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THE IMPACT OF COVID-19 ON HEALTH SYSTEMS IN THE DEVELOPING WORLD

This April (2021) marks one year since it became apparent that the [SARS-CoV-19](#) virus was the first major health challenge of the 21st century. The disease, COVID-19, had spread around the world and the numbers were rising exponentially. On 14 March 2020 there had been 1,108 reported cases around the world (John Hopkins University Corona Virus Resource Centre), a year later there had been [120,164,106](#) confirmed cases and 2,660,422 deaths: and the numbers continued to rise. The pandemic had reached every corner of the globe.

Although this article focuses on the developing world, to date the highest mortality has been seen in the countries of the Organisation for Economic Co-operation and Development (OECD). This can be seen in data from the USA. The Journal of the American Medical records the number of deaths among US residents; in 2020 it was 3,358,814, an increase of 503,976 (17.7%) from [2,854,838 in 2019](#). The number directly attributed to COVID-19 was 345,323, but there were also significant rises in heart disease (30,000), and Alzheimer's and diabetes. These reflect health care disruptions resulting in later detection and poorer disease management. Increases in unintentional injury deaths in 2020 were driven by drug overdose deaths.

If health systems in the rich world have battled, what has been the effect on the poorer nations? The reality is that it is complex. A stark reminder of the inequality in these countries can be seen in the reports of deaths of senior African leaders being medically evacuated to locations for better treatment. Among others, the Prime Minister of Swaziland Ambrose Dlamini died in hospital in South Africa on 13 December 2020 and, in March, Congo Brazzaville opposition leader Guy Brice Parfait Kolelas died while being evacuated to France for COVID-19 treatment. A key question is: how will access to vaccines be treated? Additionally, COVID-19 has caused the global economy to falter, resulted in closed borders, greatly

reduced trade, massive unemployment, and increased poverty.

The current trends of COVID-19 infections in the developing world

The first cases were seen in east Asia in China, Japan and South Korea. These nations, and most in the region, have the pandemic under control. The [mortality rate per million](#) is three in China, 68 in Japan and 33 in South Korea. The disease then spread rapidly to the west and the USA. Italy, one of the first countries to be hit, saw its hospitals overwhelmed and a mortality rate of [1,704 per million](#) at the beginning of April. In recent months numbers of daily cases rose rapidly in the UK but then fell equally rapidly. There are signs of case numbers increasing in [France](#), Germany and other European countries. The number of new cases has fallen dramatically in the USA.

Taking the 'developing world' in this context to mean non-OECD and non-Asian countries, the data by continent and country are variable. South America has about 15.73% of cases and the rate per million is 250. Africa has 1.65% and a [rate per million of 9.15](#). The highest infection rate is in Uruguay with 847 cases per million. Brazil has 295 cases per million but absolute numbers are huge. Other countries with rising numbers are in Latin America but the situation is variable. Brazil has the worst and most out of control epidemic with a death rate of 1,523 per million but Colombia and Peru face similar challenges. In Africa the numbers are very much lower: the overall case rate is nine cases per million. South Africa has the worst epidemic with 14 cases per million. The [Johns Hopkins Coronavirus Resource Centre](#) provides a good overview and country data.

It is difficult to draw firm conclusions from rapidly changing data. What we can say with confidence is based on what we have seen. Even then it is important to look at what the numbers are: the case rates, the number of people infected; or the death rates. With all data absolute numbers are of limited value and rates (per million, for example) are more useful. An additional problem is that the virus can mutate and may become more infectious or more deadly. (As readers will recognise, mutations that become less infectious or less deadly are unlikely to be noted and will not give cause for concern.) While it is uncertain what trends will develop it is clear that the economic collapse and global shutdown has had disastrous effects on developing country economies. Growth has halted, poverty and unemployment rates risen, and the future remains uncertain. This is having a huge effect on health and wellbeing, and will affect the activities of all the major development agencies.

The impact of COVID-19 on health systems in the developing world

The measures of impact will be the demand. One quick way to assess this is to look at excess deaths, the number of deaths as compared with previous years. For this analysis there needs to be a [reasonable civil registration system \(CRS\)](#) in place. This is a system that records all births and deaths, issues certificates, and compiles and disseminates vital statistics, including cause of death. Unfortunately, many countries do not have adequate CRSs. The [New York Times](#) has [built some excellent data sets](#) and we would urge GFO readers to look at them. The excess death data are currently available for only one African country, South Africa. They are also available for Bolivia, Brazil, Colombia, Indonesia and Mexico.

Without data, we must look to other sources. On 8 April, the British Broadcasting Corporation ([BBC](#)) reported that Brazil recorded more than 4,000 COVID-related deaths in 24 hours with the more contagious variant fuelling a surge in cases. "Hospitals are overcrowded, with people dying as they wait for treatment in some cities, and the health system is on the brink of collapse in many areas... The country's total death toll is now almost 337,000, second only to the US. ... President Jair Bolsonaro continues to oppose any lockdown measures ... He argues that the damage to the economy would be worse than the effects of the virus itself."

If patients seek care for COVID-19, it is estimated that 10 % will have severe symptoms and will need

hospitalisation while 5% will be critically ill and will need intensive care, with some requiring ventilation. South Africa, (population 59.8 million) has the best public health systems in Africa, but has fewer than 1,000 intensive care unit (ICU) beds, of which 160 are in the private sector. Malawi, with a population of 19.5 million, has just 25 ICU beds in public hospitals. There are no ICU beds in the main infectious diseases hospital in Harare. Not only will these units be overwhelmed but [other cases will be triaged out](#).

