



## Characteristics of SARS-CoV-2 patients dying in Italy Report based on available data on July 22<sup>nd</sup>, 2020

### 1. Sample

The present report describes characteristics of 34,142 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 July 22<sup>nd</sup>, 2020.

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

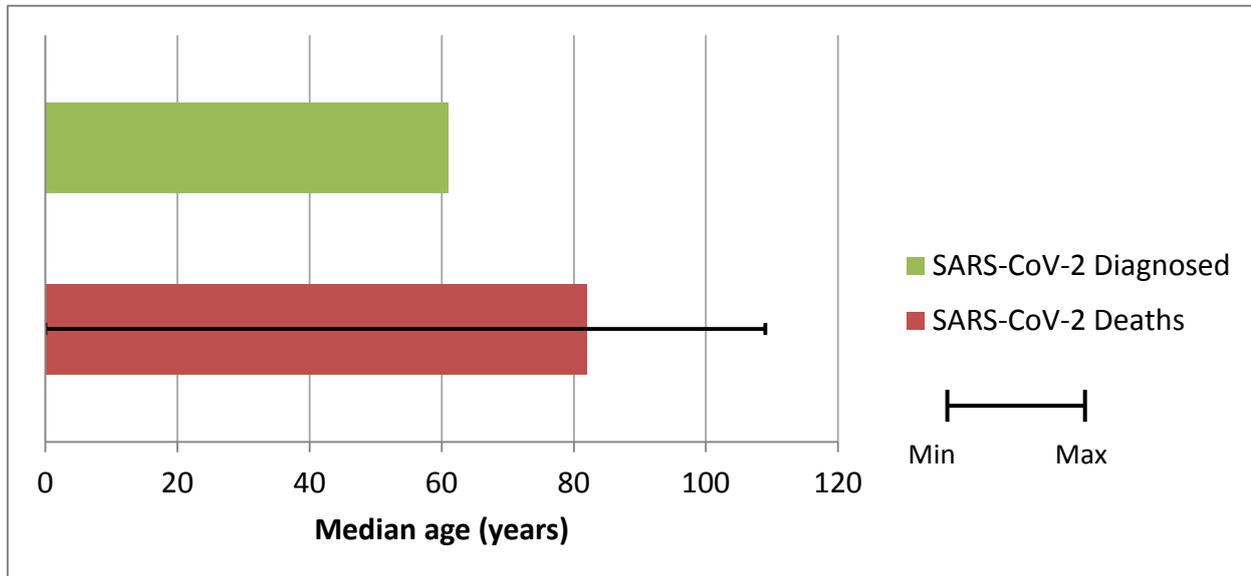
REGION	N	%
Lombardia	16,776	49.1
Emilia Romagna	4,266	12.5
Piemonte	3,114	9.1
Veneto	1,990	5.8
Liguria	1,676	4.9
Toscana	1,132	3.3
Marche	984	2.9
Lazio	868	2.5
Puglia	548	1.6
Abruzzo	470	1.4
Campania	459	1.3
Trento	405	1.2
Friuli Venezia Giulia	349	1.0
Sicilia	304	0.9
Bolzano	292	0.9
Valle d'Aosta	146	0.4
Sardegna	134	0.4
Calabria	97	0.3
Umbria	80	0.2
Basilicata	30	0.1
Molise	22	0.1
<b>Total</b>	<b>34,142</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.

