

## Welcome to the COVID-CF project in Europe

CF patient registries throughout Europe have collected data about people with CF who become infected with SARS-Cov-2, causing the illness COVID-19.

Countries that contribute annual data to the ECFS Patient Registry (ECFSPR; [www.ecfs.eu/ecfspr](http://www.ecfs.eu/ecfspr)) were invited to report COVID-19 case data of people with a PCR-confirmed diagnosis of CF. Centres reported data directly to the ECFSPR, and aggregated data was provided by national registries that use their own data-collection system. Here we present centralised, anonymised data, which we hope to update weekly.

It is possible that not all cases have been reported yet. Since the data is preliminary, incomplete, might change over time, and the number of cases is low, the information should not be used to direct clinical decisions. A more substantial statistical analysis will be performed and published later.

Definitions are provided for all the variables measured at the end of this report.

### Summary (up to 10 December 2020)

**554**

People with CF  
have COVID-19  
(including some cases  
not confirmed by PCR)

**234**

PCR-confirmed  
cases with data  
available

**13**

Needed  
intensive care

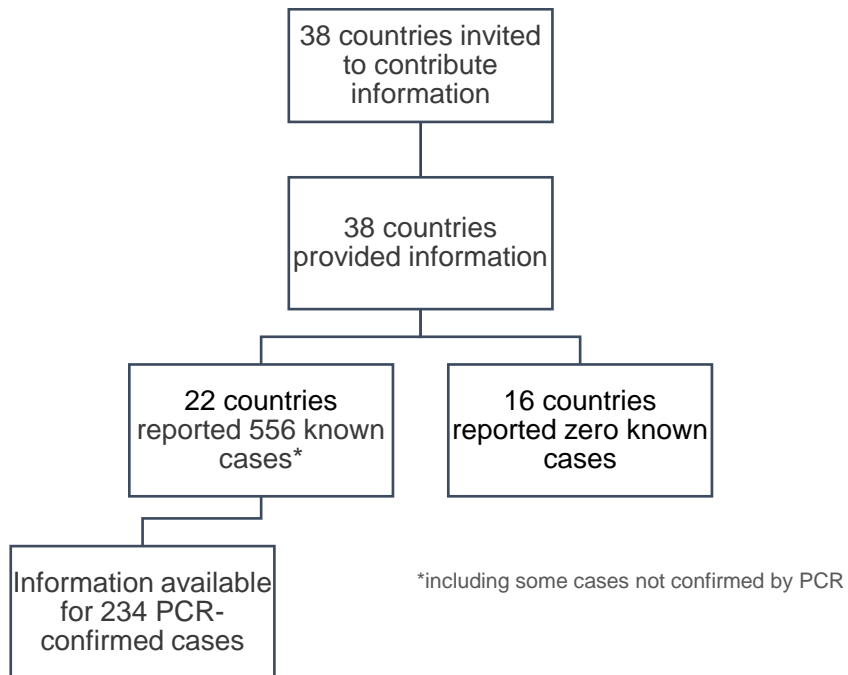
**5**

Died

- 3 critical cases
- The most common treatments were additional antibiotics (oral and intravenous) and azithromycin

