

**Evidence Update on COVID-19**  
**Comorbidities**

This is not a clinical guideline or SOP. This is a summary of the latest evidence available internationally on the management, treatment and science underlying COVID-19 disease.

Most of the advice on co-morbidities and COVID-19 currently relates to data from influenza

**Rates of co-morbidities in diagnosed COVID-19 patients**

Disease	<a href="#">ISARIC</a> , 2020 (1123*) mostly UK	<a href="#">ICNARC</a> , 2020 (UK 2249 ICU)	<a href="#">Guan</a> et al., ERJ, 2020 (1590) China	<a href="#">Yang et al., JID, 2020</a> (46,428)	<a href="#">Zhou</a> et al., Lancet, 2020 (191)	<a href="#">Huang</a> et al., Lancet, 2020 (41)	<a href="#">Chen et al., Lancet, 2020</a> (99)	Chow et al., <a href="#">CDC</a> , 2020 (7162) USA	<a href="#">Yang</a> et al., Lancet RM, 2020 (52 critical)	<a href="#">Zhang et al., Allergy, 2020</a> (140 critical)	<a href="#">Grasse li</a> et al. JAMA, 2020 (1591 ICU)	<a href="#">Onder</a> et al., JAMA, 2020 (355 dead) Italy
>1 comorbidity			25% (399)		48% (91)	32% (19)	51% (50)	38% (2692)	40% (21)		68% (709)	
Hypertension			17%	17%	30%	15%				30%	49%	
CVD	20% (225)		54%	5%	8%	15%	40%	9%	10%		21%	30%
Cerebrovascular disease			2%						13%			
Diabetes	21% (231)		8%	8%	19%	20%		11%	9%	12%	17%	36%
COPD			1.5%						8%	1.4%	4%	
Kidney disease	9% (104)		1.3%					3%			3%	
Cancer	8% (89)		1.1%				1%		4%		8%	25%
Immuno-deficiency	<0.1% (4)		0.2%					4%				
Respiratory disease (asthma, COPD etc)	23% (126+127)			2.4%			1%	9%		0%		
Obesity (BMI) 30-40 40+	9% (104)	31% 7%						0.2%				

\*Only 806 confirmed positive by lab test

Age is still the biggest risk factor >60 years ([WHO](#)). But increased numbers of comorbidities appear to result in worse outcomes in COVID-19:

- Severe cases (ICU/death) more likely to have one (33%) or two (40%) comorbidity compared to non-severe cases (10%)- from 1590 patients self reporting in China [Guan](#)
- Patients that die are more likely to have one comorbidity (only 3/355 did not) [Onder](#)
  - 25% had 1 disease, 25% had 2 diseases, 48% had 3 or more diseases (355 patients)
- In US, people in ICU more likely to have one condition (78% vs 71% not ICU but in hospital vs. 27 not hospitalised)

**Cardiovascular disease**

- Elevated troponin levels associated with increased mortality, development of ARDS, malignant arrhythmia, acute coagulopathy and acute kidney injury in COVID-19 patients (52 patients had myocardial injury, 66 CVD, 187 patients) [Guo](#)
- Hypertension caused 2.5 fold increased risk of severe COVID-19 and death [Lippi](#)
  - 2893 patient pooled analysis
  - ACE inhibitors may be more susceptible (no proof)

**Cancer**

- 18 cancer patients showed higher risk of ICU admission and death (39% vs 8% of 1590 total cases) - suggest PPE for cancer patients and survivors [Liang](#)

**Diabetes**

- Patients are at general increased risk of respiratory infections, with this risk is managed with good glycaemic control [Gupta](#)
- Influenza - diabetic patients more likely to be hospitalised, hyperglycaemia may increase viral replication and suppress antiviral immune response (diabetic mice have increased flu titres) and lower lethal dose [Hulme](#)
- Diabetic mice show reduced immune response and increased immune cell infiltration to lungs when infected with MERS [Kulcsar](#)
- Increased mortality in diabetic COVID-19 patients (7.3% vs 2.3% overall of 44672 cases) [Wu](#)

- **Asthma**

- No current evidence of increased risk

**Risk factors for ICU admission**

	<a href="#">UK data ICNARC</a>	<a href="#">UK data ISARIC</a>	<a href="#">Italy data</a>
Age	>60	>60	>60
Male	73% male	55% male	82% male
Ethnicity	65% white		
Obese	37%		

Smoking - current smokers 1.45 times more likely to have severe complications compared to former and non-smokers, alongside increased mortality (38.5% vs 6.4% in total population) [Alqahanti](#)

UK data - ICNARC 2249 patients, ISARIC 1123 patients

Italy data - 1591 patients Lombardy region

[Xu](#) - 4061 patients - Male, Obese, diabetes, hypertension, CVD and COPD risk factors

[Li](#) - 1527 patients (severe vs. not severe) - Diabetes, hypertension and CVD risk factors

[Huang](#) - 221 patients - Obesity and diabetes risk factors