This pattern was not seen initially. When COVID-19 hit and many countries went into lockdown people with other conditions stayed away from health facilities. This is particularly problematic where they are being treated for chronic conditions such as hypertension, and particularly HIV.

Demands on health and community systems

The COVID-19 pandemic has affected all the pillars that sustain a strong health and community system: health service delivery, health workforce, health information systems, access to essential medicines, health financing and leadership and governance. Across Africa there are only approximately 1.2 [hospital beds per 1,000 people](#) and in Latin America and the Caribbean there are approximately [1.9 hospital beds per 1,000 people](#); compared to 6.5 in France, 3.5 in Italy, and 3.0 in Spain, the UK and the US.

These demands on the health system have been exacerbated by the most overwhelming shortage of all?namely, health care personnel, including physicians?especially anaesthesiologists, who are on the front lines of the COVID-19 pandemic. In many developing world countries, anaesthesiologists and non-physician anaesthesia providers take care of patients in ICUs and are called on to intubate sick patients in emergency departments and in the operating rooms. In other cases, due to the COVID-19 pandemic, many health centres were also impacted by staff absenteeism due to the lack of protective equipment.

The pandemic has resulted in increased demands for health staff, and yet they themselves are not immune to COVID. “South Africa currently has more than 220,000 active cases, that is, people who have been infected and are still recovering,” said Africa correspondent Vinícius Assis. “Except that not everyone is in the hospitals, fifteen thousand people are hospitalised and approximately two thousand in the ICUs. The authorities’ concern is to keep these hospitals reserved for patients with COVID-19.” Angelique Coetzee, Chairperson of the South African Medical Association, said “But again, it’s not that more people are dying. It’s just that it places quite a huge burden on the healthcare facilities. We know that more than 300 doctors already lost their lives.” As the developing world responds to the pandemic, we need to examine the extent to which this has affected resources for other diseases including HIV, tuberculosis (TB) and malaria. Subsequent articles in this series will examine resource flows and allocations.

In addition, the travel and other restrictions during the COVID-19 lockdown measures made it more difficult for patients in the developing world countries to access health facilities, including primary healthcare. Furthermore, the effects of poverty exacerbated by COVID-19 lockdown measures meant people lost their livelihoods and income, have no food, and those who could are no longer able to afford to access private healthcare facilities and are placing additional demands on public healthcare facilities.

Re-prioritization

Constrained health-care systems, already short of money, beds, equipment and staff, are unlikely to be able to provide treatment for COVID-19 patients unless they reallocate scarce resources. And so, the combined effect of the reduced access to, and availability of, essential health care will lead to increases in [deaths unrelated to COVID-19](#). Consequently, the emergency response to the pandemic has resulted in political leaders, health service commissioners, health care providers and even patients and the public reassessing their health needs. Governments in the developing world are having to think about re-prioritized national budgets to respond to COVID-19.

Across the seven slum sites in Bangladesh, Kenya, Nigeria and Pakistan, it was reported that slum residents were reluctant to go to a hospital outpatient clinic for symptoms such as cough and fever for fear of being suspected of having COVID-19. Furthermore, the findings of a [case study](#) in Uganda on key health services attendance and mortality for 2019 and 2020 found that from March to April 2020 health services attendance decreased and then rose in June or July 2020. The most notable decreases were in the general out-patient's department (17%), hypertension (17%), immunization (10%), diabetes (10%), antenatal care (8%) and malaria (7%). Institutional mortality fell in the same period. The study concluded that the lockdown reduced access to health services. COVID-19 created a treatment backlog and increased patient waiting lists for other urgent health conditions, as well as interrupting the care and management of [chronic conditions](#). [Predictions strongly suggest](#) that, on the basis of disability-adjusted life years lost, the impact of the public health response on non-COVID-19 diseases could outweigh the direct impact of an extensive COVID-19 outbreak.

The past year has been spent in 'crisis' mode across the developing world in response to the COVID-19 pandemic, planning for the next wave and tallying the cost of the virus in body counts; hence, patients affected by other conditions were unable to attend their routine appointments for screening, treatment, and care. Moreover, when COVID-19 infection rates start declining, health facilities will find themselves treating patients who have avoided COVID-19 only to succumb to its many unintended consequences such as [addiction, untreated disease and severe depression](#).

Conclusion

The reality is that so far COVID-19 has not had the same impact in terms of morbidity and mortality in most of the Global Fund-supported countries as it has in the OECD. In Europe and North America, the shocking mortality rates have particularly affected older populations. Most of Africa has been spared the caseloads of other continents. There has been considerable speculation as to why this is the case, the age structure of the population is currently the leading contender for an explanation, but in truth we do not yet know all the factors that might be at play.

Despite this, COVID-19 has increased demand in health care systems – especially tertiary hospitals. It has disproportionately killed doctors and nurses. It is yet another stress on already stretched systems. However, the big challenges ? that we will address in the next articles in this series ? will look at:

1. Funding health care, the donor perspective.
2. The economic and social effects of COVID-19.
3. Ways forward, including vaccination access and availability.

We expect there will be numerous commissions of enquiry looking at how we responded to COVID-19 and what we should learn. Our final article will look at the mandates such commissions should have and make suggestions based on our extensive experience with HIV, TB and malaria.

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