



## Characteristics of SARS-CoV-2 patients dying in Italy Report based on available data on April 13<sup>th</sup>, 2020

### 1. Sample

The present report describes characteristics of 18,641 SARS-CoV-2 patients dying in Italy.\* Geographic distribution across the 19 regions and 2 autonomous provinces of Trento and Bozen is presented in the table below. Data are update to April 13<sup>th</sup>, 2020.

**Tabel 1.** Geographic distribution of deceased patients SARS-CoV-2 positive

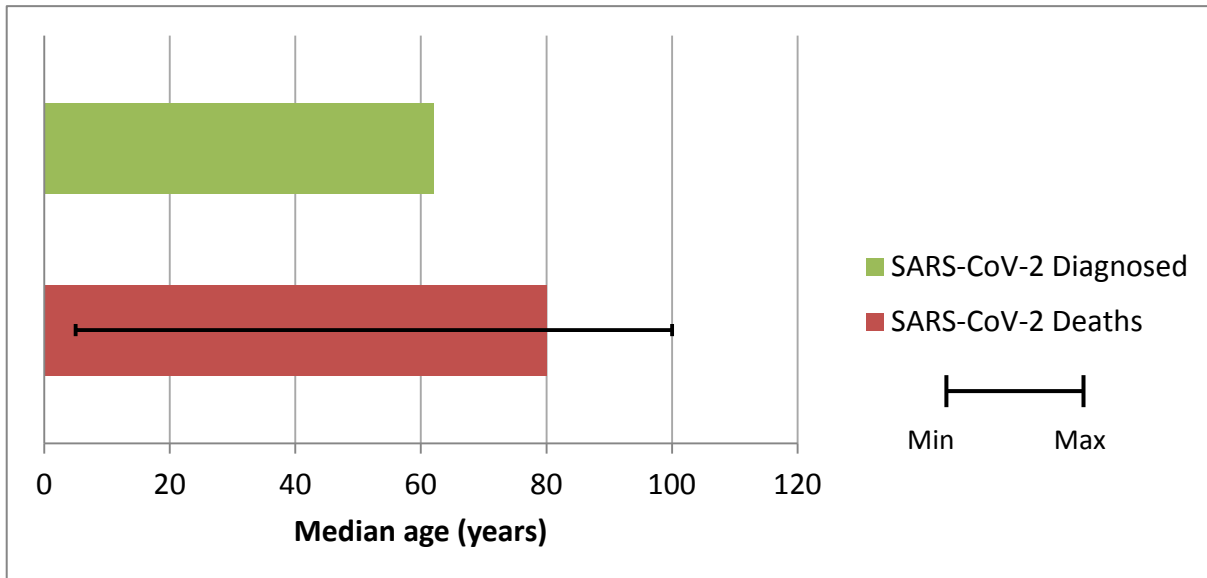
REGION	N	%
Lombardia	10,629	57.0
Emilia-Romagna	2,551	13.7
Piemonte	1,462	7.8
Veneto	883	4.7
Liguria	524	2.8
Marche	414	2.2
Toscana	324	1.7
Trento	293	1.6
Puglia	266	1.4
Lazio	254	1.4
Bolzano	215	1.2
Friuli Venezia Giulia	197	1.1
Campania	139	0.7
Sicilia	122	0.7
Valle d'Aosta	121	0.6
Sardegna	73	0.4
Umbria	56	0.3
Calabria	50	0.3
Abruzzo	35	0.2
Basilicata	18	0.1
Molise	15	0.1
<b>Total</b>	<b>18,641</b>	<b>100.0</b>

\* SARS-CoV-2 related deaths presented in this report are those occurring in patients who test positive for SARS-CoV-2RT by PCR, independently from pre-existing diseases.

