montaldo C, Nicastri E, et al. COVID-19 disease-Temporal analyses of complete blood count parameters over course of illness, and relationship to patient demographics and management outcomes in survivors and non-survivors: A longitudinal descriptive cohort study. *PLoS ONE*. 2020;15(12):e0244129. doi:10.1371/journal.pone.0244129

454. Messaggio E, Lanzani C, Simonini M, et al. Role of blood pressure dysregulation on kidney and mortality outcomes in COVID-19. Kidney, blood pressure and mortality in SARS-CoV-2 infection. *J Nephrol*. 2021;34(2):305-314. doi:10.1007/s40620-021-00997-0

455. Larrazabal RB, Perez BMB, Masamayor EMI, Chiu HHC, Palileo-Villanueva LAM. The prevalence of malnutrition and analysis of related factors among adult patients with the Coronavirus Disease 2019 (COVID 19) in a tertiary government hospital: The MalnutriCoV study. *Clin Nutr ESPEN*. 2021;42((Larrazabal, Perez, Masamayor) Department of Medicine, Philippine General Hospital, University of the Philippines Manila, Philippines):98-104. doi:10.1016/j.clnesp.2021.02.009

456. Lauriola M, Pani A, Scaglione F, et al. Effect of Combination Therapy of Hydroxychloroquine and Azithromycin on Mortality in Patients With COVID-19. *Clin Transl Sci*. 2020;13(6):1071-1076. doi:10.1111/cts.12860

457. Lechien JR, Chiesa-Estomba CM, Place S, et al. Clinical and epidemiological characteristics of 1420 European patients with mild-to-moderate coronavirus disease 2019. *J Intern Med*. 2020;288(3):335-344. doi:10.1111/joim.13089

458. Lee HY, Ahn J, Park J, et al. Beneficial Effect of Statins in COVID-19-Related Outcomes-Brief Report: A National Population-Based Cohort Study. *Arterioscler Thromb Vasc Biol*. 2021;41(3):e175-e182. doi:10.1161/ATVBAHA.120.315551

459. Lee KK, Doudesis D, Ross DA, et al. Diagnostic performance of the combined nasal and throat swab in patients admitted to hospital with suspected COVID-19. *BMC Infect Dis*. 2021;21(1):318. doi:10.1186/s12879-021-05976-1

460. Lee SW, Moon SY, Ha EK, et al. Severe clinical outcomes of COVID-19 associated with proton pump inhibitors: A nationwide cohort study with propensity score matching. *Gut*. 2021;70(1):76-84. doi:10.1136/gutjnl-2020-322248

461. Lee SC, Son KJ, Han CH, Jung JY, Park SC. Impact of comorbid asthma on severity of coronavirus disease (COVID-19). *Sci rep*. 2020;10(1):21805. doi:10.1038/s41598-020-77791-8

462. Lee SC, Son KJ, Han CH, Park SC, Jung JY. Impact of COPD on COVID-19 prognosis: A nationwide population-based study in South Korea. *Sci rep*. 2021;11(1):3735. doi:10.1038/s41598-021-83226-9

463. Leijte WT, Wagemaker NMM, van Kraaij TDA, et al. [Mortality and re-admission after hospitalization with COVID-19]. *Ned Tijdschr Geneeskd*. 2020;164(nuk, 0400770).

464. Leth S, Mathiasen V, Hansen K, et al. Persistent symptoms in patients recovering from COVID-19 in Denmark. *Open Forum Infect Dis*. 2021;8(4):ofab042. doi:10.1093/ofid/ofab042

465. Lei J, Gong G, Zhang M, et al. Mortality risk of COVID-19 in elderly males with comorbidities: a multi-country study. *Aging (Albany NY)*. 2020;13(1):27-60. doi:10.18632/aging.202456

466. Li J, Rong L, Cui R, et al. Dynamic changes in serum IL-6, IL-8, and IL-10 predict the outcome of ICU patients with severe COVID-19. *Ann palliat med*. 2021;10(4):3706-3714. doi:10.21037/apm-20-2134

467. Li S, Li Z, Chen L, et al. Epidemiological and clinical characteristics of suspected COVID-19 patients in the isolation ward in Guangzhou, China: A cohort study. *Ann Transl Med*. 2021;9(8):621. doi:10.21037/atm-20-6600

468. Li Y, Wu J, Li X, et al. Progression to fibrosing diffuse alveolar damage in a series of 30 minimally invasive autopsies with COVID-19 pneumonia in Wuhan, China. *Histopathology*. 2021;78(4):542-555. doi:10.1111/his.14249

469. Li C, Chen L, Li Y, et al. Comparison of clinical and serological features of RT-PCR positive and negative COVID-19 patients. *J Int Med Res*. 2021;49(2). doi:10.1177/0300060520972658

470. Li Q, Kang H, Zhou F, Hu P. Clinical Characteristics and Short-Term Outcomes of Acute Kidney Injury Missed Diagnosis in Older Patients with Severe COVID-19 in Intensive Care Unit. *J Nutr Health Aging*. 2021;25(4):492-500. doi:10.1007/s12603-020-1550-x

471. Li Q, Ling Y, Zhang J, et al. Clinical Characteristics of SARS-CoV-2 Infections Involving 325 Hospitalized Patients outside Wuhan. Published online October 20, 2021. doi:10.21203/rs.3.rs-18699/v1

472. Li L, Yang L, Gui S, et al. Association of clinical and radiographic findings with the outcomes of 93 patients with COVID-19 in Wuhan, China. *Theranostics*. 2020;10(14):6113-6121. doi:10.7150/thno.46569

473. Lian JS, Cai H, Hao SR, et al. Comparison of epidemiological and clinical characteristics of COVID-19 patients with and without Wuhan exposure history in Zhejiang Province, China. *J Zhejiang Univ Sci B*. 2020;21(5):369-377. doi:10.1631/jzus.B2000112

474. Liang K, Cui M, Zhai S, et al. Clinical Features of COVID-19 Patients With Venous Thromboembolism. *Clin Appl Thromb Hemost*. 2021;27((Liang, Cui, Zhai) Department of Vascular Surgery, Henan Provincial People's Hospital, the Affiliated People's Hospital of Zhengzhou University, Affiliated People's Hospital of Henan University, Zhengzhou, Henan, China). doi:10.1177/10760296211013104

475. Lieveld AWE, Schuit FH, Nanayakkara PWB, et al. Diagnosing covid-19 pneumonia in a pandemic setting: Lung ultrasound versus ct (luvct) - a multicentre, prospective, observational study. *ERJ Open Res*. 2020;6(4):00539-02020. doi:10.1183/23120541.00539-2020

476. Lim JK, Park B, Park J, et al. Impact of computed tomography-quantified emphysema score on clinical outcome in patients with COVID-19. *Int J Gen Med*. 2021;14((Lim, Park, Park) Department of Radiology, School of Medicine, Kyungpook National University, Daegu, South Korea):3327-3333. doi:10.2147/IJGM.S317295

477. Lin KJ, Schneeweiss S, Tesfaye H, et al. Pharmacotherapy for Hospitalized Patients with COVID-19: Treatment Patterns by Disease Severity. *Drugs*. 2020;80(18):1961-1972. doi:10.1007/s40265-020-01424-7

478. Liu J, Zhang S, Zhang L, et al. Clinical outcomes of COVID-19 in Wuhan, China: a large cohort study. *Ann Intensive Care*. 2020;10(1):99. doi:10.1186/s13613-020-00706-3

479. Liu M, Lv F, Huang Y, Xiao K. Follow-Up Study of the Chest CT Characteristics of COVID-19 Survivors Seven Months After Recovery. *Front Med*. 2021;8((Liu, Lv, Huang) Department of Radiology, The First Affiliated Hospital of Chongqing Medical University, Chongqing, China):636298. doi:10.3389/fmed.2021.636298

480. Liu C, Wen Y, Wan W, Lei J, Jiang X. Clinical characteristics and antibiotics treatment in suspected bacterial infection patients with COVID-19. *Int Immunopharmacol*. 2021;90((Liu, Wen, Wan, Lei, Jiang) Department of Cardiology, Renmin Hospital of Wuhan University, Wuhan, Hubei 430060, China):107157. doi:10.1016/j.intimp.2020.107157

481. Liu X, Lv J, Zhang Y, et al. Comparative analysis of clinical characteristics, imaging and laboratory findings of different age groups with COVID-19. *Indian J Med Microbiol*. 2020;38(1):87-93. doi:10.4103/ijmm.IJMM_20_133

482. Liu YH, Wang YR, Wang QH, et al. Post-infection cognitive impairments in a cohort of elderly patients with COVID-19. *Mol Neurodegeneration*. 2021;16(1):48. doi:10.1186/s13024-021-00469-w

483. Liu P, Tang Y, Tang W, et al. Epidemiological and clinical features in patients with coronavirus disease 2019 outside of wuhan, china: Special focus in asymptomatic patients. *PLoS Negl Trop Dis*. 2021;15(3):e0009248. doi:10.1371/journal.pntd.0009248

484. Bienvenida A, Leung S, Mbanya A, et al. Clinical, behavioural and social factors associated with racial disparities in COVID-19 patients from an integrated healthcare system in Georgia: a retrospective cohort study. *BMJ Open*. 2021;11(5):e044052. doi:10.1136/bmjopen-2020-044052

485. Loerinc LB, Scheel AM, Evans ST, Shabto JM, O'Keefe GA, O'Keefe JB. Discharge characteristics and care transitions of hospitalized patients with COVID-19. *Healthcare*. 2021;9(1):100512. doi:10.1016/j.hjdsi.2020.100512

486. Lopez-Castaneda S, García-Larragoiti N, Cano-Mendez A, et al. Inflammatory and Prothrombotic Biomarkers Associated With the Severity of COVID-19 Infection. *Clin Appl Thromb Hemost*. 2021;27:1076029621999099. doi:10.1177/1076029621999099

487. Lotfy SM, Abbas A, Shouman W. Use of hydroxychloroquine in patients with covid-19: A retrospective observational study. *Turk Thorac J*. 2021;22(1):62-66. doi:10.5152/TurkThoracJ.2021.20180

488. Lozano-Cruz OA, Jimenez JV, Ortiz-Brizuela E, et al. Adverse Effects Associated With the Use of Antimalarials During The COVID-19 Pandemic in a Tertiary Care Center in Mexico City. *Front Pharmacol*. 2021;12((Lozano-Cruz, Jimenez, Olivas-Martinez, Ortiz-Brizuela, Cardenas-Fragoso, Azamar-Llamas, Rodriguez-Rodriguez, Gulias-Herrero) Department of Medicine, Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico City, Mexico):668678. doi:10.3389/fphar.2021.668678

489. Lu JQ, Musheyev B, Peng Q, Duong TQ. Neural network analysis of clinical variables predicts escalated care in COVID-19 patients: A retrospective study. *PeerJ*. 2021;9((Lu, Musheyev, Peng, Duong) Department of Radiology, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY, United States):e11205. doi:10.7717/peerj.11205

490. Lu QB, Jiang WL, Zhang X, et al. Comorbidities for fatal outcome among the COVID-19 patients: A hospital-based case-control study. *J Infect*. 2021;82(1):159-198. doi:10.1016/j.jinf.2020.07.026

491. Annie FH, Sirbu C, Frazier KR, Broce M, Lucas BD. Hydroxychloroquine in Hospitalized Patients with COVID-19: Real-World Experience Assessing Mortality. *Pharmacotherapy*. 2020;40(11):1072-1081. doi:10.1002/phar.2467

492. Chen W, Pavord ID, Chen YL, et al. Pre-existing asthma as a comorbidity does not modify cytokine responses and severity of COVID-19. *Allergy Asthma Clin Immunol*. 2021;17(1):67. doi:10.1186/s13223-021-00569-8

493. Lv Z, Cheng S, Le J, et al. Clinical characteristics and co-infections of 354 hospitalized patients with COVID-19 in Wuhan, China: a retrospective cohort study. *Microbes Infect*. 2020;22(4-5):195-199. doi:10.1016/j.micinf.2020.05.007

494. Jin YX, Ding HB, Wang CY, et al. High serum lactate dehydrogenase and dyspnea: Positive predictors of adverse outcome in critical COVID-19 patients in Yichang. *World J Clin Cases*. 2020;8(22):5535-5546. doi:10.12998/WJCC.V8.I22.5535

495. Mata-Vazquez E, Martin-Toledano M, Lopez-Larramona G, et al. Long-term outcomes of patients with coronavirus disease 2019 at one year after hospital discharge. *J Clin Med*. 2021;10(13):2945. doi:10.3390/jcm10132945

496. Maestre-Muniz MM, Angulo-Lara B, Arias A, Arias-Gonzalez L, Lucendo AJ. Prognostic factors at admission for in-hospital mortality from COVID-19 infection in an older rural population in central Spain. *J Clin Med*. 2021;10(2):1-12. doi:10.3390/jcm10020318

497. Maguire D, Woods M, Richards C, et al. Prognostic factors in patients admitted to an urban teaching hospital with COVID-19 infection. *J Transl Med*. 2020;18(1):354. doi:10.1186/s12967-020-02524-4

498. Maguire D, Richards C, Woods M, et al. The systemic inflammatory response and clinicopathological characteristics in patients admitted to hospital with COVID-19 infection: Comparison of 2 consecutive cohorts. *PLoS ONE*. 2021;16(5):e0251924. doi:10.1371/journal.pone.0251924

