

Letters to the Editor

Technological devices in COVID-19 primary care management: the Italian experience

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Dear Sir/Madam,

Background: COVID-19 outbreak in Italy

Primary care providers are on the frontline against the diffusion of the coronavirus pandemic around the world (1). In Italy, as reported by the Italian Ministry of Health on May 2 at 6 pm there are currently 100 704 SARS-CoV-2 positive patients out of 209 328 total cases. The outbreak of the coronavirus disease 2019 (COVID-19) in March and April 2020 in Italy has shown how crucial home management of infected patients is in the setting of primary care, in particular, in our reality of general practice in the north of Italy (Turin), where the pandemic spread widely in the last months. Indeed, our region (Piedmont) has been particularly affected by the pandemic, with 27 179 total cases, 13 603 of whom in Turin.

Primary care assessment and management of the outbreak: our data

Our practice is composed of five general practitioners, three nurses and three receptionists that assist 7509 patients. From the 6th of March 2020, up to now 128 patients (1.7%) tested positive for COVID-19: 21 of these (16.4%) have been hospitalized in severe conditions, 12 (9.4%) died and the remaining 95 (74.2%) are being monitored at home. Twelve patients (9.4%) have recovered (five of whom were hospitalized) and are at home in a good clinical condition. Moreover, at the beginning of March one of our receptionists had mild symptoms and tested positive for COVID-19 and was self-isolated. Therefore, the fact that our practice could be a source of contagion and the problem related to the lack of personal protective equipment (2) has brought our attention to new methods of care that avoid face-to-face contact between the clinician and the patient (3) via indirect examination.

Use of technology and telemedicine in primary care

Mild cases of COVID-19 can be managed at home with self-isolation, symptomatic treatment and follow-up if the disease worsens (1).

We have managed most of the 95 patients at home remotely by telephone consultations performed twice a day. Since video calls provide additional visual cues such as a patient's demeanour (lying in bed or sitting up) and skin features (flushing, pallor, cyanosis) (4), we have used them in situations of clinical instability or worsening of the symptoms (about 40% of the monitored cases), using well-known social media apps (for example, WhatsApp, Skype or Facetime). However, the most important issue is the remote assessment of vital parameters such as temperature, heart rate, respiratory rate, blood pressure and oxygen saturation (4). In this scenario technology turns out to be very useful. In fact, in the case of a lack of medical devices in the whole country, smartphone applications and fit-bit type gadgets that measure oxygen saturation and pulse (4) are of vital importance in infected or suspected patients with a cough, fever or shortness of breath. During our telephone or video-consultations, we have monitored these parameters every day getting the patients to take readings from instruments (4) or non-medical devices they have at home, the only problems we encountered were that elderly patients are not used to technology or social media. In these cases, we have shared our personal pulseoximeters from our practice with all the people in need at home, monitoring values by phone until they stabilize.

All these technological tools have provided crucial information about vital parameters and have allowed us to identify people in critical conditions and in need of hospitalization. The clinical criteria for hospital admission of COVID-19 severe pneumonia include high fever above 38°C, respiratory rate above 20 breaths/minute, heart rate above 100 beats/minute and oxygen saturation below 94% (according to the World Health Organization data, UK NHS guidance, Chinese (4) and Italian experience).

What is more, in the last weeks our software provider has equipped us with a secure telemonitoring system that we are testing, which runs on smartphones, tablets and computers. It shares with our online platform instantaneous patient data, such as vital parameters and also alerts us if the conditions are worsening. This program would also solve some of the problems related to the use of the most well-known communications apps in telemedicine, such as privacy risks and security threats. Our concerns using social media

applications were in fact about privacy, confidentiality, loss of anonymity to patients and the need to reveal our personal telephone number (5): with this new system we can process encrypted personal data safely and perform an informed consent before the video-consultation, without revealing the clinician's personal details.

Hence, accordingly to the experience described by Greenhalgh *et al.* (3) in the UK, Kidd (6) in Australia and John (7) in India, the use of telemedicine consultation and the help of technology, has allowed us to monitor in an efficient way our patients at home, reducing inappropriate hospitalization and referring them to a hospital only when necessary. In addition to this we have noticed that people feel more cared for even if they have no direct contact during their quarantine period and this reduces anxiety (8) and improves psychological outcomes in the population.

Since introducing video-consultation as part of national digital health strategies is a complex change that disrupts long established processes and routines (8–11) in Italy it represents even more a challenge in comparison to other countries where it has already been rolled out such as in the UK and the USA (12). This is the first time we are using it in a primary care setting on a large scale even if in a fragmented way across the country. Telemedicine services in fact are not yet included in the essential levels of care granted to all Italian citizens within the public health system (12) and since the use of these services relies on out-of-pocket payment, they are generally rejected by patients and doctors (13). Therefore, the COVID-19 pandemic is a call to a transition to a more modern model of care that includes the wide adoption of technological support and telemedicine, integrated in the National Health System and in the public health response to this pandemic and future outbreaks (12).

Conclusions

This is the first report regarding COVID-19 primary care management in Italy. Since Italy has been one of the first countries to face the outbreak, sharing our experience could help other health professionals, especially where the pandemic is starting to spread.

On the basis of our experience we can conclude that the technological support and the remote approach are essentials in COVID-19 primary care assessment and it would be advisable for everybody around the world to have up to date smartphone applications (that are cheap, easy to use and widespread also in resource limited settings (7)) or technological gadgets if medical tools are not easily available. Improving the primary care approach in this way will be very useful in case of a second outbreak and it will be fundamental in 'phase two' that several countries like Italy are entering in shortly. In conclusion, primary health care plays a crucial role in the fight

against coronavirus, therefore it should be reinforced, supported and constantly renewed.

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