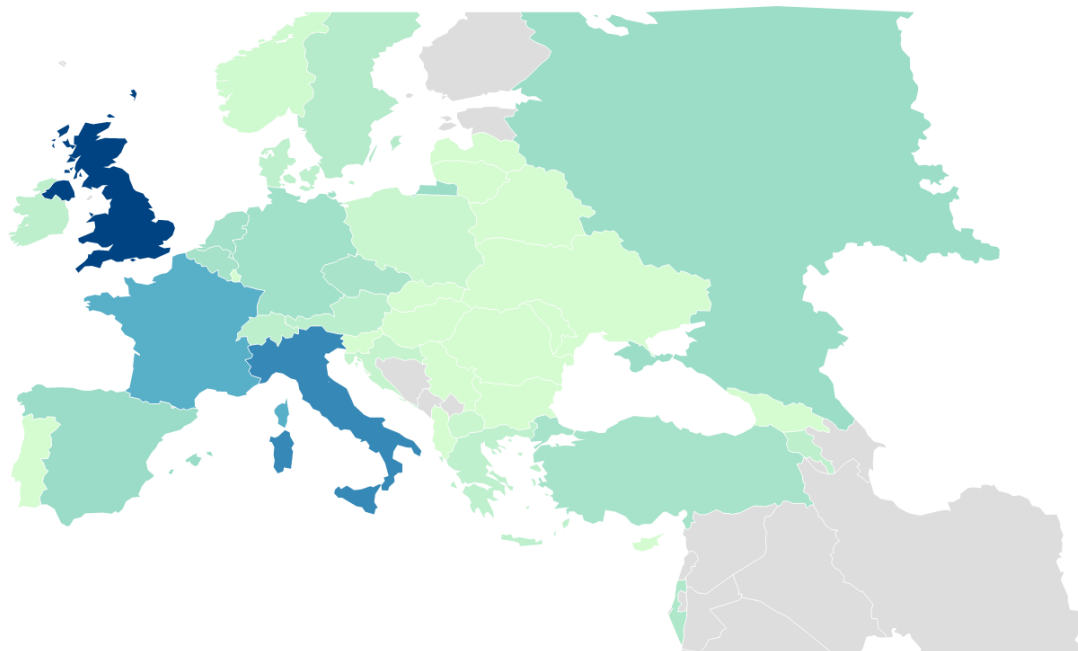
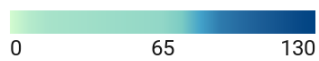
## Distribution in Europe

The following flow chart presents the number of countries that reported COVID-19 cases in people with CF by 10 December 2020.



## COVID-19 in people with CF

Data up to 10 December 2020 (n=556)



Countries in grey not in ECFSPR

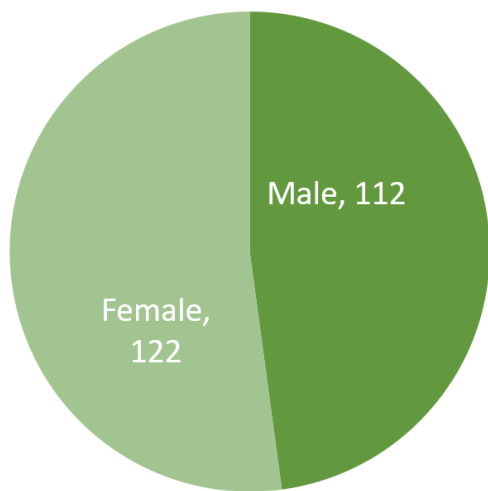
Created with Datawrapper

## Summary data for the 234 cases with information

The rest of this report presents data for the 234 reported cases with at least partial data. If case reports were incomplete, the missing information has not been considered.