499. Mahavar S, Tyagi P, Agrawal A, et al. Clinical and epidemiological profile of Indian COVID-19 patients from Jaipur: a descriptive study. *Monaldi Arch Chest Dis*. 2021;91(2). doi:10.4081/monaldi.2021.1377

500. Malavazos AE, Secchi F, Basilico S, et al. Abdominal obesity phenotype is associated with COVID-19 chest X-ray severity score better than BMI-based obesity. *Eat Weight Disord*. 2021;(di1, 9707113). doi:10.1007/s40519-021-01173-w

501. Mallow PJ, Belk KW, Topmiller M, Hooker EA. Outcomes of hospitalized COVID-19 patients by risk factors: Results from a United States hospital claims database. *J Health Econ Outcomes Res*. 2020;7(2):165-174. doi:10.36469/JHEOR.2020.17331

502. Maniscalco M, Ambrosino P, Fuschillo S, et al. Bronchodilator reversibility testing in post-COVID-19 patients undergoing pulmonary rehabilitation. *Respir Med*. 2021;182(8908438, rme):106401. doi:10.1016/j.rmed.2021.106401

503. Manjiyil IJ, Areekal B, Jose R, et al. Original article clinicoepidemiological profile and outcome of COVID-19 positive health care workers in a tertiary care centre in south India microbiology section. *J Clin Diagn Res*. 2021;15(7):DC1-DC5. doi:10.7860/JCDR/2021/50209.15021

504. Mao B, Liu Y, Chai YH, et al. Assessing risk factors for SARS-CoV-2 infection in patients presenting with symptoms in Shanghai, China: a multicentre, observational cohort study. *Lancet Digit Health*. 2020;2(6):e323-e330. doi:10.1016/S2589-7500(20)30109-6

505. Kalyanaraman Marcello R, Dolle J, Grami S, et al. Characteristics and outcomes of COVID-19 patients in New York City's public hospital system. *PLoS One*. 2020;15(12):e0243027. doi:10.1371/journal.pone.0243027

506. Marcolino MS, Souza-Silva MVR, Nascimento IJB, et al. Clinical characteristics and outcomes of patients hospitalized with COVID-19 in Brazil: Results from the Brazilian COVID-19 registry. *Int J Infect Dis*. 2021;107((Marcolino, Souza-Silva, Nascimento, Monteiro, Martins) Medical School and University Hospital, Universidade Federal de Minas Gerais, Avenida Professor Alfredo Balena 190 sala 246, Belo Horizonte, Brazil):300-310. doi:10.1016/j.ijid.2021.01.019

507. Margolis RHF, Patel SJ, Sheehan WJ, et al. Association between pediatric asthma and positive tests for SARS-CoV-2 in the District of Columbia. *J Allergy Clin Immunol Pract*. 2021;(101597220). doi:10.1016/j.jaip.2021.06.036

508. Marron RM, Zheng M, Romero GF, et al. Impact of chronic obstructive pulmonary disease and emphysema on outcomes of hospitalized patients with COVID-19 pneumonia. *Chronic Obstr Pulm Dis*. 2021;8(2). doi:10.15326/JCOPDF.2020.0200

509. Martins-Filho PR, de Souza Araujo AA, Quintans-Junior LJ, et al. Factors associated with mortality among hospitalized patients with covid-19: A retrospective cohort study. *Am J Trop Med Hyg*. 2021;104(1):103-105. doi:10.4269/AJTMH.20-1170

510. Martos-Benitez FD, Soler-Morejon CD, Garcia-Del Barco D. Chronic comorbidities and clinical outcomes in patients with and without COVID-19: a large population-based study using national administrative healthcare open data of Mexico. *Intern emerg medicine*. 2021;(101263418). doi:10.1007/s11739-020-02597-5

511. Mascolo P, Feola A, Zangani P, et al. A Descriptive Study on Causes of Death in Hospitalized Patients in an Acute General Hospital of Southern Italy during the Lockdown due to Covid-19 Outbreak. *Healthcare*. 2021;9(2):1-12. doi:10.3390/healthcare9020119

512. Mash RJ, Presence-Vollenhoven M, Hendrikse A, et al. Evaluation of patient characteristics, management and outcomes for COVID-19 at district hospitals in the Western Cape, South Africa: Descriptive observational study. *BMJ Open*. 2021;11(1):e047016. doi:10.1136/bmjopen-2020-047016

513. Mashaqi S, Lee-Iannotti J, Rangan P, et al. Obstructive sleep apnea and COVID-19 clinical outcomes during hospitalization: a cohort study. *J Clin Sleep Med*. 2021;(101231977). doi:10.5664/jcsm.9424

514. Mather JF, Mosleh W, McKay RG. The impact of asthma on in-hospital outcomes of COVID-19 patients. *J Asthma*. 2021;(hf7, 8106454):1-7. doi:10.1080/02770903.2021.1944187

515. Mendy A, Wu X, Keller JL, et al. Long-term exposure to fine particulate matter and hospitalization in COVID-19 patients. *Respir Med*. 2021;178(8908438, rme):106313. doi:10.1016/j.rmed.2021.106313

516. Meng Y, Wu P, Lu W, et al. Sex-specific clinical characteristics and prognosis of coronavirus disease-19 infection in Wuhan, China: A retrospective study of 168 severe patients. *PLoS Pathog*. 2020;16(4):e1008520. doi:10.1371/journal.ppat.1008520

517. Metbulut AP, Mustafaoglu O, Sen G, et al. Evaluation of the Clinical and Laboratory Findings of Asthmatic Children with SARS-CoV-2 Infection. *Int Arch Allergy Immunol*. 2021;(bj7, 9211652):1-8. doi:10.1159/000517153

518. Miro O, Alquezar-Arbe A, Llorens P, et al. [Comparison of the demographic characteristics and comorbidities of patients with COVID-19 who died in Spanish hospitals based on whether they were or were not admitted to an intensive care unit]. *Med Intensiva (Engl Ed)*. 2021;45(1):14-26. doi:10.1016/j.medin.2020.09.002

519. Mithal A, Jevalikar G, Sharma R, et al. High prevalence of diabetes and other comorbidities in hospitalized patients with COVID-19 in Delhi, India, and their association with outcomes. *Diabetes Metab Syndr Clin Res Rev*. 2021;15(1):169-175. doi:10.1016/j.dsx.2020.12.029

520. Mitsumura T, Okamoto T, Shirai T, et al. Predictors associated with clinical improvement of SARS-CoV-2 pneumonia. *J Infect Chemother*. 2021;27(6):857-863. doi:10.1016/j.jiac.2021.02.012

521. Moghaddam A, Heller RA, Sun Q, et al. Selenium Deficiency Is Associated with Mortality Risk from COVID-19. *Nutrients*. 2020;12(7):E2098. doi:10.3390/nu12072098

522. Mohamed NE, Benn EKT, Astha V, et al. Association between chronic kidney disease and COVID-19-related mortality in New York. *World J Urol*. 2021;(bry, 8307716). doi:10.1007/s00345-020-03567-4

523. Mohammadi F, Pourzamani H, Karimi H, et al. Artificial neural network and logistic regression modelling to characterize COVID-19 infected patients in local areas of Iran. *Biomed j*. 2021;(101599820). doi:10.1016/j.bj.2021.02.006

524. Molina-Aguila N, Cruz-Rodriguez E, Ferran-Torres RM, et al. Clinical-epidemiological characteristics of the first patients diagnosed with COVID-19 in Cuba. *MEDICC Rev*. 2021;23(2):15-20. doi:10.37757/MR2021.V23.N2.3

525. Momeni-Boroujeni A, Mendoza R, Stopard IJ, Lambert B, Zuretti A. A Dynamic Bayesian Model for Identifying High-Mortality Risk in Hospitalized COVID-19 Patients. *Infect dis reports*. 2021;13(1):239-250. doi:10.3390/idr13010027

526. Monari C, Sagnelli C, Camaioni C, et al. More Severe COVID-19 in Patients With Active Cancer: Results of a Multicenter Cohort Study. *Front Oncol*. 2021;11((Monari, Sagnelli, Camaioni, Coppola) Infectious Diseases Unit, Department of Mental Health and Public Medicine, University of Campania "L. Vanvitelli," Naples, Italy):662746. doi:10.3389/fonc.2021.662746

527. Monterrubio-Flores E, Ramirez-Villalobos MD, Espinosa-Montero J, et al. Characterizing a two-pronged epidemic in Mexico of non-communicable diseases and SARS-Cov-2: factors associated with increased case-fatality rates. *Int J Epidemiol*. 2021;50(2):430-445. doi:10.1093/ije/dyab008

528. Moon SJ, Rhee EJ, Lee WY, et al. Independent impact of diabetes on the severity of coronavirus disease 2019 in 5,307 patients in South Korea: A nationwide cohort study. *Diabetes Metab J*. 2020;44(5):737-746. doi:10.4093/dmj.2020.0141

529. Moriyama D, Lowy J, Scherer JS, Sullivan R, Berger JT. The Impact of COVID-19 Surge on Clinical Palliative Care: A Descriptive Study From a New York Hospital System. *J Pain Symptom Manage*. 2021;61(3):e1-e5. doi:10.1016/j.jpainsymman.2020.12.011

530. Tabarsi P, Mortaz E, Varahram M, Folkerts G, Adcock IM. The Immune Response and Immunopathology of COVID-19. *Front Immunol*. 2020;11((Mortaz, Tabarsi) Clinical Tuberculosis and Epidemiology Research Center, National Research Institute of Tuberculosis and Lung Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic of):2037. doi:10.3389/fimmu.2020.02037

531. Mostaghim A, Bielick C, Sinha P, et al. Clinical outcomes and inflammatory marker levels in patients with Covid-19 and obesity at an inner-city safety net hospital. *PLoS ONE*. 2020;15(12 December):e0243888. doi:10.1371/journal.pone.0243888

532. Mughal MS, Kaur IP, Jaffery AR, et al. COVID-19 patients in a tertiary US hospital: Assessment of clinical course and predictors of the disease severity. *Respir Med*. 2020;172:106130. doi:10.1016/j.rmed.2020.106130

533. Muhammad S, Fischer I, Kahlert UD, et al. Systemic inflammatory index is a novel predictor of intubation requirement and mortality after SARS-CoV-2 infection. *Pathogens*. 2021;10(1):1-9. doi:10.3390/pathogens10010058

534. Chilufya C, Malama K, Chirwa L, et al. Prevalence of SARS-CoV-2 in six districts in Zambia in July, 2020: a cross-sectional cluster sample survey. *Lancet Global Health*. 2021;9(6):e773-e781. doi:10.1016/S2214-109X%2821%2900053-X

535. Munker D, Veit T, Barton J, et al. Pulmonary function impairment of asymptomatic and persistently symptomatic patients 4 months after COVID-19 according to disease severity. *Infection*. 2021;(go8, 0365307). doi:10.1007/s15010-021-01669-8

536. Muñoz X, Pilia F, Ojanguren I, Romero-Mesones C, Cruz MJ. Is asthma a risk factor for COVID-19? Are phenotypes important? *ERJ Open Res*. 2021;7(1):00216-02020. doi:10.1183/23120541.00216-2020

537. Duong TQ, Musheyev B, Singh G, et al. Functional status of mechanically ventilated COVID-19 survivors at ICU and hospital discharge. *J Intensive Care*. 2021;9(1):31. doi:10.1186/s40560-021-00542-y

538. Myint PK, Bruce E, Carter B, et al. Routine use of immunosuppressants is associated with mortality in hospitalised patients with COVID-19. *Ther Adv Drug Saf*. 2021;12((Myint, Bruce) Institute of Applied Health Science, University of Aberdeen, Aberdeen, United Kingdom). doi:10.1177/2042098620985690

539. Eleni M, Evangelia M, Eleftheria K, et al. Clinical features and outcomes of hospitalized COVID-19 patients in a low burden region. *Pathog Global Health*. 2021;115(4):243-249. doi:10.1080/20477724.2021.1893485

540. Nagase H, Nishimura Y, Matsumoto H, et al. The prevalence of comorbid respiratory disease among COVID-19 patients, and mortality during the first wave in Japan: A nationwide survey by the Japanese Respiratory Society. *Respir Investig*. 2021;(101581124). doi:10.1016/j.resinv.2021.06.008

541. Nair V, Jandovitz N, Hirsch JS, et al. An early experience on the effect of solid organ transplant status on hospitalized COVID-19 patients. Birabaharan M BH Bolourani S, Caruso VA, Cohen SL, Dominello AJ, Falzon L, Cookingham J, Johnson JC, Minaya J, Keel T, Khatri A, Koshy RV, Kozel ZM, Kvasnovsky C, Lesser M, Maria NI, Mogavero JN, Monane R, Najjar S, Ng J, Saif MW, Sheppard A, Sison C, Stevens GR, Tan D, Vullaganti S, ed. *Am J Transplant*. 2021;21(7):2522-2531. doi:10.1111/ajt.16460

542. Nakeshbandi M, Maini R, Daniel P, et al. The impact of obesity on COVID-19 complications: a retrospective cohort study. *Int J Obes (Lond)*. 2020;44(9):1832-1837. doi:10.1038/s41366-020-0648-x