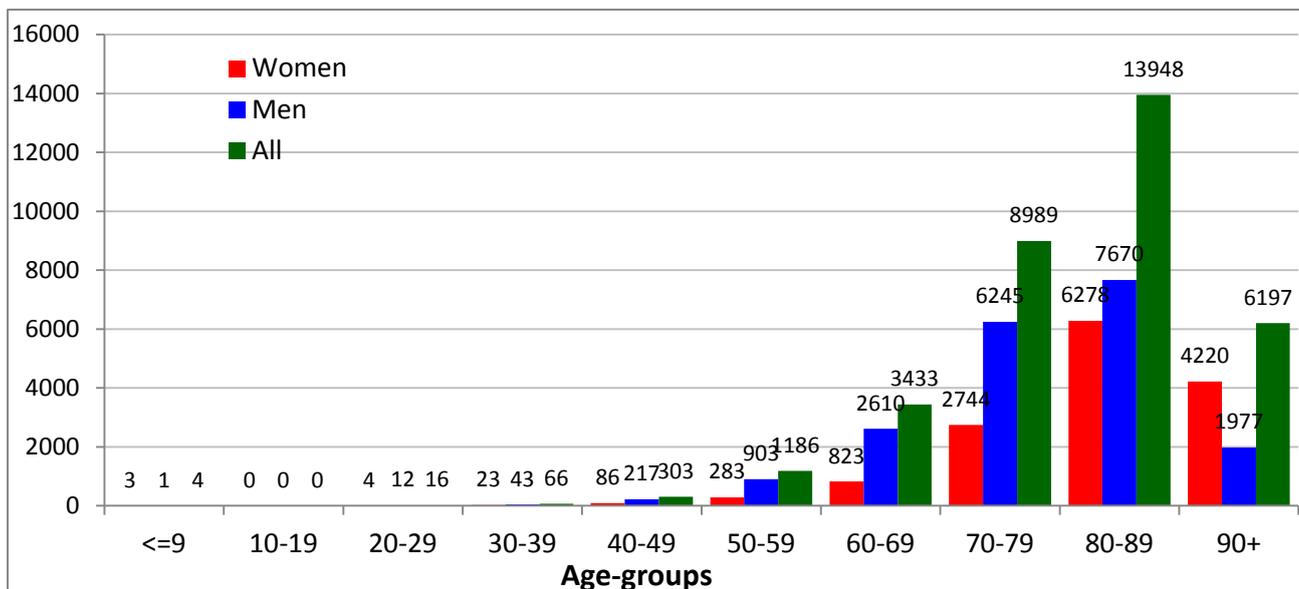
## 2. Demographics

Mean age of patients dying for SARS-CoV-2 infection was 80 years (median 82, range 0-109, IQR 74 -88). Women were 14,464 (42.4%). *Figure 1* shows that median age of patients dying for SARS-CoV-2 infection was 20 years higher as compared with the national sample diagnosed with SARS-CoV-2 infection (median age 61 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 85 - 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



### 3. Pre-existing conditions

Table 2 presents most common comorbidities diagnosed before SARS-CoV-2 infection. Data on diseases were based on chart review and was available on 3,952 patients dying in-hospital for whom it was possible to analyse clinic charts. Mean number of diseases was 3.4 (median 3, SD 2.0). Overall, 3.9% of the sample presented with a no comorbidities, 13.9% with a single comorbidity, 20.4% with 2, and 61.8% with 3 or more.

Before hospitalization, 22% of SARS-CoV-2 positive deceased patients followed ACE-inhibitor therapy and 15% 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 2.** 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>1091</i>	<i>27.6</i>
<i>Atrial Fibrillation</i>	<i>914</i>	<i>23.1</i>
<i>Heart failure</i>	<i>624</i>	<i>15.8</i>
<i>Stroke</i>	<i>418</i>	<i>10.6</i>
<i>Hypertension</i>	<i>2608</i>	<i>66.0</i>
<i>Type 2-Diabetes</i>	<i>1176</i>	<i>29.8</i>
<i>Dementia</i>	<i>756</i>	<i>19.1</i>
<i>COPD (Chronic Obstructive Pulmonary Disease)</i>	<i>675</i>	<i>17.1</i>
<i>Active cancer in the past 5 years</i>	<i>643</i>	<i>16.3</i>
<i>Chronic liver disease</i>	<i>172</i>	<i>4.4</i>
<i>Chronic renal failure</i>	<i>799</i>	<i>20.2</i>
<i>Dialysis</i>	<i>76</i>	<i>1.9</i>
<i>Respiratory failure</i>	<i>211</i>	<i>5.3</i>
<i>HIV Infection</i>	<i>7</i>	<i>0.2</i>
<i>Autoimmune diseases</i>	<i>156</i>	<i>3.9</i>
<i>Obesity</i>	<i>422</i>	<i>10.7</i>
<b>Number of comorbidities</b>		
<i>0 comorbidities</i>	<i>155</i>	<i>3.9</i>
<i>1 comorbidity</i>	<i>549</i>	<i>13.9</i>
<i>2 comorbidities</i>	<i>807</i>	<i>20.4</i>
<i>3 comorbidities and over</i>	<i>2441</i>	<i>61.8</i>

Table 3 presents the most common pre-existing chronic pathologies in patients who died, separately in men (n = 2,574 and women (n = 1,378). The average number of pathologies observed in women is 3.5 (median 3, Standard Deviation 1.9). In men the average number of pathologies observed is 3.3 (median 3, Standard Deviation 2.0).

