

# Increased risk of COVID-19 related deaths among General Practitioners in Italy

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## Abstract

There is currently scant data on COVID-19 related death cases among physicians with different medical specialties. Mortality data among physicians in Italy show that General Practitioners (GPs) are the most affected group. They currently represent the 43% of the total COVID-19 related death cases among physicians, whereas the estimated proportion of GPs compared to other doctors is of 15%. This high number among GPs is attributable to a work-related contagion happened massively during the first weeks of the epidemic, but constantly continuing also in the weeks following the national lock-down. There are various reasons for these higher contagion rates: GPs use to daily perform a lot of medical examinations in close contacts with patients, and in addition it should be considered that SARS-CoV-2 can resist on the clinics' surfaces for several hours and it can be transmitted also at distances longer than two meters, persisting in the air after an aerosolization process. Furthermore, especially at the beginning of the epidemic GPs might have scant information on specific safety procedures for the prevention of COVID-19 transmission (e.g. there was scant knowledge on the possibility of contagions from asymptomatic patients) and, moreover, the availability of personal protective equipment was insufficient. Following these observations, and considering the high tribute in term of lives from the GPs, Covid-19 pandemic will probably revolutionize the approach to patients in the general practice. Clear and effective guidelines are absolutely and urgently needed, for the refinement of adequate measures to prevent SARS-CoV-2 infections among GPs.

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Health care workers (HCW) are generally recognized as having a high occupational risk related to SARS-CoV-2 infection <sup>1</sup>: in Italy it is currently estimated that 10,5% of all the diagnosed COVID-19 cases (20,618 out of 197,096 diagnoses) occurred in HCW<sup>2</sup>. This high risk is not unexpected, and was also observed during the SARS and MERS outbreaks, respectively in 2003 and 2015.

Specific procedures for the protection of HCW have been proposed, and updated, by authoritative organizations, such as the World Health Organization (WHO)<sup>3</sup>, the European Centre for Disease Prevention and Control <sup>4</sup> and the Centre for Disease Control and Prevention (CDC) <sup>5</sup>, but data clearly support the need for further development of preventive measures, possibly more tailored to the specific activities performed. In this context, an aspect likely to provide useful insight is the knowledge on variations in disease occurrence among physicians practicing specific medical specialties, as significant differences are likely for example in relation to the type of contact with patients, the procedures applied and also the environment where contacts occur. A group with various specific peculiarities are family physicians/general practitioners (GPs), representing one of the front lines of the war against COVID-19, visiting an overwhelming number of patients, often directly at their homes, with scarce possibilities, if any, to control the work environment and, especially during the first phases of the outbreak, with an incomplete knowledge of the risk, and of adequate procedures and, possibly, also insufficient/inadequate personal protective equipment (PPE) availability <sup>6</sup>. Data available from studies on specific COVID-19 contagion among GPs is currently scant, but in Italy, one of the Countries with the highest number of COVID-19 cases and mortality, at least some mortality data are available. In fact, the official web-page of the Italian Federation of the Colleges of Physicians (FNOMCEO) is publishing and updating daily a list of the Italian physicians died as a consequence of SARS-CoV-2 infection, also reporting their medical specialty <sup>7</sup>. At the date of 26<sup>th</sup> April 2020 the number of physicians died was of 151 cases. All physicians died due to COVID-19 are reported in this list, including both active and retired physicians; accordingly, in order to have a more reliable overview of the situation, we have excluded all cases of deaths occurred in physicians over 75 years old (private practice is common for some years after the formal retirement, that usually happens between 67 and 70 years). After this exclusion, the number of physicians' death cases due to COVID-19 occurred in Italy at the 26<sup>th</sup> April 2020 lowers to 118. GPs were 51 (43%), i.e. by large the most represented medical specialty. The mean age of death cases is similar in GPs and other medical specialties (66,5 vs 66,2 y/o) and is lower compared to the mean age of the death cases in the general population: 79,5 years <sup>8</sup>, supporting the specificity of the contagion in these groups. The first Italian case of COVID-19 in Italy was diagnosed in Lombardy region on February 21<sup>th</sup>, and the first cases of death were reported on the FNOMCEO website on the 11<sup>th</sup> March 2020 in two GPs practicing in the same region, even if it should not be excluded that some cases may have occurred even before that date. It has to be noted that the national lock-down officially started only from the second week of March, so that we have currently overcome the seventh week of lock-down. In Figure 1, showing the daily cumulative increase of the death cases among physicians since the first case reported, the trend of the 118 death cases in these seven weeks of national lock-down can be observed. It should be noted that up to the 26<sup>th</sup> of March, GPs' death cases were higher than the cases reported in other medical specialties, reaching a proportion of the 50% by the end of March, and since the beginning of April the proportion of the cases between GPs and others stayed at the level of 45%, while since the second half of April the proportion has been established at the current estimate of the 43% (Figure 1). However, even if decreasing, this proportion is still relevantly higher, approximately three times, compared to the ratio between the number of GPs and physicians practicing