543. Namendys-Silva SA, Gutierrez-Villasenor A, Romero-Gonzalez JP. Hospital mortality in mechanically ventilated COVID-19 patients in Mexico. *Intensive Care Med*. 2020;46(11):2086-2088. doi:10.1007/s00134-020-06256-3

544. Nanda S, Vincent A, Fischer KM, et al. A Midwest COVID-19 Cohort for the Evaluation of Multimorbidity and Adverse Outcomes from COVID-19. *J Prim Care Community Health*. 2021;12((Nanda, Vincent, Fischer, Hurt, Schroeder, Chacin Suarez, Medina Inojosa, O'Horo, DeJesus, Abu Lebdeh, Mundi, Iftikhar, Croghan) Mayo Clinic, MN, Rochester, United States):21501327211010990. doi:10.1177/21501327211010991

545. Blessing EM, Nemani K, Goff DC, et al. Association of Psychiatric Disorders with Mortality among Patients with COVID-19. *JAMA Psychiatry*. 2021;78(4):380-386. doi:10.1001/jamapsychiatry.2020.4442

546. Newton S, Zollinger B, Freeman J, et al. Factors associated with clinical severity in emergency department patients presenting with symptomatic SARS-CoV-2 infection. *J Am Coll Emerg Physicians Open*. 2021;2(4):e12453. doi:10.1002/emp2.12453

547. Ng DCE, Chin L, Lee ML, et al. Clinical and epidemiological characteristics of children with COVID-19 in Negeri Sembilan, Malaysia. *Int J Infect Dis*. 2021;108((Ng, Chin, Lee) Department of Paediatrics, Hospital Tuanku Ja'afar Seremban, Malaysia):347-352. doi:10.1016/j.ijid.2021.05.073

548. Nowak B, Szymański P, Pańkowski I, et al. Clinical characteristics and short-term outcomes of patients with coronavirus disease 2019: a retrospective single-center experience of a designated hospital in Poland. *Pol Arch Intern Med*. 2020;130(5):407-411. doi:10.20452/pamw.15361

549. Mveang Nzoghe A, Padzys GS, Maloupazoa Siawaya AC, et al. Dynamic and features of SARS-CoV-2 infection in Gabon. *Sci rep*. 2021;11(1):9672. doi:10.1038/s41598-021-87043-y

550. Oduro-Mensah E, Tetteh J, Adomako I, et al. Clinical features of COVID-19 in Ghana: symptomatology, illness severity and comorbid non-communicable diseases. *Ghana Med J*. 2020;54(4 Suppl):23-32. doi:10.4314/gmj.v54i4s.5

551. Oh TK, Song IA. Impact of coronavirus disease-2019 on chronic respiratory disease in South Korea: an NHIS COVID-19 database cohort study. *BMC polm med*. 2021;21(1):12. doi:10.1186/s12890-020-01387-1

552. Oliva A, Ceccarelli G, Borrazzo C, et al. Comparison of clinical features and outcomes in COVID-19 and influenza pneumonia patients requiring intensive care unit admission. *Infection*. 2021;(go8, 0365307). doi:10.1007/s15010-021-01624-7

553. Gleye S, Callet J, Barbe F, et al. Long-term ACE Inhibitor/ARB Use Is Associated with Severe Renal Dysfunction and Acute Kidney Injury in Patients with Severe COVID-19: Results from a Referral Center Cohort in the Northeast of France. *Clin Infect Dis*. 2020;71(9):2447-2456. doi:10.1093/cid/ciaa677

554. Outh R, Boutin C, Gueudet P, Suzuki M, Saada M, Aumaitre H. Eosinopenia <100/muL as a marker of active COVID-19: An observational prospective study. *J Microbiol Immunol Infect*. 2021;54(1):61-68. doi:10.1016/j.jmii.2020.12.005

555. Ozger HS, Aysert Yildiz P, Demirbas Z, et al. The factors predicting pneumonia in covid-19 patients: Preliminary results from a university hospital in Turkey. *Turk J Med Sci*. 2020;50(8):1810-1816. doi:10.3906/sag-2005-385

556. Ozsoy IE, Tezcan MA, Guzeldag S, Ozdemir AT. Is Spontaneous Pneumomediastinum a Poor Prognostic Factor in Covid-19?. *J Coll Physicians Surg Pak*. 2021;31(2):132-137. doi:10.29271/jcpsp.2021.02.132

557. Ozturk S, Cebeci E, Turgutalp K, et al. Impact of hospital-acquired acute kidney injury on covid-19 outcomes in patients with and without chronic kidney disease: A multicenter retrospective cohort study. *Turk J Med Sci*. 2021;51(3):947-961. doi:10.3906/sag-2011-169

558. Padilla-Raygoza N, Vega-Jimenez OU, Juarez AG, et al. Effect of Co-morbidities on mortality from COVID-19 in Mexico: An ecological study. *Biomed Pharmacol J*. 2021;14(1):7-13. doi:10.13005/bpj/2095

559. Padilla-Raygoza N, Sandoval-Salazar C, Ramirez-Gomez XS, et al. Status of novel coronavirus disease and analysis of mortality in Mexico, until June 30th, 2020: An ecological study. *Biomed Pharmacol J*. 2020;13(4):1781-1790. doi:10.13005/BPJ/2053

560. Pakos IS, Lo KB, Salacup G, et al. Characteristics of peripheral blood differential counts in hospitalized patients with COVID-19. *Eur J Haematol*. 2020;105(6):773-778. doi:10.1111/ejh.13509

561. Pan W, Zhang J, Wang M, et al. Clinical Features of COVID-19 in Patients With Essential Hypertension and the Impacts of Renin-angiotensin-aldosterone System Inhibitors on the Prognosis of COVID-19 Patients. *Hypertension*. 2020;76(3):732-741. doi:10.1161/HYPERTENSIONAHA.120.15289

562. Pan F, Yang L, Li Y, et al. Factors associated with death outcome in patients with severe coronavirus disease-19 (COVID-19): a case-control study. *Int J Med Sci*. 2020;17(9):1281-1292. doi:10.7150/ijms.46614

563. Pandita A, Gillani FS, Shi Y, et al. Predictors of severity and mortality among patients hospitalized with COVID-19 in Rhode Island. *PLoS ONE*. 2021;16(6):e0252411. doi:10.1371/journal.pone.0252411

564. Paranjpe I, Singh M, Somani S, et al. Retrospective cohort study of clinical characteristics of 2199 hospitalised patients with COVID-19 in New York City. *BMJ Open*. 2020;10(11):e040736. doi:10.1136/bmjopen-2020-040736

565. Parlak S, Civgin E, Besler MS, Kayipmaz AE. The effect of hepatic steatosis on COVID-19 severity: Chest computed tomography findings. *Saudi j gastroenterol*. 2021;27(2):105-110. doi:10.4103/sjg.sjg_540_20

566. Patone M, Thomas K, Hatch R, et al. Mortality and critical care unit admission associated with the SARS-CoV-2 lineage B.1.1.7 in England: an observational cohort study. *Lancet Infect Dis*. 2021;(101130150). doi:10.1016/S1473-3099(21)00318-2

567. Pavel AB, Glickman JW, Michels JR, Kim-Schulze S, Miller RL, Guttman-Yassky E. Th2/Th1 Cytokine Imbalance Is Associated With Higher COVID-19 Risk Mortality. *Front genet*. 2021;12(101560621):706902. doi:10.3389/fgene.2021.706902

568. Peng X, Chen Y, Shi Y, et al. Clinical features of critically ill patients infected with SARS-CoV-2 outside Wuhan with and without diabetes. *Int J Diabetes Dev Countries*. 2020;40(4):482-490. doi:10.1007/s13410-020-00888-3

569. Pepe M, Brindicci G, Nestola PL, et al. Clinical presentation, therapeutic approach, and outcome of young patients admitted for COVID-19, with respect to the elderly counterpart. *Clin Exp Med*. 2021;21(2):249-268. doi:10.1007/s10238-021-00684-1

570. Perez-Guzman PN, Daunt A, Mukherjee S, et al. Clinical characteristics and predictors of outcomes of hospitalized patients with COVID-19 in a multi-ethnic London NHS Trust: a retrospective cohort study. *Clin Infect Dis*. Published online August 7, 2020:ciaa1091. doi:10.1093/cid/ciaa1091

571. Perez-Sastre MA, Valdes J, Ortiz-Hernandez L. Clinical characteristics and severity of COVID-19 among Mexican adults. *Gac Med Mex*. 2020;156(5):379-387. doi:10.24875/GMM.20000430

572. Picchi G, Di Norcia M, Cofini V, et al. Laboratory parameters related to severe disease and death in SARS-CoV-2 pneumonia: Retrospective analysis. *J Med Virol*. 2021;(i9n, 7705876). doi:10.1002/jmv.27141

573. Piers R, Van Den Noortgate N, Van Braeckel E, Benoit D. Early resuscitation orders in hospitalized oldest-old with COVID-19: A multicenter cohort study. *Palliative Med*. 2021;35(7):1288-1294. doi:10.1177/02692163211018342

574. Piwowarczyk P, Szczukocka M, Borys M, et al. Risk factors and outcomes for acute respiratory failure in coronavirus disease 2019: An observational cohort study. *Adv Clin Exp Med*. 2021;30(2). doi:10.17219/ACEM/130603

575. Poblador-Plou B, Carmona-Pírez J, Ioakeim-Skoufa I, et al. Baseline Chronic Comorbidity and Mortality in Laboratory-Confirmed COVID-19 Cases: Results from the PRECOVID Study in Spain. *Int J Environ Res Public Health*. 2020;17(14):E5171. doi:10.3390/ijerph17145171

576. Stern DA, Guerra S, Kraft M, et al. Comorbidities, cardiovascular therapies, and COVID-19 mortality: A nationwide, italian observational study (ItaliCO). *Front Cardiovasc Med*. 2020;7((Polverino, Stern, Guerra, Kraft, Martinez) University of Arizona, Tucson, AZ, United States):585866. doi:10.3389/fcvm.2020.585866

577. Pontali E, Volpi S, Signori A, et al. Efficacy of early anti-inflammatory treatment with high doses of intravenous anakinra with or without glucocorticoids in patients with severe COVID-19 pneumonia. *J Allergy Clin Immunol*. 2021;147(4):1217-1225. doi:10.1016/j.jaci.2021.01.024

578. Profili F, Ballo P, Balzi D, et al. [Chronic diseases and risk of symptomatic COVID-19: results of a case-population study on a sample of patients in the Local Health Unit "Toscana Centro" (Tuscany Region, Central Italy)]. *Epidemiol Prev*. 2020;44(5-6 Suppl 2):308-314. doi:10.19191/EP20.5-6.S2.131

579. Purroy F, Arque G. Influence of thromboembolic events in the prognosis of COVID-19 hospitalized patients. Results from a cross sectional study. *PLoS ONE*. 2021;16(6):e0252351. doi:10.1371/journal.pone.0252351

580. Qureshi AI, Baskett WI, Huang W, Lobanova I, Naqvi SH, Shyu CR. Re-infection with SARS-CoV-2 in Patients Undergoing Serial Laboratory Testing. *Clin Infect Dis*. 2021;(a4j, 9203213). doi:10.1093/cid/ciab345

581. Qiu C, Wu Z, Li D, et al. Hemorrhage and venous thromboembolism in critically ill patients with COVID-19. *SAGE Open Med*. 2021;9((Qiu, Wu, Li, He, Chen, Zhang) Department of Vascular Surgery, Hospital, School of Medicine, Zhejiang University, Hangzhou, China). doi:10.1177/20503121211020167

582. Rabha AC, Fernandes FR, Sole D, Bacharier LB, Wandalsen GF. Asthma is associated with lower respiratory tract involvement and worse clinical score in children with COVID-19. *Pediatr Allergy Immunol*. 2021;(bu6, 9106718). doi:10.1111/pai.13536

583. Rahimzadeh P, Faiz HR, Farahmandrad R, et al. Clinical features and prognosis of invasive ventilation in hospitalized patients with COVID-19: A retrospective study. *Anesth Pain Med*. 2020;10(6):1-8. doi:10.5812/aapm.108773

584. Ramakrishnan S, Bafadhel M. Inhaled budesonide for early treatment of COVID-19 - Authors' reply. *Lancet Respir Med*. 2021;9(7):e61. doi:10.1016/S2213-2600(21)00212-5

585. Ramakrishnan A, Wu HM, Zreloff J, et al. Prolonged Symptoms after COVID-19 Infection in Outpatients. *Open Forum Infect Dis*. 2021;8(3). doi:10.1093/ofid/ofab060

586. Ramasamy K, Saniasiaya J, Abdul Gani N. Olfactory and Gustatory Dysfunctions as a Clinical Manifestation of Coronavirus Disease 2019 in a Malaysian Tertiary Center. *Ann Otol Rhinol Laryngol*. 2021;130(5):513-519. doi:10.1177/0003489420963165

587. Ramos-Martinez A, Parra-Ramirez LM, Morras I, et al. Frequency, risk factors, and outcomes of hospital readmissions of COVID-19 patients. *Sci rep*. 2021;11(1):13733. doi:10.1038/s41598-021-93076-0

588. Recinella G, Serafini G, Maestri L, et al. Prognostic role of nutritional status in elderly patients hospitalized for COVID-19: a monocentric study. *Aging Clin Exp Res*. 2020;32(12):2695-2701. doi:10.1007/s40520-020-01727-5