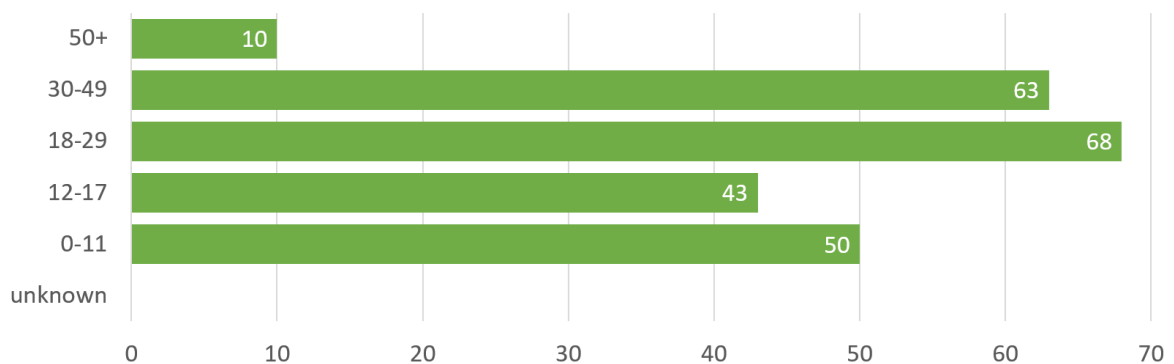
### Demographics

#### Gender



#### Age category (years)

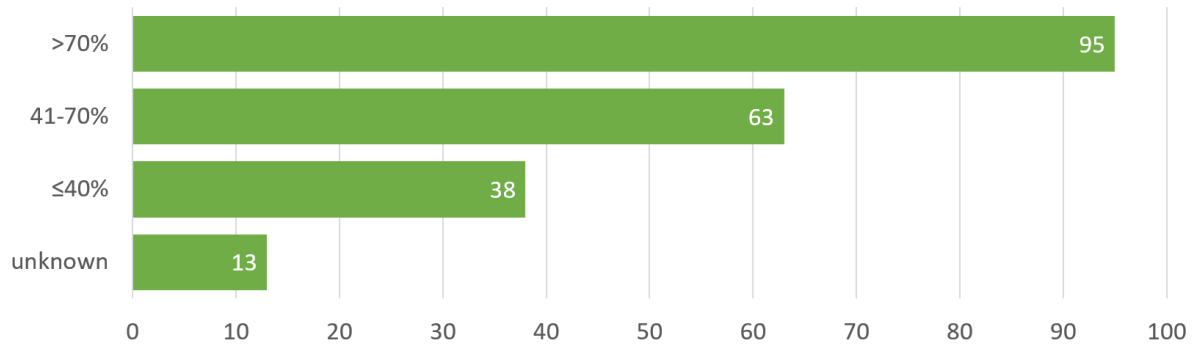
##### Number of patients (n=234)



## Cystic fibrosis characteristics

### Percent predicted FEV<sub>1</sub>, by category

#### Number of patients (n=209\*)



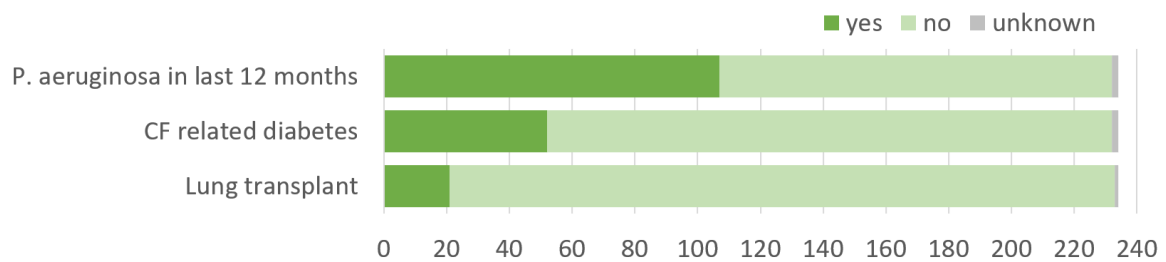
Note: ppFEV<sub>1</sub> = percent predicted forced expiratory volume in one second.

\*Percent predicted FEV<sub>1</sub> was only calculated for patients aged 6 years and over