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

	<b>Women</b>		<b>Men</b>	
<b>Diseases</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<i>Ischemic heart disease</i>	301	21.8	790	30.7
<i>Atrial Fibrillation</i>	340	24.7	574	22.3
<i>Heart Failure</i>	252	17.8	372	14.2
<i>Stroke</i>	153	11.1	265	10.3
<i>Hypertension</i>	934	67.8	1674	65.0
<i>Type 2-Diabetes</i>	382	27.7	794	30.8
<i>Dementia</i>	378	27.4	378	14.7
<i>COPD (Chronic Obstructive Pulmonary Disease)</i>	180	13.1	495	19.2
<i>Active cancer in the past 5 years</i>	219	15.9	424	16.5
<i>Chronic liver disease</i>	46	3.3	126	4.9
<i>Chronic renal failure</i>	255	18.5	544	21.1
<i>Dialysis</i>	24	1.7	52	2.0
<i>Respiratory failure</i>	76	5.5	135	5.2
<i>HIV Infection</i>	0	0.0	7	0.3
<i>Autoimmune diseases</i>	80	5.8	76	3.0
<i>Obesity</i>	149	10.8	273	10.6
<b>Number of comorbidities</b>				
<i>0 comorbidities</i>	35	2.5	120	4.7
<i>1 comorbidity</i>	174	12.6	375	14.6
<i>2 comorbidities</i>	277	20.1	530	20.6
<i>3 comorbidities and over</i>	892	64.7	1549	60.2

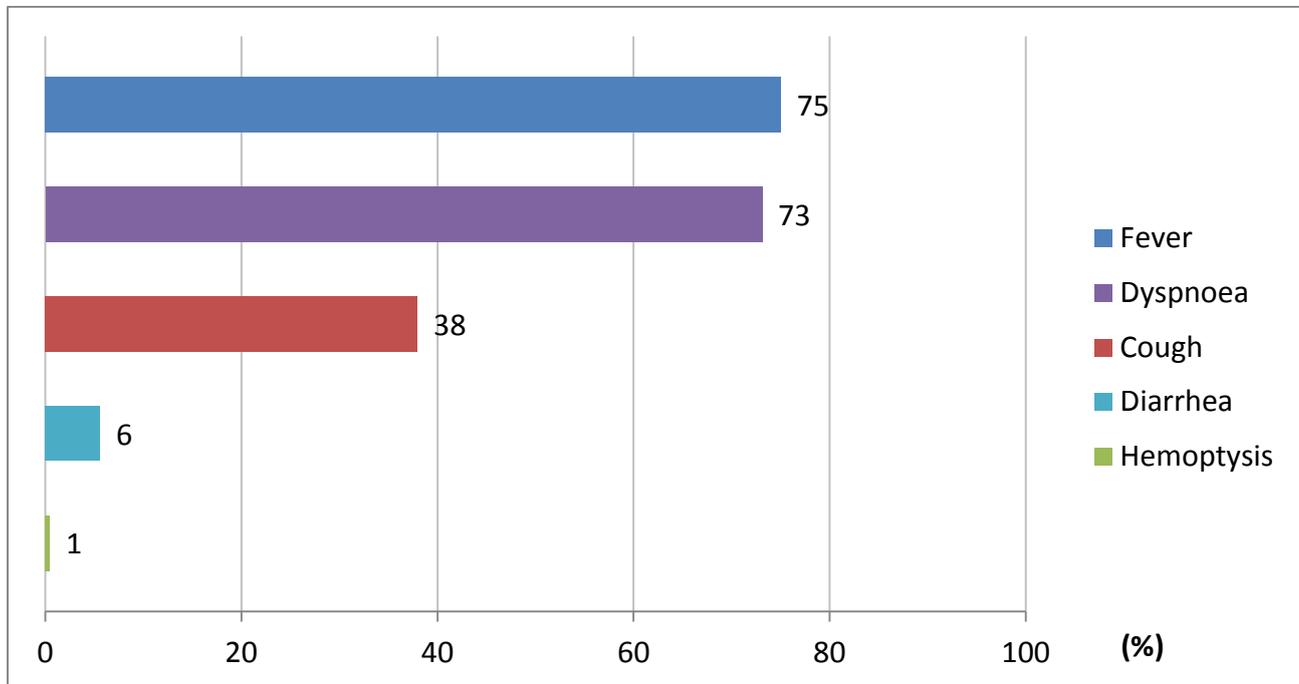
#### **4. Diagnosis of hospitalization**