589. Regina J, Papadimitriou-Olivgeris M, Burger R, et al. Epidemiology, risk factors and clinical course of SARS-CoV-2 infected patients in a Swiss university hospital: An observational retrospective study. *PLoS One*. 2020;15(11):e0240781. doi:10.1371/journal.pone.0240781

590. Reiff DD, Mannion ML, Samuy N, Scalici P, Cron RQ. Distinguishing active pediatric COVID-19 pneumonia from MIS-C. *Pediatr rheumatol online j*. 2021;19(1):21. doi:10.1186/s12969-021-00508-2

591. Rhodes NJ, Dairem A, Moore WJ, et al. Multicenter point prevalence evaluation of the utilization and safety of drug therapies for COVID-19 at the onset of the pandemic timeline in the United States. *Am J Health-Syst Pharm*. 2021;78(7):568-577. doi:10.1093/ajhp/zxaa426

592. Riou M, MarcoT C, Oulehri W, et al. Respiratory follow-up after hospitalization for COVID-19: Who and when? *Eur J Clin Invest*. 2021;51(8):e13603. doi:10.1111/eci.13603

593. Rodilla E, Lopez-Carmona MD, Cortes X, et al. Impact of Arterial Stiffness on All-Cause Mortality in Patients Hospitalized With COVID-19 in Spain. *Hypertension*. 2021;77(3):856-867. doi:10.1161/HYPERTENSIONAHA.120.16563

594. Rodilla E, Saura A, Jimenez I, et al. Association of hypertension with all-cause mortality among hospitalized patients with COVID-19. *J Clin Med*. 2020;9(10):1-12. doi:10.3390/jcm9103136

595. Romagnolo A, Balestrino R, Imbalzano G, et al. Neurological comorbidity and severity of COVID-19. *J Neurol*. 2021;268(3):762-769. doi:10.1007/s00415-020-10123-y

596. Holtgrave DR, Dufort EM, Blog DS, et al. COVID-19 Testing, Epidemic Features, Hospital Outcomes, and Household Prevalence, New York State-March 2020. *Clin Infect Dis*. 2020;71(8):1953-1959. doi:10.1093/cid/ciaa549

597. Rubin SJS, Falkson SR, Degner NR, Blish C. Clinical characteristics associated with COVID-19 severity in California. *J Clin Transl Sci*. 2020;5(1):e3. doi:10.1017/cts.2020.40

598. Rubio-Rivas M, Formiga F, Corbella X, et al. Risk categories in covid-19 based on degrees of inflammation: Data on more than 17,000 patients from the spanish semi-covid-19 registry. *J Clin Med*. 2021;10(10):2214. doi:10.3390/jcm10102214

599. Russo V, Cimmino G, Piccinocchi G, et al. Cardiovascular comorbidities and pharmacological treatments of covid-19 patients not requiring hospitalization. *Int J Environ Res Public Health*. 2021;18(1):1-9. doi:10.3390/ijerph18010102

600. Russo V, Di Maio M, Attena E, et al. Clinical impact of pre-admission antithrombotic therapy in hospitalized patients with COVID-19: A multicenter observational study. *Pharmacol Res*. 2020;159:104965. doi:10.1016/j.phrs.2020.104965

601. Sa R, Pinho-Bandeira T, Queiroz G, Matos J, Ferreira JD, Rodrigues PP. COVID-19 and Its Symptoms' Panoply: A Case-Control Study of 919 Suspected Cases in Locked-Down Ovar, Portugal. *Port J Public Health*. 2021;38(3):151-158. doi:10.1159/000514925

602. Saatci D, Ranger TA, Garriga C, et al. Association Between Race and COVID-19 Outcomes Among 2.6 Million Children in England. *Jama, Pediatr*. 2021;(101589544). doi:10.1001/jamapediatrics.2021.1685

603. Sahu AK, Dhar A, Aggarwa B. Radiographic features of COVID-19 infection at presentation and significance of chest X-ray: Early experience from a super-specialty hospital in India. *Indian J Radiol Imaging*. 2021;31(5 Supplement 1):S128-S133. doi:10.4103/ijri.IJRI_368_20

604. Salvetti M, Muiesan ML, Saifi ES, Giorgi-Pierfranceschi M, Maninetti L, Cavalli I. Factors associated with survival in older patients affected by COVID-19: A retrospective cohort study. *Arch Gerontol Geriatr*. 2021;94((Saifi, Salvetti, Muiesan) Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy):104349. doi:10.1016/j.archger.2021.104349

605. Saldias Penafiel F, Penaloza Tapia A, Farias Nesvadba D, et al. [Clinical features and predictors of severity in 1022 adults with COVID-19]. *Rev Med Chil*. 2020;148(10):1387-1397. doi:10.4067/S0034-98872020001001387

606. Salgado-Aranda R, Nunez-Gil I, Orozco AJ, et al. Influence of Baseline Physical Activity as a Modifying Factor on COVID-19 Mortality: A Single-Center, Retrospective Study. *Infect Dis Ther*. 2021;10(2):801-814. doi:10.1007/s40121-021-00418-6

607. Sandoval M, Nguyen DT, Vahidy FS, Graviss EA. Risk factors for severity of COVID-19 in hospital patients age 18-29 years. *PLoS ONE*. 2021;16(7):e0255544. doi:10.1371/journal.pone.0255544

608. Sarhan RM, Mohammad MF, Boshra MS. Differential clinical diagnosis and prevalence rate of allergic rhinitis, asthma and chronic obstructive pulmonary disease among COVID-19 patients. *Int J Clin Pract*. 2021;(cvt, 9712381):e14532. doi:10.1111/ijcp.14532

609. Abu Sayf A, Fadel R, Scott A, et al. Mechanical Ventilation and Coronavirus Disease 2019: A Case-Control Analysis of Clinical Characteristics, Lung Mechanics, and Mortality. *Crit care explor*. 2021;3(4):e0377. doi:10.1097/CCE.0000000000000377

610. Schalekamp S, Huisman M, van Dijk RA, et al. Model-based Prediction of Critical Illness in Hospitalized Patients with COVID-19. *Radiology*. 2021;298(1):E46-E54. doi:10.1148/radiol.2020202723

611. Schonfeld D, Arias S, Bossio JC, Fernandez H, Gozal D, Perez-Chada D. Clinical presentation and outcomes of the first patients with COVID-19 in Argentina: Results of 207079 cases from a national database. *PLoS ONE*. 2021;16(2):e0246793. doi:10.1371/journal.pone.0246793

612. Schrijver B, Assmann JLJC, Langerak AW, et al. Extensive longitudinal immune profiling reveals sustained innate immune activaton in COVID-19 patients with unfavorable outcome. *Eur Cytokine Netw*. 2020;31(4):154-167. doi:10.1684/ecn.2020.0456

613. Schwartz KL, Achonu C, Buchan SA, et al. Epidemiology, clinical characteristics, household transmission, and lethality of severe acute respiratory syndrome coronavirus-2 infection among healthcare workers in Ontario, Canada. *PLoS One*. 2020;15(12):e0244477. doi:10.1371/journal.pone.0244477

614. Sezer R, Esendagli D, Erol C, Hekimoglu K. New challenges for management of COVID-19 patients: Analysis of MDCT based "Automated pneumonia analysis program". *Eur J Radiol Open*. 2021;8(101650225):100370. doi:10.1016/j.ejro.2021.100370

615. Shady A, Singh AP, Gbaje E, et al. Characterization of Patients with COVID-19 Admitted to a Community Hospital of East Harlem in New York City. *Cureus*. 2020;12(8):e9836. doi:10.7759/cureus.9836

616. Shah C, Grando DJ, Rainess RA, et al. Factors associated with increased mortality in hospitalized COVID-19 patients. *Ann Med Surg*. 2020;60((Shah, Grando, Rainess, Ayad, Gobran, Benson, Neblett, Nookala) Community Medical Center, 99NJ-37, Toms River, NJ 08755, United States):308-313. doi:10.1016/j.amsu.2020.10.071

617. Sharma K, Gupta A, Vadgama K, et al. Demographic and clinico-radiological profile on High-Resolution Computerized Tomography (HRCT) thorax in mild or asymptomatic clinically suspected COVID-19 patients in high-endemicity area of India-Can HRCT be the first screening tool? -The DECRYPTION study. *Indian J Radiol Imaging*. 2021;31(Suppl 1):S122-S127. doi:10.4103/ijri.IJRI_796_20

618. Shekhar R, Sheikh AB, Upadhyay S, Atencio J, Kapuria D. Early experience with COVID-19 patients at academic hospital in Southwestern United States. *Infect Dis (Lond)*. 2020;52(8):596-599. doi:10.1080/23744235.2020.1774645

619. Shin EK, Choi HY, Hayes N. The anatomy of COVID-19 comorbidity networks among hospitalized Korean patients. *Epidemiol Health*. 2021;43(101519472):e2021035. doi:10.4178/epih.e2021035

620. Shmueli H, Shah M, Ebinger JE, et al. Left ventricular global longitudinal strain in identifying subclinical myocardial dysfunction among patients hospitalized with COVID-19. *Int J Cardiol Heart Vasc*. 2021;32(101649525):100719. doi:10.1016/j.ijcha.2021.100719

621. Mutha AS, Beldar AS, Desai S, Kumar N, Bhartiya S, Singh T. Risk factors for reverse transcriptase polymerase chain reaction positivity for SARS-CoV-2 among health care workers in a group of tertiary care hospitals in Mumbai: A cross-sectional study. *J Clin Diagn Res*. 2021;15(4):FC18-FC21. doi:10.7860/JCDR/2021/48855.14834

622. Signes-Costa J, Nunez-Gil IJ, Soriano JB, et al. Prevalence and 30-Day Mortality in Hospitalized Patients With Covid-19 and Prior Lung Diseases. *Arch Bronconeumol*. 2021;57 Suppl 2(b0y, 0354720):13-20. doi:10.1016/j.arbres.2020.11.012

623. Sisó-Almirall A, Kostov B, Mas-Heredia M, et al. Prognostic factors in Spanish COVID-19 patients: A case series from Barcelona. *PLoS One*. 2020;15(8):e0237960. doi:10.1371/journal.pone.0237960

624. Bahadorimonfared A, Sohrabi MR, Amin R, et al. Sociodemographic determinants and clinical risk factors associated with COVID-19 severity: a cross-sectional analysis of over 200,000 patients in Tehran, Iran. *BMC Infect Dis*. 2021;21(1):474. doi:10.1186/s12879-021-06179-4

625. Song N, Cui GL, Zeng QL. Genomic Epidemiology of SARS-CoV-2 From Mainland China With Newly Obtained Genomes From Henan Province. *Front Microbiol*. 2021;12((Song) Center for Reproductive Medicine, Henan Key Laboratory of Reproduction and Genetics, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China):673855. doi:10.3389/fmicb.2021.673855

626. Soni SL, Kajal K, Yaddanapudi LN, et al. Demographic & clinical profile of patients with covid-19 at a tertiary care hospital in north india. *Indian J Med Res Suppl*. 2021;153(1-2):115-125. doi:10.4103/ijmr.IJMR_2311_20

627. Bag Soytas R, Unal D, Arman P, et al. Factors affecting mortality in geriatric patients hospitalized with COVID-19. *TURK J MED SCI*. 2021;51(2):454-463. doi:10.3906/sag-2008-91

628. Vellere I, Graziani L, Tilli M, et al. Clinical and Laboratory Follow-up after Hospitalization for COVID-19 at an Italian Tertiary Care Center. *Open Forum Infect Dis*. 2021;8(3). doi:10.1093/ofid/ofab049

629. Stavem K, Einvik G, Ghanima W, Olsen MK, Gilboe HM. Persistent symptoms 1.5-6 months after COVID-19 in non-hospitalised subjects: A population-based cohort study. *Thorax*. 2021;76(4):405-407. doi:10.1136/thoraxjnl-2020-216377

630. Stawinski PM, Dziadkowiec KN, Al-Abbasi B, et al. Model of End-Stage Liver Disease (MELD) Score as a Predictor of In-Hospital Mortality in Patients with COVID-19: A Novel Approach to a Classic Scoring System. *Cureus*. 2021;13(5):e15179. doi:10.7759/cureus.15179

631. Stidham RA, Stahlman S, Salzar TL. Cases of Coronavirus Disease 2019 and Comorbidities Among Military Health System Beneficiaries, 1 January 2020 through 30 September 2020. *MSMR*. 2020;27(12):2-8.

