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The COVID-19 Pandemic

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The year 2020 will be singularly known for the COVID-19 pandemic caused by the virus SARS-CoV-2, which will also be the single most important event of our lives. Its significance will not be limited to the field of infectious disease or even medicine; it will transform our lives in every way, locally and globally. It is therefore only fitting that the *Journal* should dedicate a special issue to learn more about it and to document our collective experience.

The *Journal* has brought together contributions from a group of experts who are known not only for their expertise in their specialties but also for working in different aspects of the national response to the pandemic. Their contributions are therefore a hybrid of the best evidence available globally and the most pragmatic steps available to us locally. This was one of the earliest lessons that the new virus taught us: the need to act before the kind of 'high-quality evidence' we had grown accustomed to has become available to us, and to do so with due caution and an eye for feasibility – while also trying to stay one step ahead of the virus. We realised that Evidence-Based Medicine is not synonymous with large-scale randomised controlled trials and meta-analyses[1].

The possibility that such a pandemic would visit humanity was known for quite some time. The World Health Organization (WHO) had asked its member states to have national pandemic preparedness plans as far back as 1999[2], even before the Severe Acute Respiratory Syndrome (SARS) pandemic (caused by SARS-CoV-1) started in November 2002. Although this plan was originally focused on influenza (it was a response to an influenza pandemic in 1997), the WHO realised even back then that many respiratory viruses could cause pandemics similarly and that they all called for similar preparedness. Between then and now, we have seen several respiratory virus pandemics (influenza pandemics, the SARS pandemic, and the Middle East Respiratory Syndrome [MERS] pandemic) and Ebola epidemics.

Throughout this period, the WHO offered frameworks, shared expertise, and supported capacity building. As a result, humanity as a whole was rather ready – with better public health surveillance, international cooperation both formal and informal, improved laboratory diagnostics, improved capacity to design new vaccines and therapeutic agents, infection control knowhow, mathematical modeling capability and so on.

Of course, this global preparedness did not occur uniformly or maximally. Furthermore, we might have liked to see a wider adoption and operationalisation of the crucial One Health concept:[3] the collaborative, multisectoral and transdisciplinary approach at local, regional, national and global levels that recognises the interconnection between people, animals, plants and their shared environment to achieve optimal health outcomes[4]. This might have enabled us to prevent some emerging zoonotic and environmental pathogens (which constitute about 75% of new human pathogens) such as SARS-CoV-2. The concept itself has further evolved, in the meantime, into even more broad-based, integrated approaches to health[5].

Sri Lanka too was more ready this time around, compared to the SARS pandemic of 2002-2003. The Infectious Disease Hospital, which was in a dilapidated state back then, is greatly improved (including intensive care facilities for patients needing isolation) and had been upgraded to the National Institute of Infectious Disease. Laboratory diagnostic capacity (especially for PCR testing) is now more developed. The public

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health arm is more attuned to the threat. Infection control practices, such as handwashing and use of personal protective equipment (PPE), are now standard components of undergraduate medical curricula, and hospitals are more ready with standard disinfection procedures, consumables and practices.

Our College too can be pleased about its own contribution to all this. Even a cursory glance at the academic programmes of our annual academic sessions and Infection Day sessions would show the regular, prominent place that the topic has received.

Now, COVID-19 has arrived and is stretching us to our limits. It has exposed our hidden weaknesses, in both the healthcare system and society in general, but has also gelled some of its disparate components together in an unprecedented manner. It has brought economic and social hardships that have made us rethink our way of life and will change our social fabric irrevocably. Indeed, many things that we had taken for granted – consumption patterns, the hegemony of neoliberal economics, economic interdependence, globalisation, global citizenship, and even global bioethics – were questioned virtually overnight. It is this massive and pervasive nature of the shock that has made the COVID-19 pandemic the most important event in our lifetime.