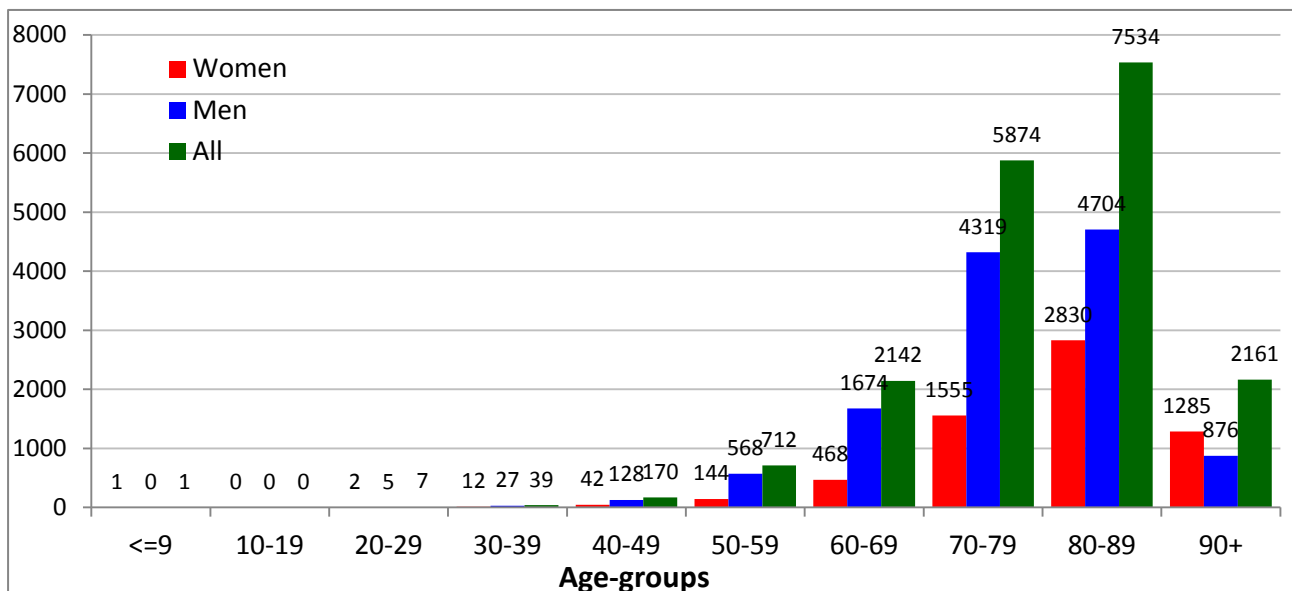
## 2. Demographics

Mean age of patients dying for SARS-CoV-2 infection was 79 years (median 80, range 5-100, IQR 73 -86). Women were 6,339 (34.0%). *Figure 1* shows that median age of patients dying for SARS-CoV-2 infection was more than 15 years higher as compared with the national sample diagnosed with SARS-CoV-2 infection (median age 62 years). *Figure 2* shows the absolute number of deaths by age group. Women dying for SARS-CoV-2 infection had an older age than men (median age women 83 - median age men 79).

**Figure 1.** Median age of patients with SARS-CoV-2 infection and SARS-CoV-2 positive deceased patients



**Figure 2.** Absolute number of deaths by age group



Note: For 1 deceased person age was not possible to be evaluated

### 3. Pre-existing conditions

Table 1 presents most common comorbidities diagnosed before SARS-CoV-2 infection. Data on diseases were based on chart review and was available on 1,596 patients dying in-hospital for whom it was possible to analyse clinic charts. Mean number of diseases was 3.3 (median 3, SD 1.9). Overall, 3.3% of the sample presented with a no comorbidities, 14.5% with a single comorbidity, 20.7% with 2, and 61.5% with 3 or more.

Before hospitalization, 25% of SARS-CoV-2 positive deceased patients followed ACE-inhibitor therapy and 16% angiotensin receptor blockers-ARBs therapy. This information can be underestimated because data on drug treatment before admission were not always described in the chart.

**Table 1.** Most common comorbidities observed in SARS-CoV-2 positive deceased patients

<b>Diseases</b>	<b>N</b>	<b>%</b>
<i>Ischemic heart disease</i>	<i>446</i>	<i>27.9</i>
<i>Atrial Fibrillation</i>	<i>357</i>	<i>22.4</i>
<i>Heart failure</i>	<i>249</i>	<i>15.6</i>
<i>Stroke</i>	<i>174</i>	<i>10.9</i>
<i>Hypertension</i>	<i>1126</i>	<i>70.6</i>
<i>Type 2-Diabetes</i>	<i>520</i>	<i>32.6</i>
<i>Dementia</i>	<i>236</i>	<i>14.8</i>
<i>COPD (Chronic Obstructive Pulmonary Disease)</i>	<i>286</i>	<i>17.9</i>
<i>Active cancer in the past 5 years</i>	<i>261</i>	<i>16.4</i>
<i>Chronic liver disease</i>	<i>60</i>	<i>3.8</i>
<i>Chronic renal failure</i>	<i>365</i>	<i>22.9</i>
<i>HIV Infection</i>	<i>3</i>	<i>0.2</i>
<i>Autoimmune diseases</i>	<i>53</i>	<i>3.3</i>
<i>Obesity</i>	<i>182</i>	<i>11.4</i>
<b>Number of comorbidities</b>		
<i>0 comorbidities</i>	<i>53</i>	<i>3.3</i>
<i>1 comorbidity</i>	<i>231</i>	<i>14.5</i>
<i>2 comorbidities</i>	<i>331</i>	<i>20.7</i>
<i>3 comorbidities and over</i>	<i>981</i>	<i>61.5</i>

Table 3 presents the most common pre-existing chronic pathologies in patients who died, separately in men (n = 1,088) and women (n = 508). The average number of pathologies observed in women is 3.4 (median 3, Standard Deviation 1.9). In men the average number of pathologies observed is 3.3 (median 3, Standard Deviation 1.9).