## Other cystic fibrosis characteristics

#### Number of patients (n=234)

Patients could have between 0 and 3 of these characteristics

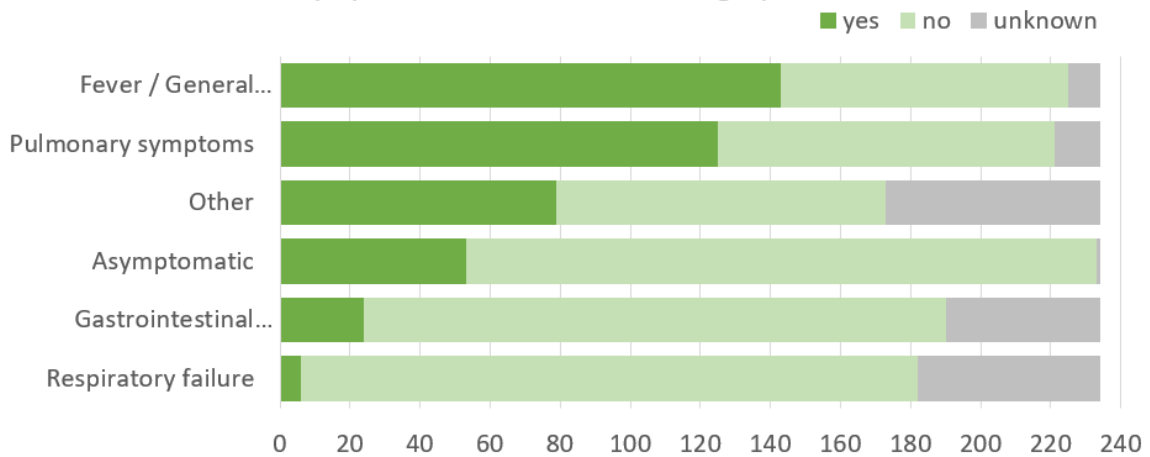


# COVID-19 symptoms

## Categories of symptoms

### Number of patients (n=234)

Patients could have symptoms in more than one category



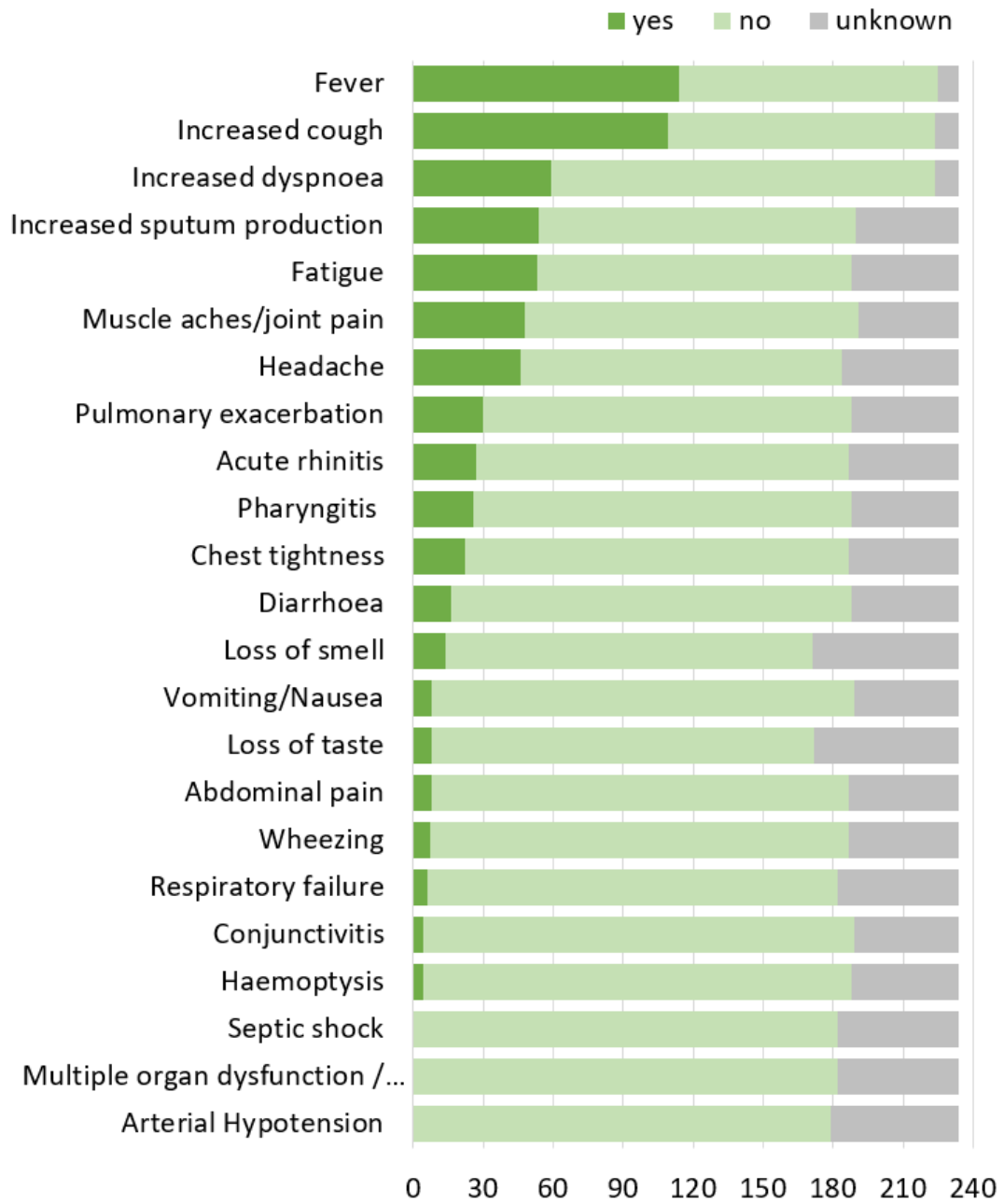
Categories of symptoms:

- Fever / General symptoms: fever, fatigue, headache, arthralgia/myalgia
- Pulmonary symptoms: increased cough, dyspnoea, chest tightness, wheezing, sputum production, haemoptysis
- Other: none of the above
- Asymptomatic: none of the symptoms reported
- Gastrointestinal symptoms: diarrhoea, vomiting/nausea, abdominal pain
- Respiratory failure: respiratory failure

## Individual symptoms

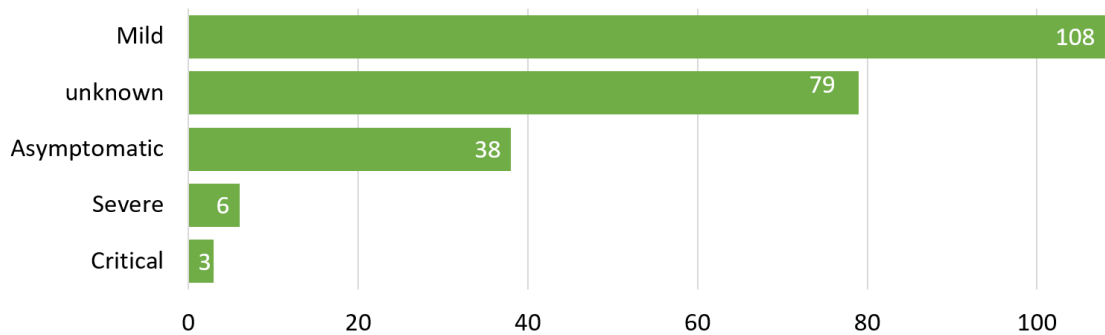
Number of patients (n=234)

Patients could have more than 1 symptom



## COVID-19 severity

### Number of patients (n=234)



**Mild:** Patients without pneumonia or cases of mild pneumonia

**Severe:** Patients who suffered from shortness of breath, respiratory frequency  $\geq 30$ /minute, blood oxygen saturation  $\leq 93\%$ , PaO<sub>2</sub>/FiO<sub>2</sub> ratio  $< 300$ , and/or lung infiltrates  $> 50\%$  within 24–48 hours