632. Straw S, Drozd M, Slater TA, et al. Advanced care planning during the COVID-19 pandemic: ceiling of care decisions and their implications for observational data. *BMC Palliative Care*. 2021;20(1):10. doi:10.1186/s12904-021-00711-8

633. Jiang N, Liu T, Sun Y, et al. A retrospective study of 268 patients with SARS-CoV-2 infection to evaluate the association between blood glucose and severity of COVID-19 pneumonia and patient mortality. *Med Sci Monit*. 2021;27((Sun, Jiang, Liu) Department of Emergency, China-Japan Union Hospital, Jilin University, Jilin, Changchun, China):e932156. doi:10.12659/MSM.932156

634. Sundaram ME, Calzavara A, Mishra S, et al. Individual and social determinants of SARS-CoV-2 testing and positivity in Ontario, Canada: a population-wide study. *CMAJ*. 2021;193(20):E723-E734. doi:10.1503/cmaj.202608

635. Sutter W, Duceau B, Vignac M, et al. Association of diabetes and outcomes in patients with COVID-19: Propensity score-matched analyses from a French retrospective cohort. *Diabetes Metab*. 2021;47(4):101222. doi:10.1016/j.diabet.2020.101222

636. Svensson P, Hofmann R, Habel H, Jernberg T, Nordberg P. Association between cardiometabolic disease and severe COVID-19: A nationwide case-control study of patients requiring invasive mechanical ventilation. *BMJ Open*. 2021;11(2):e044486. doi:10.1136/bmjopen-2020-044486

637. Tambe MP, Parande MA, Tapare VS, et al. An epidemiological study of laboratory confirmed COVID-19 cases admitted in a tertiary care hospital of Pune, Maharashtra. *Indian J Public Health*. 2020;64(Supplement):S183-S187. doi:10.4103/ijph.IJPH_522_20

638. Tang O, Bigelow BF, Sheikh F, et al. Outcomes of Nursing Home COVID-19 Patients by Initial Symptoms and Comorbidity: Results of Universal Testing of 1970 Residents. *J Am Med Dir Assoc*. 2020;21(12):1767-1773.e1. doi:10.1016/j.jamda.2020.10.011

639. Tan-Loh J, Cheong BMK. A descriptive analysis of clinical characteristics of COVID-19 among healthcare workers in a district specialist hospital. *Med J Malays*. 2021;76(1):24-28.

640. Tanriverdi E, Cortuk M, Yildirim BZ, et al. Hydroxychloroquine plus azithromycin and early hospital admission are beneficial in covid-19 patients: Turkish experience with real-life data. *Turk J Med Sci*. 2021;51(1):10-15. doi:10.3906/sag-2005-82

641. Tehrani S, Khabiri N, Moradi H, Mosavat MS, Khabiri SS. Evaluation of vitamin D levels in COVID-19 patients referred to Labafinejad hospital in Tehran and its relationship with disease severity and mortality. *Clin Nutr ESPEN*. 2021;42((Tehrani) Labbafinejad Clinical Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic of):313-317. doi:10.1016/j.clnesp.2021.01.014

642. Tessitore E, Carballo D, Poncet A, et al. Mortality and high risk of major adverse events in patients with COVID-19 and history of cardiovascular disease. *Open Heart*. 2021;8(1). doi:10.1136/openhrt-2020-001526

643. Tezza F, Lorenzoni G, Gregori D, Azzolina D, Barbar S, Leone LAC. Predicting in-hospital mortality of patients with covid-19 using machine learning techniques. *J Pers Med*. 2021;11(5):343. doi:10.3390/jpm11050343

644. Thiabaud A, Iten A, Balmelli C, et al. Cohort profile: SARS-CoV-2/COVID-19 hospitalised patients in Switzerland. *Swiss Med Wkly*. 2021;151(d10, 100970884):w20475. doi:10.4414/smw.2021.20475

645. Tian J, Yuan X, Xiao J, et al. Clinical characteristics and risk factors associated with COVID-19 disease severity in patients with cancer in Wuhan, China: a multicentre, retrospective, cohort study. *Lancet Oncol*. 2020;21(7):893-903. doi:10.1016/S1470-2045(20)30309-0

646. Timberlake DT, Narayanan D, Ogbogu PU, et al. Severity of COVID-19 in hospitalized patients with and without atopic disease. *World Allergy Organiza journal*. 2021;14(2):100508. doi:10.1016/j.waojou.2021.100508

647. Tosca MA, Crocco M, Girosi D, Olcese R, Schiavetti I, Ciprandi G. Unaffected asthma control in children with mild asthma after COVID-19. *Pediatr Pulmonol*. 2021;(owh, 8510590). doi:10.1002/ppul.25567

648. Toth AT, Tatem KS, Hosseinipour N, et al. Surge and Mortality in ICUs in New York City's Public Healthcare System. *Crit Care Med*. 2021;(dtf, 0355501). doi:10.1097/CCM.0000000000004972

649. Trifiro G, Sultana J, Crisafulli S, et al. Renin-Angiotensin-Aldosterone System Inhibitors and Risk of Death in Patients Hospitalised with COVID-19: A Retrospective Italian Cohort Study of 43,000 Patients. *Drug Saf*. 2020;43(12):1297-1308. doi:10.1007/s40264-020-00994-5

650. Tsai S, Nguyen H, Ebrahimi R, et al. COVID-19 associated mortality and cardiovascular disease outcomes among US women veterans. *Sci rep*. 2021;11(1):8497. doi:10.1038/s41598-021-88111-z

651. Tsou TP, Chen WC, Huang ASE, Chang SC, Taiwan COVID-19 Outbreak Investigation Team. Epidemiology of the first 100 cases of COVID-19 in Taiwan and its implications on outbreak control. *J Formos Med Assoc*. 2020;119(11):1601-1607. doi:10.1016/j.jfma.2020.07.015

652. Turan O, Arpinar Yigitbas B, Turan PA, Mirici A. Clinical characteristics and outcomes of hospitalized COVID-19 patients with COPD. *Expert Rev Respir Med*. 2021;(101278196):1-8. doi:10.1080/17476348.2021.1923484

653. Twigg HL, Khan SH, Perkins AJ, et al. Mortality Rates in a Diverse Cohort of Mechanically Ventilated Patients With Novel Coronavirus in the Urban Midwest. *Crit Care Explor*. 2020;2(8):e0187. doi:10.1097/CCE.0000000000000187

654. Ungaro RC, Agrawal M, Park S, et al. Autoimmune and Chronic Inflammatory Disease Patients with COVID-19. *ACR Open Rheumatology*. 2021;3(2):111-115. doi:10.1002/acr2.11221

655. Uranga A, Villanueva A, Lafuente I, et al. [Risk factors for clinical deterioration in patients admitted for COVID-19: a case-control study]. *Rev Clin Esp*. 2021;(rnl, 8608576). doi:10.1016/j.rce.2021.04.007

656. Valent F. Age, comorbidities, nursing home stay and outcomes of SARS-CoV-2 infection in a Northern Italian cohort. *J Gerontology Geriatrics*. 2021;69(2):114-119. doi:10.36150/2499-6564-N291

657. Valverde-Monge M, Barroso B, Betancor D, et al. Eosinophils and Chronic Respiratory Diseases in Hospitalized COVID-19 Patients. *Front Immunol*. 2021;12((Valverde-Monge, Barroso, Betancor, Ortega-Martin, Gomez-Lopez, Sastre) Allergy Unit, Hospital Universitario Fundacion Jimenez Diaz, Madrid, Spain):668074. doi:10.3389/fimmu.2021.668074

658. van der Sar - van der Brugge S, Talman S, de Mol M, et al. Pulmonary function and health-related quality of life after COVID-19 pneumonia. *Respir Med*. 2021;176((van der Sar-van der Brugge, Talman, de Mol, De Backer) Amphia Hospital, Department of Pulmonary Medicine, Postbus 90158, Breda 4800 RK, Netherlands):106272. doi:10.1016/j.rmed.2020.106272

659. Veloz MFG, Ruiz PC, Bellido PDP, et al. Liver manifestations in COVID-19 and the influence of pre-existing liver disease in the course of the infection. *Rev Esp Enferm Dig*. 2021;113((Veloz, Ruiz, Bellido, Cordero, Herrera, Parrado, Munoz, Rodriguez, Alvarez, Rodriguez-Bano, Soria) Gastroenterology and Hepatology Clinical Management Unit and 3Internal Medicine Unit, Hospital Universitario Virgen Macarena, Sevilla, Spain). doi:10.17235/REED.2020.7627/2020

660. Vera-Zertuche JM, Mancilla-Galindo J, Tlalpa-Prisco M, et al. Obesity is a strong risk factor for short-term mortality and adverse outcomes in Mexican patients with COVID-19: a national observational study. *Epidemiol Infect*. 2021;149(epi, 8703737):e109. doi:10.1017/S0950268821001023

661. Vergara P, Rossi L, Biagi A, et al. Role of comorbidities on the mortality in patients with SARS-CoV-2 infection: an Italian cohort study. *Minerva Med*. 2021;(n6m, 0400732). doi:10.23736/S0026-4806.21.07187-1

662. Verma S, Lumba R, Dapul HM, et al. Characteristics of Hospitalized Children With SARS-CoV-2 in the New York City Metropolitan Area. *Hosp pediatr*. 2021;11(1):71-78. doi:10.1542/hpeds.2020-001917

663. Verma R, Kumar A, Nishad RK, Patawa R. Clinical characteristics and outcome of critically ill SARS-CoV-2 patients admitted to intensive care unit of a tertiary care hospital in north india: A retrospective study. *J Clin Diagn Res*. 2021;15(5):UC05-UC08. doi:10.7860/JCDR/2021/48983.14827

664. Villalba GC, Catala P, Aparisi A, et al. Impact of the presence of heart disease, cardiovascular medications and cardiac events on outcome in covid-19. *Cardiol J*. 2021;28(3):360-368. doi:10.5603/CJ.a2021.0034

665. Violi F, Ceccarelli G, Cangemi R, et al. Arterial and venous thrombosis in coronavirus 2019 disease (Covid-19): relationship with mortality. Pugliese F AF Ruberto F, Albante A, Auricchio D, De Lazzaro F, M De Lauri D, Di Santo C, Ianni S, Magnanimi E, Ratini F, Sabani A, Titi L, Vaccaro P, Giordano G, Manganelli C, Mancone M, Bruno K, Celli P, Consolo S, Croce C, Giannetti L, Martelli S, Messina T, Pattelli E, Perrella S, Portieri M, Ricci C, Almenrader N, Arzilla R, Delia E, Di Giovanni C, Laderchi A, Macri C, Marandola M, Nardecchia G, Pacilli M, Pacini F, Araimo Morselli F, Imperiale C, Tordiglione P, Mastroianni CM, Ciardi MR, Ajassa C, D'Ettorre G, Lichtner M, D'Agostino C, Russo G, Trinchieri V, Guariglia P, Antonelli L, Oliva A, Cuomo RM, Carnevalini M, Mastropietro C, Iaiani G, Mezzaroma I, Falciano M, Ceccarelli G, Brogi A, Celani L, Cavallari NE, Rivano Capparuccia M, Massetti AP, Fimiani C, Santori M, Bianchi A, Franchi C, De Angelis M, Sereno S, Furlan C, De Sanctis G, Paoletti F, Pasculli P, Cogliati Dezza F, Vassalini P, Cancelli F, De Girolamo G, Savelloni G, Valeri S, Siccardi G, Alessi F, Recchia G, Ridolfi M, Romani FE, Aronica R, Filippi V, Vera M, Volpicelli L, Candy M, Alban R, Di Bari S, Gavaruzzi F, Casali E, Carli MS, Zingaropoli AM, Perri V, De Angelis M, Santinelli L, Pinacchio C, Nijhawan P, Miele CM, Innocenti PG, Mengoni F, ed. *Intern emerg medicine*. 2021;16(5):1231-1237. doi:10.1007/s11739-020-02621-8

666. De Vito A, Fiore V, Princic E, et al. Predictors of infection, symptoms development, and mortality in people with SARS-CoV-2 living in retirement nursing homes. *PLoS ONE*. 2021;16(3):e0248009. doi:10.1371/journal.pone.0248009

667. Wall GC, Smith HL, Trump MW, et al. Pentoxifylline or theophylline use in hospitalized COVID-19 patients requiring oxygen support. *Clin Respir J*. 2021;15(7):843-846. doi:10.1111/crj.13363

668. Wang Y, Lu X, Li Y, et al. Clinical Course and Outcomes of 344 Intensive Care Patients with COVID-19. *Am J Respir Crit Care Med*. 2020;201(11):1430-1434. doi:10.1164/rccm.202003-0736LE

669. Wang Z, Wang Z. Identification of risk factors for in-hospital death of COVID - 19 pneumonia -- lessions from the early outbreak. *BMC Infect Dis*. 2021;21(1):113. doi:10.1186/s12879-021-05814-4

670. Wang W, Xin C, Xiong Z, et al. Clinical Characteristics and Outcomes of 421 Patients With Coronavirus Disease 2019 Treated in a Mobile Cabin Hospital. *Chest*. 2020;158(3):939-946. doi:10.1016/j.chest.2020.05.515

671. Wang M, Xiong N, Jiang N, et al. Sex-Disaggregated Data on Clinical Characteristics and Outcomes of Hospitalized Patients With COVID-19: A Retrospective Study. *Front Cell Infect Microbiol*. 2021;11((Wang, Xiong) Department of Neurology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China):680422. doi:10.3389/fcimb.2021.680422

672. Wang Z, Chen J, Liu L, et al. Thymosin Alpha-1 Has no Beneficial Effect on Restoring CD4+ and CD8+ T Lymphocyte Counts in COVID-19 Patients. *Front Immunol*. 2021;12((Wang, Chen, Liu, Qi, Shen, Lu) Department of Infection and Immunity, Shanghai Public Health Clinical Center, Fudan University, Shanghai, China):568789. doi:10.3389/fimmu.2021.568789

673. Wang K, Zuo P, Liu Y, et al. Clinical and laboratory predictors of in-hospital mortality in patients with COVID-19: a cohort study in Wuhan, China. *Clin Infect Dis*. Published online May 3, 2020:ciaa538. doi:10.1093/cid/ciaa538

