Characteristics of COVID-19 patients dying in Italy
Report based on available data on March 24\textsuperscript{th}, 2020

1. Sample

The present report describes characteristics of 5542 COVID-19 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 March 24\textsuperscript{th}, 2020.

\textit{Tabel 1. Geographic distribution of deceased patients COVID-2019 positive}

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lombardia</td>
<td>3795</td>
<td>68.5</td>
</tr>
<tr>
<td>Emilia-Romagna</td>
<td>884</td>
<td>16.0</td>
</tr>
<tr>
<td>Veneto</td>
<td>223</td>
<td>4.0</td>
</tr>
<tr>
<td>Liguria</td>
<td>148</td>
<td>2.7</td>
</tr>
<tr>
<td>Piemonte</td>
<td>104</td>
<td>1.9</td>
</tr>
<tr>
<td>Marche</td>
<td>57</td>
<td>1.0</td>
</tr>
<tr>
<td>Friuli-Venezia Giulia</td>
<td>50</td>
<td>0.9</td>
</tr>
<tr>
<td>Lazio</td>
<td>50</td>
<td>0.9</td>
</tr>
<tr>
<td>Puglia</td>
<td>44</td>
<td>0.8</td>
</tr>
<tr>
<td>Trento</td>
<td>39</td>
<td>0.7</td>
</tr>
<tr>
<td>Bolzano</td>
<td>37</td>
<td>0.7</td>
</tr>
<tr>
<td>Toscana</td>
<td>37</td>
<td>0.7</td>
</tr>
<tr>
<td>Campania</td>
<td>29</td>
<td>0.5</td>
</tr>
<tr>
<td>Sardegna</td>
<td>11</td>
<td>0.2</td>
</tr>
<tr>
<td>Abruzzo</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>Molise</td>
<td>8</td>
<td>0.1</td>
</tr>
<tr>
<td>Sicilia</td>
<td>6</td>
<td>0.1</td>
</tr>
<tr>
<td>Calabria</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>Umbria</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>Valle d'Aosta</td>
<td>2</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5542</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* COVID-19 related deaths presented in this report are those occurring in patients who test positive for SARS-CoV-2 RT by PCR, independently from pre-existing diseases.
Demographics
Mean age of patients dying for COVID-2019 infection was 78 (median 78, range 30-103, IQR 73 -85). Women were 1,615 (29.1%). Figure 1 shows that median age of patients dying for COVID-2019 infection was more than 15 years higher as compared with the national sample diagnosed with COVID-2019 infection (median age 63 years). Figure 2 shows the absolute number of deaths by age group. Women dying for COVID-2019 infection had an older age than men (median age women 82 - median age men 78).

Figure 1. Median age of patients with COVID-2019 infection and COVID-19 positive deceased patients

Figure 2. Absolute number of deaths by age group
2. Pre-existing conditions

Table 1 presents most common comorbidities diagnosed before COVID-2019 infection. Data on diseases were based on chart review and was available on 514 patients dying in-hospital for whom it was possible to analyse clinic charts (15.0% of the sample). Mean number of diseases was 2.7 (median 3, SD 1.6). Overall, 1.4% of the sample presented with a no comorbidities, 21.4% with a single comorbidity, 26.1% with 2, and 51.2% with 3 or more.

Table 1. Most common comorbidities observed in COVID-19 positive deceased patients

<table>
<thead>
<tr>
<th>Diseases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischemic heart disease</td>
<td>126</td>
<td>24.5</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>121</td>
<td>23.5</td>
</tr>
<tr>
<td>Stroke</td>
<td>64</td>
<td>12.5</td>
</tr>
<tr>
<td>Hypertension</td>
<td>384</td>
<td>74.7</td>
</tr>
<tr>
<td>Diabetes</td>
<td>157</td>
<td>30.5</td>
</tr>
<tr>
<td>Dementia</td>
<td>90</td>
<td>17.5</td>
</tr>
<tr>
<td>COPD</td>
<td>98</td>
<td>19.1</td>
</tr>
<tr>
<td>Active cancer in the past 5 years</td>
<td>92</td>
<td>17.9</td>
</tr>
<tr>
<td>Chronic liver disease</td>
<td>25</td>
<td>4.9</td>
</tr>
<tr>
<td>Chronic renal failure</td>
<td>119</td>
<td>23.2</td>
</tr>
</tbody>
</table>

Number of comorbidities

<table>
<thead>
<tr>
<th>Number of comorbidities</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 comorbidities</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>1 comorbidity</td>
<td>110</td>
<td>21.4</td>
</tr>
<tr>
<td>2 comorbidities</td>
<td>134</td>
<td>26.1</td>
</tr>
<tr>
<td>3 comorbidities and over</td>
<td>263</td>
<td>51.2</td>
</tr>
</tbody>
</table>
3. Symptoms

Figure 3 shows symptoms most commonly observed at hospital admission. Fever and dyspnoea were the most commonly observed symptoms, while cough, diarrhoea and haemoptysis were less commonly observed. Overall, 6.5% of patients did not present any symptoms at hospital admission.

**Figure 3.** Most common symptoms observed in COVID-19 positive deceased patients

4. Acute conditions

Acute Respiratory Distress syndrome was observed in the majority of patients (97.5% of cases), followed by acute renal failure (28.9%). Acute cardiac injury was observed in 11.2% of cases and superinfection in 10.2%.

5. Treatments

Antibiotics were used by 86% of patients during hospital stay, while less used were antivirals (53%) and corticosteroids (33%). Concomitant use of these 3 treatments was observed in 8.1% of cases.
6. **Time-line**

Figure 4 shows, for COVID-19 positive deceased patients, the median times, in days, from the onset of symptoms to death (9 days), from the onset of symptoms to hospitalization (4 days) and from hospitalization to death (5 days). The time from hospitalization to death was 1 day longer in those who were transferred to intensive care than those who were not transferred (5 days vs. 4 days).

**Figure 5.** Median hospitalization times (in days) in COVID-19 positive deceased patients

This report was produced by COVID-19 Surveillance Group

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