**Critical:** Patients who suffered respiratory failure, septic shock, and/or multiple organ dysfunction or failure.

## COVID-19 treatment

### Place of care



84 patients  
were hospitalised



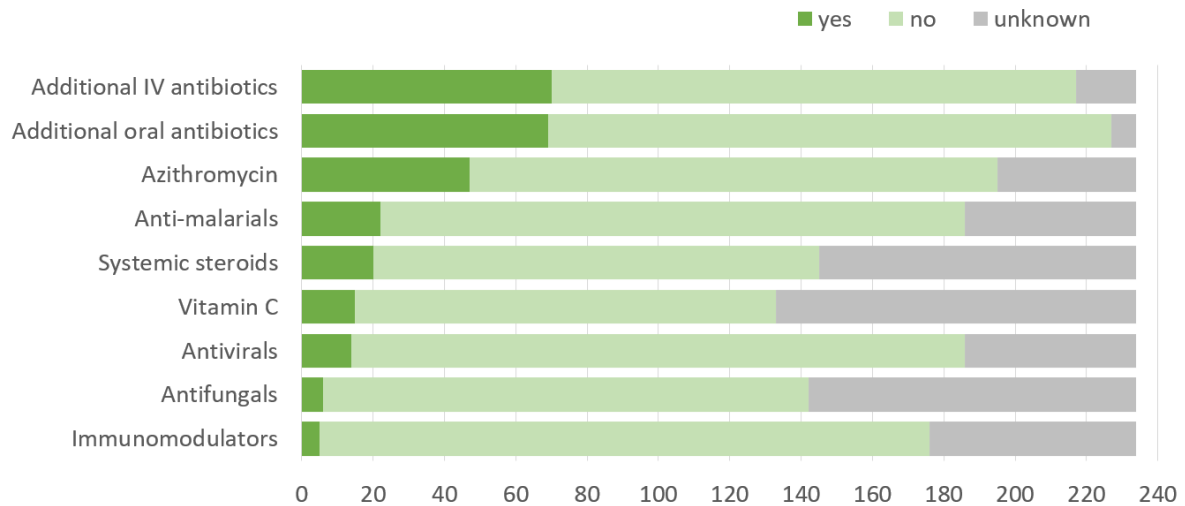
13 hospitalised patients  
needed ICU care

# COVID-19 treatment

## Pharmacological treatment

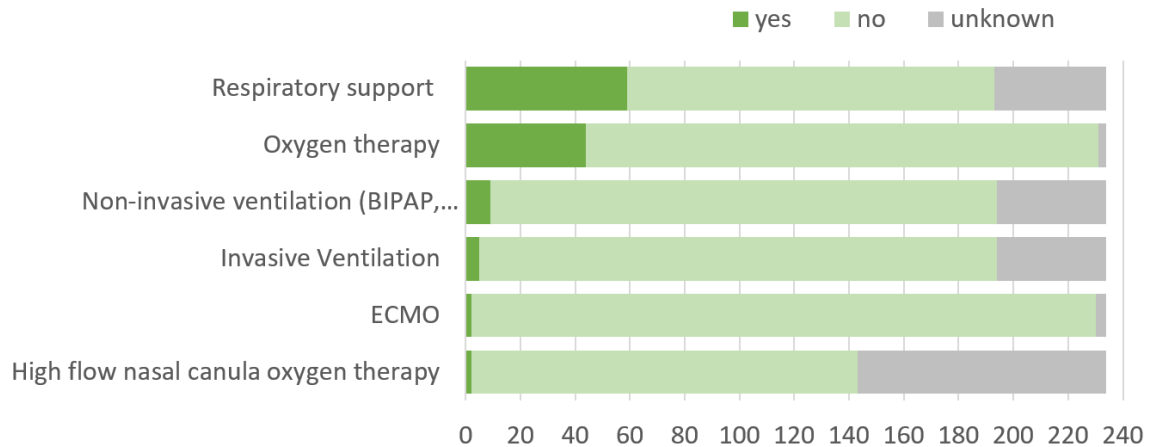
### Number of patients (n=234)

Patients could receive more than one treatment



## Oxygen and respiratory support

### Number of patients (n=234)



Abbreviations: BIPAP = bi-level positive airway pressure, CPAP = continuous positive airway pressure, ECMO = extra corporeal membrane oxygenation