674. Wang CZ, Hu SL, Wang L, Li M, Li HT. Early risk factors of the exacerbation of coronavirus disease 2019 pneumonia. *J Med Virol*. 2020;92(11):2593-2599. doi:10.1002/jmv.26071

675. Zhang Z, Zheng Z, Wang S, et al. Clinical features of hypertensive patients with COVID-19 compared with a normotensive group: Single-center experience in China. *Open Med*. 2021;16(1):367-374. doi:10.1515/med-2021-0225

676. Wang SM, Na HR, Lim HK, et al. Association between dementia and clinical outcome after covid-19: A nationwide cohort study with propensity score matched control in south korea. *Psychiatry Investig*. 2021;18(6):523-529. doi:10.30773/pi.2021.0064

677. Wang J, Guo S, Zhang Y, et al. Clinical features and risk factors for severe inpatients with COVID-19: A retrospective study in China. *PLoS ONE*. 2020;15(12):e0244125. doi:10.1371/journal.pone.0244125

678. Wats K, Rodriguez D, Sadiq A, et al. Association of right ventricular dysfunction and pulmonary hypertension with adverse 30-day outcomes in COVID-19 patients. *Pulm Circ*. 2021;11(2). doi:10.1177/20458940211007040

679. Webb NE, Osburn TS. Characteristics of Hospitalized Children Positive for SARS-CoV-2: Experience of a Large Center. *Hosp pediatr*. 2021;11(8):e133-e141. doi:10.1542/hpeds.2021-005919

680. Wei W, Sivapalasingam S, Mellis S, Geba GP, Jalbert JJ. A Retrospective Study of COVID-19-Related Urgent Medical Visits and Hospitalizations After Outpatient COVID-19 Diagnosis in the US. *Adv Ther*. 2021;38(6):3185-3202. doi:10.1007/s12325-021-01742-6

681. Wei JF, Huang FY, Xiong TY, et al. Acute myocardial injury is common in patients with COVID-19 and impairs their prognosis. *Heart*. 2020;106(15):1154-1159. doi:10.1136/heartjnl-2020-317007

682. Weizman O, Mika D, Cellier J, et al. Characteristics and impact of cardiovascular comorbidities on coronavirus disease 2019 in women: A multicentre cohort study. *Arch Cardiovasc Dis*. 2021;114(5):394-406. doi:10.1016/j.acvd.2021.04.002

683. Wetterslev M, Jacobsen PK, Hassager C, et al. Cardiac arrhythmias in critically ill patients with coronavirus disease 2019: A retrospective population-based cohort study. *Acta Anaesthesiol Scand*. 2021;65(6):770-777. doi:10.1111/aas.13806

684. Xiao J, Li X, Xie Y, et al. Maximum chest CT score is associated with progression to severe illness in patients with COVID-19: a retrospective study from Wuhan, China. *BMC Infect Dis*. 2020;20(1):953. doi:10.1186/s12879-020-05683-3

685. Cooper JG, Godbe JM, Bechel MA, et al. Chest radiograph at admission predicts early intubation among inpatient COVID-19 patients. *Eur Radiol*. 2021;31(5):2825-2832. doi:10.1007/s00330-020-07354-y

686. Xiong S, Liu L, Lin F, et al. Clinical characteristics of 116 hospitalized patients with COVID-19 in Wuhan, China: a single-centered, retrospective, observational study. *BMC Infect Dis*. 2020;20(1):787. doi:10.1186/s12879-020-05452-2

687. Xiong B, Du H, Zhan Z, et al. Effectiveness of adjunctive corticosteroid therapy in patients with severe COVID-19: A retrospective cohort study. *World J Clin Cases*. 2021;9(15):3546-3558. doi:10.12998/wjcc.v9.i15.3546

688. Xu X, Yu MQ, Shen Q, et al. Analysis of inflammatory parameters and disease severity for 88 hospitalized COVID-19 patients in Wuhan, China. *Int J Med Sci*. 2020;17(13):2052-2062. doi:10.7150/ijms.47935

689. Xu J, Xie J, Qiu H, Du B, Tong Z, Bagshaw SM. Clinical Characteristics and Outcomes of Patients With Severe COVID-19 Induced Acute Kidney Injury. *J Intensive Care Med*. 2021;36(3):319-326. doi:10.1177/0885066620970858

690. Xu H, Garcia-Ptacek S, Annetorp M, et al. Acute kidney injury and mortality risk in older adults with COVID-19. *J Nephrol*. 2021;34(2):295-304. doi:10.1007/s40620-021-01022-0

691. Yan X, Li F, Wang X, et al. Neutrophil to lymphocyte ratio as prognostic and predictive factor in patients with coronavirus disease 2019: A retrospective cross-sectional study. *J Med Virol*. 2020;92(11):2573-2581. doi:10.1002/jmv.26061

692. Yang P, Wang P, Song Y, Zhang A, Yuan G, Cui Y. A retrospective study on the epidemiological characteristics and establishment of an early warning system of severe COVID-19 patients. *J Med Virol*. 2020;92(10):2173-2180. doi:10.1002/jmv.26022

693. Yao JS, Paguio JA, Moulick A, et al. The Minimal Effect of Zinc on the Survival of Hospitalized Patients With COVID-19: An Observational Study. *Chest*. 2021;159(1):108-111. doi:10.1016/j.chest.2020.06.082

694. Ye C, Zhang S, Zhang X, et al. Impact of comorbidities on patients with COVID-19: A large retrospective study in Zhejiang, China. *J Med Virol*. 2020;92(11):2821-2829. doi:10.1002/jmv.26183

695. Yehia BR, Winegar A, Fogel R, et al. Association of Race With Mortality Among Patients Hospitalized With Coronavirus Disease 2019 (COVID-19) at 92 US Hospitals. *JAMA Netw Open*. 2020;3(8):e2018039. doi:10.1001/jamanetworkopen.2020.18039

696. Yildiz E, Cigri E, Dincer Z, Narsat MA, Calisir B. High Neutrophil/Lymphocyte Ratios in Symptomatic Pediatric COVID-19 Patients. *J Coll Physicians Surg Pak*. 2021;31(7):93-98. doi:10.29271/jcpsp.2021.Supp2.S93

697. Ylescupidez A, Rips A, Bahnson HT, et al. Early prognostic indicators of subsequent hospitalization in patients with mild covid-19. *J Clin Med*. 2021;10(8):1562. doi:10.3390/jcm10081562

698. Yordanov Y, Dinh A, Bleibtreu A, et al. Clinical characteristics and factors associated with hospital admission or death in 43 103 adult outpatients with coronavirus disease 2019 managed with the Covidom telesurveillance solution: a prospective cohort study. *Clin Microbiol Infect*. 2021;(dy9, 9516420). doi:10.1016/j.cmi.2021.04.010

699. Yoshida Y, Wilson SM, Ahmed SJ, et al. Clinical characteristics and outcomes in women and men hospitalized for coronavirus disease 2019 in New Orleans. *Biol Sex Differ*. 2021;12(1):20. doi:10.1186/s13293-021-00359-2

700. Yu C, Lei Q, Li W, et al. Clinical Characteristics, Associated Factors, and Predicting COVID-19 Mortality Risk: A Retrospective Study in Wuhan, China. *Am J Prev Med*. 2020;59(2):168-175. doi:10.1016/j.amepre.2020.05.002

701. Yu Y, Tu J, Lei B, et al. Incidence and Risk Factors of Deep Vein Thrombosis in Hospitalized COVID-19 Patients. *Clin Appl Thromb Hemost*. 2020;26:1076029620953217. doi:10.1177/1076029620953217

702. Yu C, Lei Q, Li W, Wang X, Li W, Liu W. Epidemiological and clinical characteristics of 1663 hospitalized patients infected with COVID-19 in Wuhan, China: a single-center experience. *J Infect Public Health*. 2020;13(9):1202-1209. doi:10.1016/j.jiph.2020.07.002

703. Yuan S, Li H, Chen C, Wang F, Wang DW. Association of glycosylated haemoglobin HbA1c levels with outcome in patients with COVID-19: A Retrospective Study. *J Cell Mol Med*. 2021;25(7):3484-3497. doi:10.1111/jcmm.16431

704. Zahid U, Spitalewitz S, Alasadi L, et al. Acute Kidney Injury in COVID-19 Patients: An Inner City Hospital Experience and Policy Implications. *Am J Nephrol*. 2020;51(10):786-796. doi:10.1159/000511160

705. Zakeri R, O'Gallagher K, Bean DM, et al. A case-control and cohort study to determine the relationship between ethnic background and severe COVID-19. *EClinicalMedicine*. 2020;28((Zakeri, O'Gallagher, Shah) School of Cardiovascular Medicine and Sciences, James Black Centre, King's College London British Heart Foundation Centre, 125 Coldharbour Lane, London SE5 9NU, United Kingdom):100574. doi:10.1016/j.eclinm.2020.100574

706. Zhang Q, Xu Q, Chen YY, et al. Clinical characteristics of 41 patients with pneumonia due to 2019 novel coronavirus disease (COVID-19) in Jilin, China. *BMC Infect Dis*. 2020;20(1):961. doi:10.1186/s12879-020-05677-1

707. Zhang Y, Xiao LS, Li P, et al. Clinical Characteristics of Patients With Progressive and Non-progressive Coronavirus Disease 2019: Evidence From 365 Hospitalised Patients in Honghu and Nanchang, China. *Front Med (Lausanne)*. 2020;7:556818. doi:10.3389/fmed.2020.556818

708. Zhang L, Yan X, Fan Q, et al. D-dimer levels on admission to predict in-hospital mortality in patients with Covid-19. *J Thromb Haemost*. 2020;18(6):1324-1329. doi:10.1111/jth.14859

709. Zhao C, Bai Y, Wang C, et al. Risk factors related to the severity of COVID-19 in Wuhan. *Int J Med Sci*. 2021;18(1):120-127. doi:10.7150/ijms.47193

710. Zhong L, Wu Y, Gao J, et al. Effects of hypertension on the outcomes of COVID-19: a multicentre retrospective cohort study. *Ann Med*. 2021;53(1):770-776. doi:10.1080/07853890.2021.1931957

711. Zhou J, Wang Y, Wu F, Chen B. Epidemiological and clinical characteristics of 217 cases of COVID-19 in Jiangsu Province, China. *Med Sci Monit*. 2021;27((Zhou, Wang, Wu) Department of Respiratory Medicine, The Affiliated Hospital of Yangzhou University, Yangzhou University, Yangzhou, Jiangsu, China):e930853. doi:10.12659/MSM.930853

712. Zhou W, Liu H, Yue L, et al. Early identification of patients with severe COVID-19 at increased risk of in-hospital death: A multicenter case-control study in Wuhan. *J Thorac Dis*. 2021;13(3):1380-1395. doi:10.21037/jtd-20-2568

713. Zuniga-Moya JC, Norwood DA, Romero Reyes LE, et al. Epidemiology, Outcomes, and Associated Factors of Coronavirus Disease 2019 (COVID-19) Reverse Transcriptase Polymerase Chain Reaction-Confirmed Cases in the San Pedro Sula Metropolitan Area, Honduras. *Clin Infect Dis*. 2021;72(10):e476-e483. doi:10.1093/cid/ciaa1188

714. Tomlins J, Hamilton F, Gunning S, Sheehy C, Moran E, MacGowan A. Clinical features of 95 sequential hospitalised patients with novel coronavirus 2019 disease (COVID-19), the first UK cohort. *J Infect*. 2020;81(2):e59-e61. doi:10.1016/j.jinf.2020.04.020

715. Ludwig M, Jacob J, Basedow F, Andersohn F, Walker J. Clinical outcomes and characteristics of patients hospitalized for Influenza or COVID-19 in Germany. *Int J Infect Dis*. 2021;103(c3r, 9610933):316-322. doi:10.1016/j.ijid.2020.11.204

716. Auld SC, Caridi-Scheible M, Blum JM, et al. ICU and Ventilator Mortality Among Critically Ill Adults With Coronavirus Disease 2019. *Crit Care Med*. 2020;48(9):e799-e804. doi:10.1097/CCM.0000000000004457

717. Goyal P, Choi JJ, Pinheiro LC, et al. Clinical Characteristics of Covid-19 in New York City. *N Engl J Med*. 2020;382(24):2372-2374. doi:10.1056/NEJMc2010419

718. Mancilla-Galindo J, Vera-Zertuche JM, Navarro-Cruz AR, et al. Development and validation of the patient history COVID-19 (PH-Covid19) scoring system: a multivariable prediction model of death in Mexican patients with COVID-19. *Epidemiol Infect*. 2020;148(epi, 8703737):e286. doi:10.1017/S0950268820002903

719. Jalili M, Payandemehr P, Saghaei A, Sari HN, Safikhani H, Kolivand P. Characteristics and Mortality of Hospitalized Patients With COVID-19 in Iran: A National Retrospective Cohort Study. *Ann Intern Med*. 2021;174(1):125-127. doi:10.7326/M20-2911

720. Ciardullo S, Zerbini F, Perra S, et al. Impact of diabetes on COVID-19-related in-hospital mortality: a retrospective study from Northern Italy. *J Endocrinol Invest*. 2021;44(4):843-850. doi:10.1007/s40618-020-01382-7

721. Lagi F, Piccica M, Graziani L, et al. Early experience of an infectious and tropical diseases unit during the coronavirus disease (COVID-19) pandemic, Florence, Italy, February to March 2020. *Euro Surveill*. 2020;25(17). doi:10.2807/1560-7917.ES.2020.25.17.2000556