In 91.6% of hospitalizations, conditions (e.g. pneumonia, respiratory failure) or symptoms (e.g. fever, dyspnoea, cough) compatible with SARS-CoV-2 were mentioned. In 307 cases (8.4% of cases) the diagnosis of hospitalization was not related to the infection. In 47 cases the diagnosis of hospitalization concerned exclusively neoplastic pathologies, in 105 cases cardiovascular pathologies (for example Acute Myocardial Infarction-AMI, heart failure, stroke), in 39 cases gastrointestinal pathologies (for example cholecystitis, perforation of the intestine, intestinal obstruction, cirrhosis), in 116 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, 6.6% 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 (95.8% of cases),** followed by acute renal failure (22.7%). Superinfection was observed in 16.0% and acute cardiac injury in 10.7% of cases.

## 7. Treatments

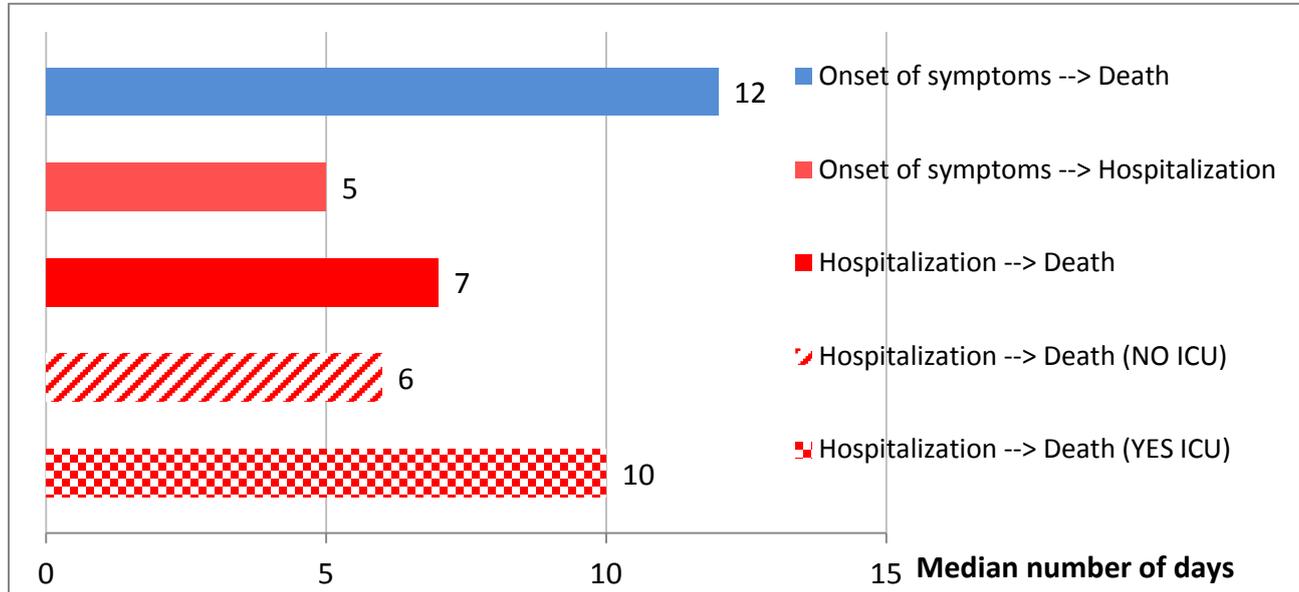
Antibiotics were used by 86.0% of patients during hospital stay, while less used were antivirals (58.9%) and corticosteroids (40.7%). Concomitant use of these 3 treatments was observed in 25.0% of cases.

Out of SARS-CoV-2 positive deceased patients, 4.4% 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 (12 days), from the onset of symptoms to hospitalization (5 days) and from hospitalization to death (7 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 (10 days vs. 6 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 July 22<sup>nd</sup>, 389 out of the 34,142 (1.1%) positive SARS-CoV-2 patients under the age of 50 died. In particular, 86 of these were less than 40 years (56 men and 30 women), age range between 0 and 39 years. For 8 patients under the age of 40 years no clinical information is available; out of the remaining ones, 64 had serious pre-existing pathologies (cardiovascular, renal, psychiatric pathologies, diabetes, obesity) and 14 had no major pathologies.

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

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