**Tabella 3.** Most common comorbidities observed in SARS-CoV-2 positive deceased patients by gender

	Women		Men	
<b>Diseases</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<i>Ischemic heart disease</i>	104	20.5	342	31.4
<i>Atrial Fibrillation</i>	118	23.2	239	22.0
<i>Heart Failure</i>	104	19.7	145	13.1
<i>Stroke</i>	52	10.2	122	11.2
<i>Hypertension</i>	378	74.4	748	68.8
<i>Type 2-Diabetes</i>	161	31.7	359	33.0
<i>Dementia</i>	95	18.7	141	13.0
<i>COPD (Chronic Obstructive Pulmonary Disease)</i>	67	13.2	219	20.1
<i>Active cancer in the past 5 years</i>	82	16.1	179	16.5
<i>Chronic liver disease</i>	14	2.8	46	4.2
<i>Chronic renal failure</i>	102	20.1	263	24.2
<i>HIV Infection</i>	0	0.0	3	0.3
<i>Autoimmune diseases</i>	24	4.7	29	2.7
<i>Obesity</i>	69	13.6	113	10.4
<b>Number of comorbidities</b>				
<i>0 comorbidities</i>	9	1.8	44	4.0
<i>1 comorbidity</i>	70	13.8	161	14.8
<i>2 comorbidities</i>	116	22.8	215	19.8
<i>3 comorbidities and over</i>	313	61.6	668	61.4

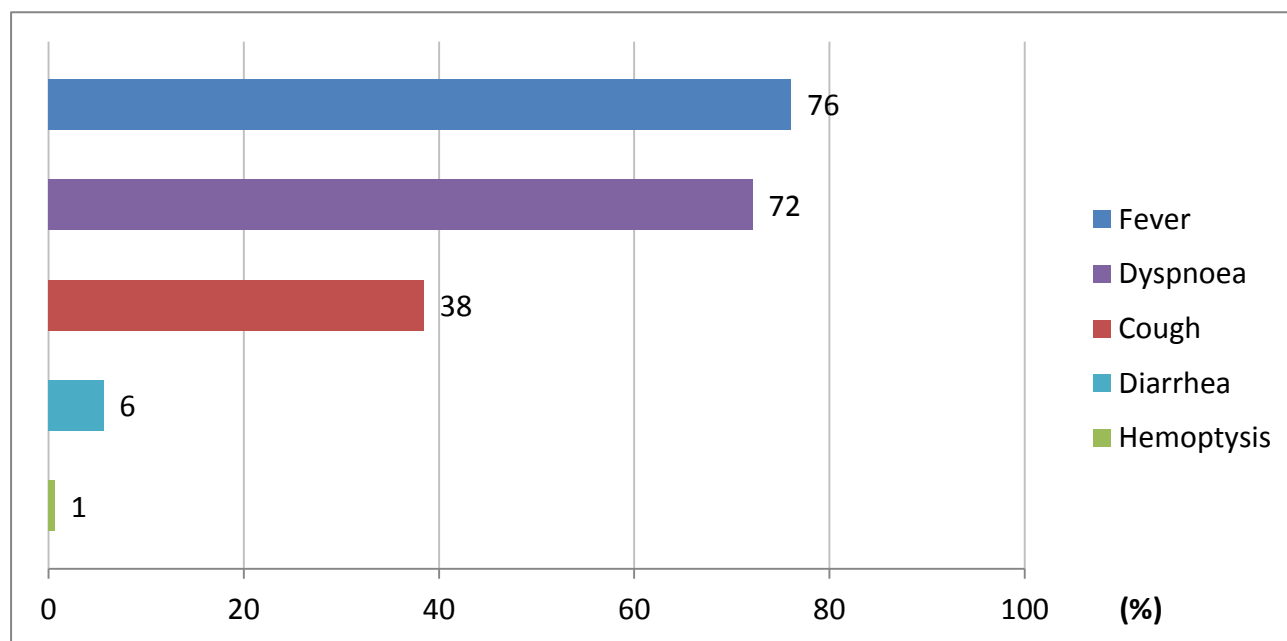
#### 4. Diagnosis of hospitalization

In 93.0% of hospitalizations, conditions (e.g. pneumonia, respiratory failure) or symptoms (e.g. fever, dyspnoea, cough) compatible with SARS-CoV-2 were mentioned. In 107 cases (7.0% of cases) the diagnosis of hospitalization was not related to the infection. In 9 cases the diagnosis of hospitalization concerned exclusively neoplastic pathologies, in 49 cases cardiovascular pathologies (for example Acute Myocardial Infarction-AMI, heart failure, stroke), in 14 cases gastrointestinal pathologies (for example cholecystitis, perforation of the intestine, intestinal obstruction, cirrhosis), in 35 cases other pathologies.