722. Wang Y, Zhou Y, Yang Z, Xia D, Hu Y, Geng S. Clinical Characteristics of Patients with Severe Pneumonia Caused by the SARS-CoV-2 in Wuhan, China. *Respiration*. 2020;99(8):649-657. doi:10.1159/000507940

723. Li K, Chen D, Chen S, et al. Predictors of fatality including radiographic findings in adults with COVID-19. *Respiratory Research*. 2020;21(1):146. doi:10.1186/s12931-020-01411-2

References for anti-asthmatic medicines SLR

1. Licari A., Castagnoli R., Votto M., Brambilla I., Ciprandi G., Marseglia G.L. Biologic Use in Allergic and Asthmatic Children and Adolescents during the COVID-19 Pandemic. *Pediatr Allergy Immunol Pulmonol*. 2020;33(3):155-158. doi:10.1089/ped.2020.1214

2. Kato H, Shimizu H, Shibue Y, et al. Clinical course of 2019 novel coronavirus disease (COVID-19) in individuals present during the outbreak on the Diamond Princess cruise ship. *J Infect Chemother*. 2020;26(8):865-869. doi:10.1016/j.jiac.2020.05.005

3. Sano T, Kimizuka Y, Fujikura Y, et al. COVID-19 in older adults: Retrospective cohort study in a tertiary hospital in Japan. *Geriatr Gerontol Int*. 2020;20(11):1044-1049. doi:10.1111/ggi.14034

4. Green I, Merzon E, Vinker S, Golan-Cohen A, Magen E. COVID-19 susceptibility in bronchial asthma. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.11.020

5. Dominguez-Ortega J, Lopez-Carrasco V, Barranco P, et al. Early experiences of SARS-CoV-2 infection in severe asthmatics receiving biologic therapy. *J Allergy Clin Immunol Pract*. 2020;8(8):2784-2786. doi:10.1016/j.jaip.2020.06.027

6. Choi J.C., Jung S.-Y., Yoon U.A., et al. Inhaled corticosteroids and COVID-19 risk and mortality: A nationwide cohort study. *J Clin Med*. 2020;9(11):1-13. doi:10.3390/jcm9113406

7. Rossi M, Rovati C, Arisi M, Soglia S, Calzavara-Pinton P. Management of adult patients with severe atopic dermatitis treated with dupilumab during COVID-19 pandemic: A single-center real-life experience. *Dermatol Ther*. 2020;33(4):e13765. doi:10.1111/dth.13765

8. Chhiba KD, Patel GB, Vu THT, et al. Prevalence and characterization of asthma in hospitalized and nonhospitalized patients with COVID-19. *J Allergy Clin Immunol*. 2020;146(2):307-314.e4. doi:10.1016/j.jaci.2020.06.010

9. Schultze A, Walker AJ, MacKenna B, et al. Risk of COVID-19-related death among patients with chronic obstructive pulmonary disease or asthma prescribed inhaled corticosteroids: an observational cohort study using the OpenSAFELY platform. *Lancet Respir Med*. 2020;8(11):1106-1120. doi:10.1016/S2213-2600(20)30415-X

10. Izquierdo JL, Almonacid C, Gonzalez Y, et al. The Impact of COVID-19 on Patients with Asthma. *Eur Respir J*. 2020;(8803460, ery). doi:10.1183/13993003.03142-2020

11. Yamasaki Y, Ooka S, Tsuchida T, et al. The peripheral lymphocyte count as a predictor of severe COVID-19 and the effect of treatment with ciclesonide. *Virus Res*. 2020;290(x98, 8410979):198089. doi:10.1016/j.virusres.2020.198089

12. Calmes D, Graff S, Maes N, et al. Asthma and COPD Are Not Risk Factors for ICU Stay and Death in Case of SARS-CoV2 Infection. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.09.044

13. Beurnier A, Jutant E-M, Jevnikar M, et al. Characteristics and outcomes of asthmatic patients with COVID-19 pneumonia who require hospitalisation. *Eur Respir J*. 2020;56(5). doi:10.1183/13993003.01875-2020

14. Garcia-Menaya J.M., Cordobes-Duran C., Rangel-Mayoral J.F., Garcia-Martin E., Agundez J.A.G. Outcomes and Laboratory and Clinical Findings of Asthma and Allergic Patients Admitted With Covid-19 in a Spanish University Hospital. *Front Pharmacol*. 2020;11((Garcia-Menaya) Allergy Service, Badajoz University Hospital, ARADyAL Instituto de Salud Carlos III, Badajoz, Spain):570721. doi:10.3389/fphar.2020.570721

15. Barroso B., Valverde-Monge M., Canas Jose A., et al. Prevalence, characteristics, and outcome of asthmatic patients with type 2 diseases in hospitalized patients with COVID-19 in Madrid, Spain. *J Invest Allergol Clin Immunol*. 2020;30(5):382-384. doi:10.18176/jiaci.0627

16. Attaway A.A., Zein J., Hatipoglu U.S. SARS-CoV-2 infection in the COPD population is associated with increased healthcare utilization: An analysis of Cleveland clinic's COVID-19 registry. *EClinicalMedicine*. 2020;26((Attaway, Zein, Hatipoglu) Respiratory Institute, Cleveland Clinic, 9500 Euclid Avenue A-90, Cleveland, OH 44195, United States):100515. doi:10.1016/j.eclinm.2020.100515

17. Haroun-Diaz E, Vazquez de la Torre M, Ruano FJ, et al. Severe asthma during the COVID-19 pandemic: Clinical observations. *J Allergy Clin Immunol Pract*. 2020;8(8):2787-2789. doi:10.1016/j.jaip.2020.06.033

18. Brenner E.J., Ungaro R.C., Gearry R.B., et al. Corticosteroids, But Not TNF Antagonists, Are Associated With Adverse COVID-19 Outcomes in Patients With Inflammatory Bowel Diseases: Results From an International Registry. *Gastroenterology*. 2020;159(2):481. doi:10.1053/j.gastro.2020.05.032

19. Zhang D., Du G., Du R., et al. Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial. *Lancet*. 2020;395(10236):1569-1578. doi:10.1016/S0140-6736%2820%2931022-9

20. Scire CA, Carrara G, Zanetti A, et al. COVID-19 in rheumatic diseases in Italy: first results from the Italian registry of the Italian Society for Rheumatology (CONTROL-19). Alessandri C BE Barsotti S, Bartoli F, Bartoloni E, Benucci M, Bergossi F, Bertolucci D, Bettio S, Biasi G, Bonfanti L, Bortolotti R, Bortoluzzi A, Campanaro F, Campochiaro C, Canti V, Cappelli A, Caprioli M, Carboni D, Carletto A, Carlo-Stella N, Carraro V, Castelnovo L, Ceccarelli F, Chimenti MS, Cipolletta E, Ciprian M, Conti F, Conticini E, Crisafulli F, Crotti C, Cuomo G, Cutolo M, Dantes M, Di Carlo M, Emmi G, Faggioli P, Fiocco U, Franceschini F, Fredi M, Gattamelata A, Gerardi MC, Germano G, Gerosa M, Guidelli G, Giollo A, Greco R, Iannone F, Lazzaroni MG, Lini D, Lomater C, Longhi M, Lurati A, Mastaglio C, Moschetti L, Nalli C, Olivo D, Orsolini G, Ossandon A, Pacucci VA, Panaro S, Parisi S, Piantoni S, Portuesi MG, Prandini P, Quartuccio L, Raffeiner B, Reggia R, Regola F, Riccieri V, Riva M, Romeo N, Foti R, Rossi D, Rotondo C, Saccardo F, Salaffi F, Sartorelli S, Sarzi Puttini P, Saviola G, Scarpa R, Scotti I, Silvagni E, Silveri F, Spinelli FR, Tardella M, Tinazzi I, Tirri E, Todoerti M, Ubiali T, Vadacca M, Varisco V, Zabotti A, Zandonella Callegher S, Zanframundo G, Zingarelli S, ed. *Clin Exp Rheumatol*. 2020;38(4):748-753.

21. Graziani D., Soriano J.B., Del Rio-Bermudez C., et al. Characteristics and prognosis of COVID-19 in patients with COPD. *J Clin Med*. 2020;9(10):1-11. doi:10.3390/jcm9103259

22. Du H, Dong X, Zhang J-J, et al. Clinical characteristics of 182 pediatric COVID-19 patients with different severities and allergic status. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14452

23. Hanon S, Brusselle G, Deschampheleire M, et al. COVID-19 and biologics in severe asthma: data from the Belgian Severe Asthma Registry. *European Respiratory Journal*. 2020;56(6). doi:10.1183/13993003.02857-2020

24. Heffler E, Detoraki A, Contoli M, et al. COVID-19 in Severe Asthma Network in Italy (SANI) patients: Clinical features, impact of comorbidities and treatments. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14532

25. Robinson LB, Fu X, Bassett IV, et al. COVID-19 severity in hospitalized patients with asthma: A matched cohort study. *J Allergy Clin Immunol Pract*. 2020;(101597220). doi:10.1016/j.jaip.2020.10.021

26. Choi YJ, Park J-Y, Lee HS, et al. Effect of Asthma and Asthma Medication on the Prognosis of Patients with COVID-19. *Eur Respir J*. 2020;(8803460, ery). doi:10.1183/13993003.02226-2020

27. Wang L, Foer D, Bates DW, Boyce JA, Zhou L. Risk factors for hospitalization, intensive care, and mortality among patients with asthma and COVID-19. *Journal of Allergy and Clinical Immunology*. 2020;146(4):808-812. doi:10.1016/j.jaci.2020.07.018

28. Li X, Xu S, Yu M, et al. Risk factors for severity and mortality in adult COVID-19 inpatients in Wuhan. *J Allergy Clin Immunol*. 2020;146(1):110-118. doi:10.1016/j.jaci.2020.04.006

29. Lombardi C, Roca E, Bigni B, Cottini M, Passalacqua G. Clinical course and outcomes of patients with asthma hospitalized for severe acute respiratory syndrome coronavirus 2 pneumonia: A single-center, retrospective study. *Ann Allergy Asthma Immunol*. 2020;125(6):707-709. doi:10.1016/j.anai.2020.07.029

30. Matucci A, Caminati M, Vivarelli E, et al. COVID-19 in severe asthmatic patients during ongoing treatment with biologicals targeting type 2 inflammation: Results from a multicenter Italian survey. *Allergy*. 2020;(39c, 7804028). doi:10.1111/all.14516

31. Caminati M, Vultaggio A, Matucci A, et al. Asthma in a large COVID-19 cohort: Prevalence, features, and determinants of COVID-19 disease severity. *Respir Med*. 2020;176(8908438, rme):106261. doi:10.1016/j.rmed.2020.106261

32. Smith SJ, Yang F, Chaudhuri R, et al. The impact of the first covid-19 surge on severe asthma patients in the uk. Which is worse: The virus or the lockdown? *ERJ Open Res*. 2021;7(1):1-8. doi:10.1183/23120541.00768-2020

33. Antonicelli L, Tontini C, Manzotti G, et al. Severe asthma in adults does not significantly affect the outcome of COVID-19 disease: Results from the Italian Severe Asthma Registry. *Allergy Eur J Allergy Clin Immunol*. 2021;76(3):902-905. doi:10.1111/all.14558

34. Ferastraoaru D, Hudes G, Jerschow E, et al. Eosinophilia in Asthma Patients Is Protective Against Severe COVID-19 Illness. *J Allergy Clin Immunol Pract*. 2021;9(3):1152-1162.e3. doi:10.1016/j.jaip.2020.12.045

35. Armentia A, Cortes SF, Simon AM, et al. Inhaled corticosteroids may have a protective effect against coronavirus infection. *Allergol Immunopathol (Madr)*. 2021;49(1):113-117. doi:10.15586/aei.v49i1.40

36. Floyd GC, Dudley JW, Xiao R, et al. Prevalence of asthma in hospitalized and non-hospitalized children with COVID-19. *J Allergy Clin Immunol Pract*. 2021;9(5):2077-2079.e2. doi:10.1016/j.jaip.2021.02.038

37. Liao S-Y, Petrache I, Fingerlin TE, Maier LA. Association of inhaled and systemic corticosteroid use with Coronavirus Disease 2019 (COVID-19) test positivity in patients with chronic pulmonary diseases. *Respir Med*. 2021;176(8908438, rme):106275. doi:10.1016/j.rmed.2020.106275

38. Antolin Amerigo D, Cubero JL, Colas C, Alobid I, Mullol J, Valero A. High frequency of smell and taste dysfunction in health care professionals with covid-19 working in allergy departments. *J Invest Allergol Clin Immunol*. 2021;31(2):151-161. doi:10.18176/jiaci.0670

39. So M, Kabata H, Takahashi M, Egorova NN, Kuno T. The Association of Inhaled Corticosteroid Before Admission and Survival of Patients with COVID-19. *J Aerosol Med Pulm Drug Deliv*. 2021;34(4):265-267. doi:10.1089/jamp.2021.0020

40. Inselman JW, Rank MA, Zawada SK, Jeffery MM. Which people with asthma are most likely to be hospitalized with COVID-19 in the United States?. *J Allergy Clin Immunol Pract*. 2021;9(5):2080-2082. doi:10.1016/j.jaip.2021.02.050

