

SARS-CoV-2 pandemic in the western world: the lessons learned

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As of 8 May 2020, the SARS-CoV-2 pandemic has affected over 3.7 million people with nearly 260,000 deaths, mainly in the USA, Europe and Asia, since the pandemic first appeared.¹

The exact origin of the virus is still unknown. Despite plenty of unscientific conspiracy theories, the most credible explanation relies on the emergence of SARS-CoV-2 from the wild animal world, and bats appear to have played a key role as in many other emerging viral diseases affecting humans.²

This was not entirely unexpected as epidemiologists and infectious diseases specialists have been warning the medical community and public health authorities that a worldwide pandemic of animal origin was likely to occur in the foreseeable future, most likely coming from the Asian continent.³ Their warnings went unheeded despite the fact that the twenty-first century has already seen many potential pandemics such as SARS, Ebola, avian influenza and others.

The astonishing recent increase and alteration in human and animal demographics, the unprecedented subtraction of wild territories from nature by humankind, the growing volume and rapidity of human mobility, possibly coupled with climate changes, constitute a conducive environment for emerging infectious diseases.^{4,5}

While we anxiously wait to see how this pandemic will unfold in the African continent, so far the highest cost has been paid by the western world, especially in Europe and the USA. The latter were perhaps initially convinced that they could control the coronavirus with their sophisticated and comparatively advanced health care systems. Unfortunately, this was not the case due a series of unexpected factors.

Firstly, the extreme contagiousness of the disease, even in the preclinical phase, makes classical tools of epidemiological investigation and early warning measures less effective. At the beginning of the pandemic in Europe, the diagnostic tools were either hardly existent or suboptimal in sensitivity to allow clear case definitions. Therefore, when the pandemic became manifest in a given territory, it was too late to avoid suffering and deaths, prompting draconian lockdown measures to curb the pandemic's spread.

Secondly, the western world has not experienced any large-scale epidemic for over a century. In many western countries, healthcare efforts in the last decades have focused on individual care and cure, predominantly in hospital-based settings, making immediate mass containment measures and flexible facility-based isolation interventions difficult to implement.

Thirdly, effective therapeutic agents were – and still largely are – not available. The heartbreaking ethical and professional duty to offer the best evidence-based treatment to suffering patients without harming them has haunted healthcare workers (HCW) for the last two months, leaving a possibly indelible scar on their psyche and soul.⁶ Treatment options offered were based on largely unknown pathologic mechanisms, limited case series or anecdotal case reports. The incredible effort to test new treatment strategies is only now providing information to help formulate novel therapeutic approaches for both the infective and hyperinflammatory phases of the disease,^{7,8} but we are still lacking robust, comparative trials.

Finally, the high risk of this infection to HCWs may have been underestimated. As many as 24,358 SARS-CoV-2 cases in HCW have been reported in Italy, representing 11.3% of the

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total number of reported cases as of 8 May 2020.⁹ Despite difficult odds, including the ever-present risk of becoming infected, HCWs have commendably continued to offer due care to the needy. As an infected HCW cannot continue to work, thereby reducing the available human resources, this calls into question how best to protect this vital workforce.

These lessons have to be part of the training of the next generation of physicians. The ethical training traditions of the Royal College of Physicians of Edinburgh will be pivotal in playing such a role.

The future appears uncertain at this stage. Will SARS-CoV-2 infection provide long-term protective immunity? Will an effective vaccine become available soon? Will COVID-19 survivors suffer from long-term sequelae in the many organs affected (lung, brain, myocardium, etc.)? How can we prepare for the progressive reopening of all healthcare activities to the benefit of the many patients suffering from illnesses other than SARS-CoV-2 infection who may have received suboptimal care during the pandemic? Excess mortality has been registered in many European countries¹⁰ and investigations are required to assess the impact of the coronavirus epidemic on non-COVID mortality. How should we reorganise healthcare systems to assure preparedness in case of a second pandemic wave?

The world is now uncertain and scared and people suddenly find themselves to be only a fragile element in the bigger

framework of the world that humans were convinced they could completely dominate from the height of their knowledge and science. It is hoped that humanity will eventually win this battle too, as it did in previous pandemics.

New pandemics will most probably appear in the near or long-term future. New microorganisms will replace or stand side by side with the old ones and wage a war against humans. A new order and equilibrium with nature has to be found if humans are to survive. This must be appreciated fully by everybody, particularly physicians and policy makers who bear the responsibility to reorientate a new healthcare approach where curative focus is coupled with strong primary care preventative measures and equity at the global scale.

The search for new technologic solutions is desperately needed, to be coupled with a new holistic humanism for the benefit of the next generations. ①

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