other medical specialties operating in Italy, which can be estimated around the 15% according to the Italian national Institute of statistics (ISTAT) <sup>9</sup>, suggesting the persistence of a higher risk.

This difference in the proportion of GPs vs other physicians between the currently available occupational data and the death cases related to COVID-19 indicates a relevantly high occupational risk for GPs, and according to the trend of death cases, the work-related contagion of the GPs was more critical during the first weeks of the epidemic in Italy, with a slight decrease in more recent days, even if the proportion is still very high for GPs. The relatively high number of death cases among GPs, in particular during the first weeks of the epidemic suggests that, according to the SARS-CoV-2 incubation period and the period elapsed between symptoms' onset and death, many of GPs' infections have occurred in February/first week of March, when in Italy there was still a scant awareness of the risk related to COVID-19 and, in general, the perception was largely lower compared to the weeks after the national lock-down. Moreover, February/early March in Italy is a period of the year when GPs use to perform a lot of medical examinations of patients with influence-like symptoms. Recent data have confirmed that SARS-CoV-2 salivary viral load is particularly high during the first week after symptoms onset <sup>10</sup>, and viral RNA has been documented in throat swabs for more than 40 days, with high titers in the saliva<sup>11</sup>. Furthermore, especially at the beginning of the epidemic the exponential increase of the cases in a few days did not let GPs have enough time to adopt adequate safety procedures to visit the patients, to be appropriately informed on the most effective ways to prevent COVID-19 transmission and, finally, the availability of personal protective equipment (PPE) was insufficient to allow the high number of visits requested, as recently reported in a survey from one of the Italian region with the highest incidence of SARS-CoV-2 infections, Lombardy <sup>12</sup>. It should also be noted that several studies documented SARS-CoV-2 infections in asymptomatic patients, i.e persons not manifesting any symptoms inducing the suspect of infection and, consequently, in no need of specific measures <sup>13</sup>. These persons may have contributed to the transmission of the infection to GPs, especially during the first weeks of the epidemic in Italy. In addition, it has to be considered that a medical examination usually implies a short distance between the patient and the doctor, but, also in case of reduced direct contacts and extensive use of protections, there are other additional problems, as: a) the documented persistence of the pathogen on the surfaces of the clinic up to several hours/few days, depending on the type of materials <sup>14</sup>; and b) recent evidence suggesting the possibility of transmission of the virus also at distances higher than 2 meters, and the detection in the air up to three hours after aerosolization <sup>15</sup>.

In conclusion, according to the abovementioned observations, and especially considering the extremely relevant tribute in terms of lives among Italian GPs, as recently underlined also in other countries, Covid-19 pandemic will probably revolutionize the approach to the patient in the general practice of family physicians<sup>6,16</sup>. The refining of adequate strategies and procedures to prevent COVID-19 infections among Italian GPs, as well as in the rest of the world, is crucial, and clear and effective guidelines are absolutely and urgently needed. It is not clear, up to now, whether the slight decrease in the proportion of GPs died during the latest weeks of the epidemic in Italy may be attributed to some kind of improvements in targeted prevention, as e.g. the availability of indications for the execution of the medical examinations with adequate individual protections and organizational measures, including an activation of procedures of telemedicine <sup>17-19</sup>, or possibly it is only a reflection of the attenuation of the epidemic in Italy as a consequence of the lock-down. Another point to be stressed is the progressive activation, since the second half of March, in many Italian regions of special medical units for the assistance of COVID-19 patients at home, called "USCA" (*Unità Speciali di Continuità Assistenziale*), as prescribed by a national decree<sup>20</sup>: this may have reduced the impact on the GPs' workload for the assistance of patients with active infections or recovering after hospitalization. Nevertheless, the high proportion of death cases among GPs compared to other medical specialties, still persisting, clearly indicates the need of further development of effective and, possibly, more tailored preventive measures.

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