But pandemics are not new to humanity[6]. In modern times, it has even enjoyed greater success dealing with them. Such well-known modern pandemics include the plague pandemics of Europe and Russia in the eighteenth century, the tuberculosis pandemic that commenced with the Industrial Revolution in the 1760s and is still continuing (with a resurgence after the emergence of the human immunodeficiency virus and acquired immune deficiency syndrome [HIV/AIDS]), the cholera pandemics of the nineteenth century, the successive influenza pandemics since 1918, and the HIV/AIDS pandemic from 1981 to date. Some of these pandemics badly affected our country too – including major annual outbreaks of cholera from the 1830s until the 1880s (with case fatality rates ranging from 54% to 84%[7]) and the influenza pandemic of 1918-1919 (which, according to one estimate, killed 6.7% of the country's population[8]).

Humanity survived all of these, because of two reasons. Firstly, every epidemic eventually runs itself out when the number of remaining susceptible members in the population becomes insufficient, by a combination of death and immunity, to maintain its transmission – but in the meantine, of course, the population itself can end up decimated. And secondly, human beings show a remarkable ability to respond to them through – what anthropologists call – cultural adaptation.

The increased effectiveness of this cultural adaptation is the reason for that greater success in modernity. For the plague pandemics, humanity adapted by eliminating rodents, fleas and lice from their urban habitats, by having better disposal of garbage and excreta. For the tuberculosis pandemic, it adapted by improving agriculture and nutrition and with better housing, which began to show an effect even before vaccination and anti-tuberculosis chemotherapy were invented[9]. And by the way, the improvements in housing also led to a drastic reduction of streptococcal infection and its deadly consequences, such as scarlet fever and rheumatic heart disease. For the cholera pandemics, it adapted by having better sewage disposal and safe water, which worked even before antibiotics and oral rehydration therapy were invented. For the successive influenza pandemics throughout the twentieth century (by which time the biomedical model was firmly established), it adapted by discovering viruses, medicines and vaccines and by making maximum use of advances in genetics and molecular biology. For HIV/AIDS, it adapted by making advances in virology and pharmacology, as well as by introducing medical anthropology and behavioural science (with the newly-formulated biopsychosocial model).

The cultural adaptation during modernity consisted of both medical interventions (applying the new theories and models) and rational, 'out of the box' solutions (driven by the models) that incorporated civil engineering, agriculture, chemistry, biology, mathematics, and the social and behavioural sciences. Our new 'out of the box' tools for tomorrow may be based on information and communication technology, systems science, artificial intelligence, high throughput chemistry, etc.

So COVID-19 too will eventually join the list of deadly, devastating pandemics relegated to human history. Humanity will emerge embattered and altered no doubt, but also stronger and better – in what has already earned the termed 'the new normal'. That is because of the new effectiveness of its cultural adaptation, based on a new tool: the scientific approach.

We must use the scientific approach and utilise the gems from other disciplines that are waiting to be picked. We must combine the knowledge of the natural sciences, including the biomedical and environmental sciences, with a scientific understanding of human

society and human behaviour[10]. With an enemy as unforgiving as SARS-CoV-2, there is no room for complacency or irrational measures. A scientifically informed, multi-disciplinary effort is essential to beat it. Importantly, this scientific endeavour must serve humanity generally and equitably – rather than be at the service of elitist and industrial interests. And then, after having done that, we must revisit One Health, and this time take it far more seriously.

But that is about humanity's general response. What about Sri Lanka's response? This too will need to be based on sound scientific principles, taking into consideration our own societal and cultural context. Our strategies need to be feasible, optimal, culturally nuanced, and effective. Our effort has to be courageous, but this courage must be combined with the humility necessary for constant review, learning lessons and adjustment. For all that, we need human and material capital and resilience – and enlightened leadership. And all this can be derailed by not only ignorance, but also pseudo-science and non-science, political expediency, unscrupulous monetary interests, and the conflicts of interest of professionals.

Can a society that is not geared for such a task pull it off, with little time and room for error? Or will it have to wait until the epidemic runs itself out, while its cultural adaptation becomes – as anthropologists call it – a maladaptation?

Right now, we are collectively 'writing' the answer to this question.

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