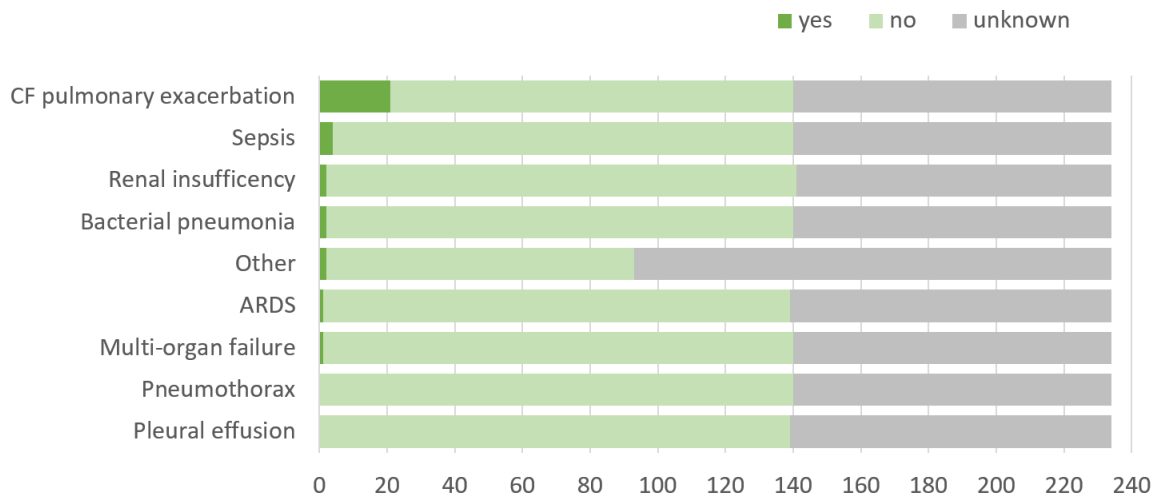
\* In certain cases, patients can have more than one type of respiratory support (e.g. ECMO and invasive ventilation). Therefore, the numbers of patients who needed each type of respiratory support may exceed the total number of patients who needed respiratory support.



## COVID-19 complications

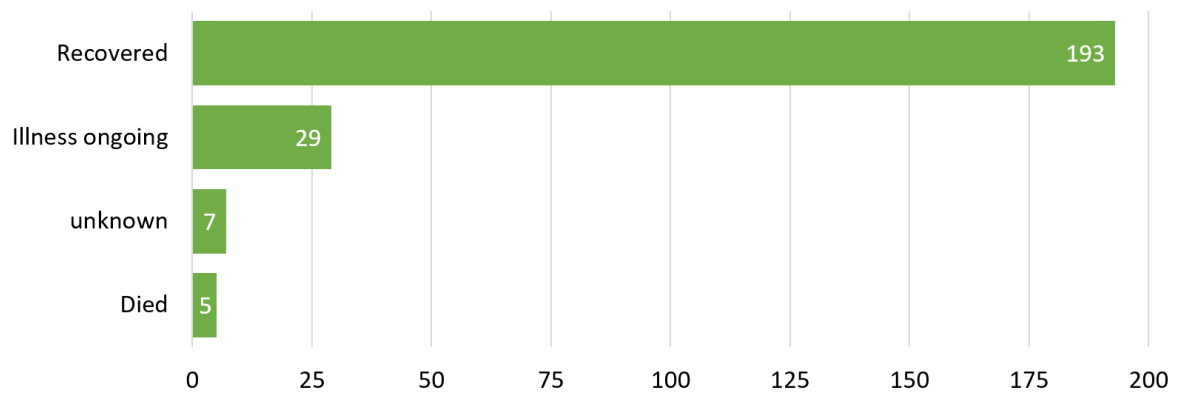
### Number of patients (n=234)

Patients could have more than one complication



## COVID-19 outcomes

### Number of patients (n=234)



## Footnotes and references

For data submitted directly to ECFSPR, the following references were used for computation of ppFEV<sub>1</sub>.

- Percent predicted FEV<sub>1</sub> was calculated using the calculator <http://gligastransfer.org.au/calcs/spiro.html> based on the last 3 FEV<sub>1</sub> (pre-bronchodilator) measurements before infection with SARS-Cov-2.

Icons are from:

- Home by Kahalap from the Noun Project
- Hospital by Made from the Noun Project
- Medical treatment by visual world from the Noun Project