41. Williamson EJ, Walker AJ, Bhaskaran K, et al. Factors associated with COVID-19-related death using OpenSAFELY. *Nature*. 2020;584(7821):430-436. doi:10.1038/s41586-020-2521-4

42. Soldevila L, Valerio-Sallent L, Roure S, et al. Drug exposure may have a substantial influence on COVID-19 prognosis among residents of long-term care facilities: an exploratory analysis. *Int J Infect Dis*. 2021;109(c3r, 9610933):192-194. doi:10.1016/j.ijid.2021.07.007

43. Sen P, Majumdar U, Zein J, Hatipoglu U, Attaway AH. Inhaled corticosteroids do not adversely impact outcomes in COVID-19 positive patients with COPD: An analysis of Cleveland Clinic's COVID-19 registry. *PLoS ONE*. 2021;16(6):e0252576. doi:10.1371/journal.pone.0252576

44. Oddy C, McCaul J, Keeling P, et al. Pharmacological Predictors of Morbidity and Mortality in COVID-19. *J Clin Pharmacol*. 2021;((Oddy, McCaul, Keeling, Allington, Senn, Soni, Morrison, Mawella, Samuel, Dixon) St Helier Hospital, Wrythe Lane, Sutton, London, SM5 1AA, United Kingdom). doi:10.1002/jcph.1878

45. Bloom CI, Drake TM, Docherty AB, et al. Risk of adverse outcomes in patients with underlying respiratory conditions admitted to hospital with COVID-19: a national, multicentre prospective cohort study using the ISARIC WHO Clinical Characterisation Protocol UK. Alex B BB Barclay WS, Bogaert D, Chand M, Cooke GS, Filipe AD, Fletcher T, Green CA, Harrison EM, Hiscox JA, Ho AY, Horby PW, Ijaz S, Khoo S, Klenerman P, Law A, Lim WS, Mentzer AJ, Merson L, Meynert AM, Noursadeghi M, Moore SC,

Palmarini M, Paxton WA, Pollakis G, Price N, Rambaut A, Robertson DL, Russell CD, Sancho-Shimizu V, Scott JT, Silva T, Sigfrid L, Solomon T, Sriskandan S, Stuart D, Summers C, Tedder RS, Thomson EC, Thompson AR, Thwaites RS, Turtle LC, Zambon M, Hardwick H, Donohue C, Lyons R, Griffiths F, Oosthuyzen W, Norman L, Pius R, Fairfield CJ, Knight SR, Mclean KA, Murphy D, Shaw CA, Dalton J, Girvan M, Saviciute E, Roberts S, Harrison J, Marsh L, Connor M, Halpin S, Jackson C, Gamble C, Leeming G, Law A, Wham M, Clohisey S, Hendry R, Scott-Brown J, Greenhalf W, Shaw V, McDonald S, Keating S, Ahmed KA, Armstrong JA, Ashworth M, Asiimwe IG, Bakshi S, Barlow SL, Booth L, Brennan B, Bullock K, Catterall BW, Clark JJ, Clarke EA, Cole S, Cooper L, Cox H, Davis C, Dincarslan O, Dunn C, Dyer P, Elliott A, Evans A, Finch L, Fisher LW, Foster T, Garcia-Dorival I, Greenhalf W, Gunning P, Hartley C, Jensen RL, Jones CB, Jones TR, Khandaker S, King K, Kiy RT, Koukorava C, Lake A, Lant S, Latawiec D, Lavelle-Langham L, Lefteri D, Lett L, Livoti LA, Mancini M, McDonald S, McEvoy L, McLauchlan J, Metelmann S, Miah NS, Middleton J, Mitchell J, Moore SC, Murphy EG, Penrice-Randal R, Pilgrim J, Prince T, Reynolds W, Ridley PM, Sales D, Shaw VE, Shears RK, Small B, Subramaniam KS, Szemiel A, Taggart A, Tanianis-Hughes J, Thomas J, Trochu E, Tonder LV, Wilcock E, Zhang JE, Flaherty L, Maziere N, Cass E, Carracedo AD, Carlucci N, Holmes A, Massey H, Adeniji K, Agranoff D, Agwuh K, Ail D, Alegria A, Angus B, Ashish A, Atkinson D, Bari S, Barlow G, Barnass S, Barrett N, Bassford C, Baxter D, Beadsworth M, Bernatoniene J, Berridge J, Best N, Bothma P, Brealey D, Brittain-Long R, Bulteel N, Burden T, Burtenshaw A, Caruth V, Chadwick D, Chambler D, Chee N, Child J, Chukkambotla S, Clark T, Collini P, Cosgrove C, Cupitt J, Cutino-Moguel MT, Dark P, Dawson C, Dervisevic S, Donnison P, Douthwaite S, DuRand I, Dushianthan A, Dyer T, Evans C, Eziefula C, Fegan C, Finn A, Fullerton D, Garg S, Garg S, Garg A, Gkrania-Klotsas E, Godden J, Goldsmith A, Graham C, Hardy E, Hartshorn S, Harvey D, Havalda P, Hawcutt DB, Hobrok M, Hodgson L, Hormis A, Jacobs M, Jain S, Jennings P, Kaliappan A, Kasipandian V, Kegg S, Kelsey M, Kendall J, Kerrison C, Kerslake I, Koch O, Koduri G, Koshy G, Laha S, Laird S, Larkin S, Leiner T, Lillie P, Limb J, Linnett V, Little J, MacMahon M, MacNaughton E, Mankregod R, Masson H, Matovu E, McCullough K, McEwen R, Meda M, Mills G, Minton J, Mirfenderesky M, Mohandas K, Mok Q, Moon J, Moore E, Morgan P, Morris C, Mortimore K, Moses S, Mpenge M, Mulla R, Murphy M, Nagel M, Nagarajan T, Nelson M, Otahal I, Pais M, Panchatsharam S, Paraiso H, Patel B, Pattison N, Pepperell J, Peters M, Phull M, Pintus S, Pooni J, Post F, Price D, Prout R, Rae N, Reschreiter H, Reynolds T, Richardson N, Roberts M, Roberts D, Rose A, Rousseau G, Ryan B, Saluja T, Shah A, Shanmuga P, Sharma A, Shawcross A, Sizer J, Shankar-Hari M, Smith R, Snelson C, Spittle N, Staines N, Stambach T, Stewart R, Subudhi P, Szakmany T, Tatham K, Thomas J, Thompson C, Thompson R, Tridente A, Tupper-Carey D, Twagira M, Ustianowski A, Vallotton N, Vincent-Smith L, Visuvanathan S, Vuylsteke A, Waddy S, Wake R, Walden A, Welters I, Whitehouse T, Whittaker P, Whittington A, Wijesinghe M, Williams M, Wilson L, Wilson S, Winchester S, Wiselka M, Wolverson A, Wooton DG, Workman A, Yates B, Young P, ed. *Lancet Respir Med*. 2021;9(7):699-711. doi:10.1016/S2213-2600(21)00013-8

46. Meyer A, Semenzato L, Zureik M, Weill A, Carbonnel F, Dray-Spira R. Risk of severe COVID-19 in patients treated with IBD medications: a French nationwide study. *Aliment Pharmacol Ther*. 2021;54(2):160-166. doi:10.1111/apt.16410

47. An TJ, Kim Y, Park YB, et al. Inhaled corticosteroid is not associated with a poor prognosis in COVID-19. *Respirology*. 2021;26(8):812-815. doi:10.1111/resp.14108

48. Esposito AJ, Menon AA, Ghosh AJ, et al. Increased odds of death for patients with interstitial lung disease and COVID-19: A case-control study. *Am J Respir Crit Care Med*. 2020;202(12):1710-1713. doi:10.1164/rccm.202006-2441LE

49. Cosio BG, Shafiek H, Toledo-Pons N, et al. Characterization of COPD Admissions During the First COVID-19 Outbreak. *Int J Chron Obstruct Pulmon Dis*. 2021;16(101273481):1549-1554. doi:10.2147/COPD.S312493

50. Muñoz X, Pilia F, Ojanguren I, Romero-Mesones C, Cruz M-J. Is asthma a risk factor for COVID-19? Are phenotypes important? *ERJ Open Res*. 2021;7(1):00216-02020. doi:10.1183/23120541.00216-2020

51. Vila-Córcoles A, Ochoa-Gondar O, Satué-Gracia EM, et al. Influence of prior comorbidities and chronic medications use on the risk of COVID-19 in adults: a population-based cohort study in Tarragona, Spain. *BMJ Open*. 2020;10(12):e041577. doi:10.1136/bmjopen-2020-041577

52. Huh K, Ji W, Kang M, et al. Association of prescribed medications with the risk of COVID-19 infection and severity among adults in South Korea. *Int J Infect Dis*. 2021;104((Huh) Division of Infectious Diseases, Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul 06351, South Korea):7-14. doi:10.1016/j.ijid.2020.12.041

53. Beyzarov E, Chen Y, Naim K, et al. Global Safety Database Summary of COVID-19-Related Drug Utilization-Safety Surveillance: A Sponsor's Perspective. *Drug Saf*. 2021;44(1):95-105. doi:10.1007/s40264-020-01035-x

54. Recalde-Zamacona B T-VA Campo A, Satrustegui-Alzugaray B, Fernandez-Alonso M, Inigo M, Rodriguez-Mateos M, Di Frisco M, Felgueroso C, Berto J, Marin-Oto M, Alcaide AB, Zulueta JJ, Seijo L, Landecho MF. Chronic rhinosinusitis is associated with prolonged SARS-CoV2 RNA shedding in upper respiratory tract samples: a case-control study. *Journal of internal medicine*. Published online 2020.

55. Rabha AC, Oliveira FID, Oliveira TAD, et al. CLINICAL MANIFESTATIONS of CHILDREN and ADOLESCENTS with COVID-19: REPORT of the FIRST 115 CASES from SABARA HOSPITAL INFANTIL. *Rev Paul Pediatr*. 2021;39((Rabha, Oliveira, Oliveira, Cesar, Fongaro, Mariano, Camargo, Fernandes) Fundacao Jose Luiz Egydio Setubal, Instituto Pensi, Sabara Hospital Infantil, SAo Paulo, SP, Brazil):e2020305. doi:10.1590/1984-0462/2021/39/2020305

56. Pepe M, Brindicci G, Nestola PL, et al. Clinical presentation, therapeutic approach, and outcome of young patients admitted for COVID-19, with respect to the elderly counterpart. *Clin Exp Med*. 2021;21(2):249-268. doi:10.1007/s10238-021-00684-1

57. Becerra-Munoz VM, Gomez-Doblas JJ, Nunez-Gil IJ, et al. Clinical profile and predictors of in-hospital mortality among older patients hospitalised for COVID-19. *Age Ageing*. 2021;50(2):326-334. doi:10.1093/ageing/afaa258

58. Timberlake DT, Narayanan D, Ogbogu PU, et al. Severity of COVID-19 in hospitalized patients with and without atopic disease. *World Allergy Organiza journal*. 2021;14(2):100508. doi:10.1016/j.waojou.2021.100508

59. Mather JF, Mosleh W, McKay RG. The impact of asthma on in-hospital outcomes of COVID-19 patients. *J Asthma*. 2021;(hf7, 8106454):1-7. doi:10.1080/02770903.2021.1944187

60. Metbulut AP, Mustafaoglu O, Sen G, et al. Evaluation of the Clinical and Laboratory Findings of Asthmatic Children with SARS-CoV-2 Infection. *Int Arch Allergy Immunol*. 2021;(bj7, 9211652):1-8. doi:10.1159/000517153

61. Rial MJ, Valverde M, Del Pozo V, et al. Clinical characteristics in 545 patients with severe asthma on biological treatment during the COVID-19 outbreak. *J Allergy Clin Immunol Pract*. 2021;9(1):487-489.e1. doi:10.1016/j.jaip.2020.09.050

62. Eger K, Hashimoto S, Weersink EJM, et al. Poor outcome of SARS-CoV-2 infection in patients with severe asthma on biologic therapy. *Respir Med*. 2021;177((Eger, Hashimoto, Weersink, Bel) Dept. Respiratory Medicine, Amsterdam University Medical Center, University of Amsterdam, Meibergdreef 9, AZ, Amsterdam 1105, Netherlands):106287. doi:10.1016/j.rmed.2020.106287

63. Adir Y, Humbert M, Saliba W. COVID-19 risk and outcomes in adult asthmatic patients treated with biologics or systemic corticosteroids: Nationwide real-world evidence. *J Allergy Clin Immunol*. 2021;(h53, 1275002). doi:10.1016/j.jaci.2021.06.006

64. Beketova TV, Babak VV, Suprun MD. The course and outcomes of Covid-19 in patients with anca-associated systemic vasculitis, receiving biological therapy (rituximab, mepolizumab): The results of the first 8 months of the pandemic. *Naucno-Prakt Revmatol*. 2021;59(1):37-46. doi:10.47360/1995-4484-2021-37-46

65. Diaz-Campos RM, Garcia-Moguel I, Pina-Maiquez I, Fernandez-Rodriguez C, Melero-Moreno C. Prevalence and Influence of COVID-19 in Asthma Control and Lung Function in Severe Asthma Patients Receiving Biological Treatment. *J Investig Allergol Clin Immunol*. 2021;31(4):362-363. doi:10.18176/jiaci.0695