## 5. Symptoms

Figure 3 shows symptoms most commonly observed at hospital admission. Fever, dyspnoea and cough were the most commonly observed symptoms, while diarrhoea and haemoptysis were less commonly observed. Overall, 5.7% of patients did not present any symptoms at hospital admission.

**Figure 3.** Most common symptoms observed in SARS-CoV-2 positive deceased patients



## 6. Acute conditions

**Acute Respiratory Distress syndrome was observed in the majority of patients (96.8% of cases),** followed by acute renal failure (23.0%). Superinfection was observed in 11.6% and acute cardiac injury in 9.5% of cases.

## 7. Treatments

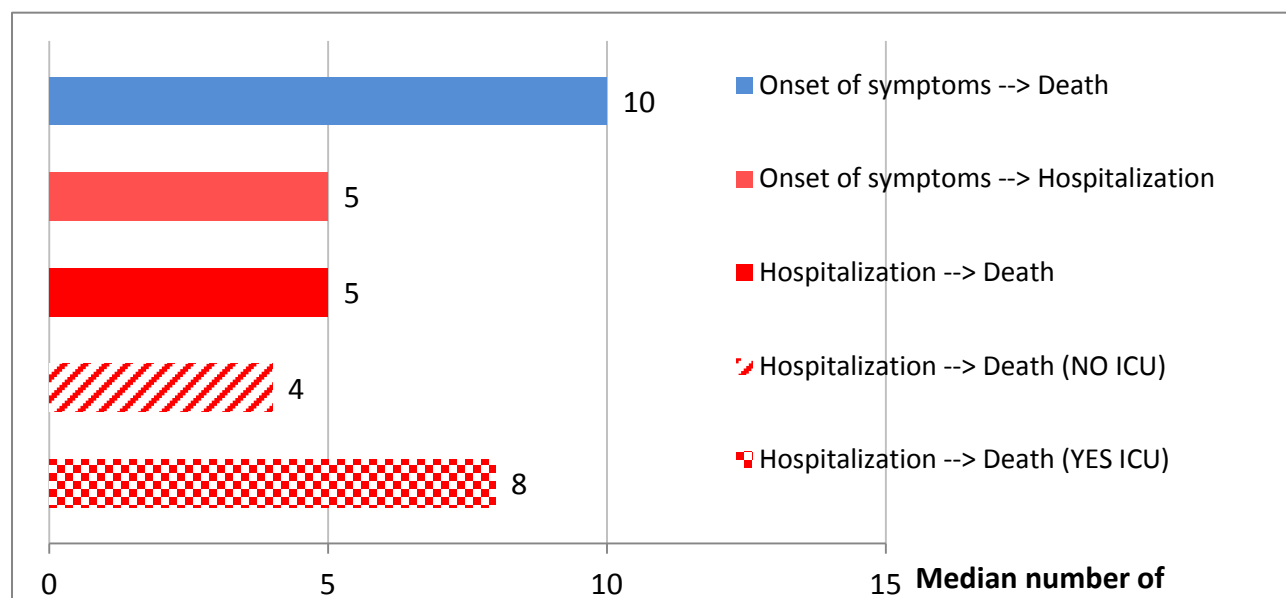
Antibiotics were used by 84% of patients during hospital stay, while less used were antivirals (56%) and corticosteroids (34%). Concomitant use of these 3 treatments was observed in 19.3% of cases.

Out of SARS-CoV-2 positive deceased patients, 3.1% were treated with Tocilizumab during hospitalization.

## 8. Time-line

Figure 4 shows, for SARS-CoV-2 positive deceased patients, the median times, in days, from the onset of symptoms to death (10 days), from the onset of symptoms to hospitalization (5 days) and from hospitalization to death (5 days). The time from hospitalization to death was 4 days longer in those who were transferred to intensive care than those who were not transferred (8 days vs. 4 days).

**Figure 4.** Median hospitalization times (in days) in SARS-CoV-2 positive deceased patients



## 9. Deaths under the age of 50 years

As of April 13<sup>th</sup>, 217 out of the 18,641 (1.2%) positive SARS-CoV-2 patients under the age of 50 died. In particular, 47 of these were less than 40 years (32 men and 15 women), age range between 5 and 39 years. For 6 patients under the age of 40 years no clinical information is available; the remaining 33 had serious pre-existing pathologies (cardiovascular, renal, psychiatric pathologies, diabetes, obesity) and 8 had no major pathologies.

**This report was produced by SARS-CoV-2 Surveillance Group**

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