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# The upside of the COVID-19 pandemic on the practice of radiology in resource-poor settings

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## Abstract

Despite the devastating global impacts of the COVID-19 pandemic, it brought notable benefits to the practice and study of radiology and radiography in resource-poor communities like Ghana. The pandemic necessitated the adoption of remote work and online learning, overcoming previous barriers such as high costs and poor connectivity. Applications like Zoom and Teams facilitated free access to international webinars and conferences, significantly reducing the financial burden of acquiring knowledge. This period also heightened the recognition of radiologists and radiographers, leading to increased prioritisation and investment in their departments by political leaders, including plans for new hospitals with advanced radiological equipment. Additionally, the pandemic provoked research collaborations and educational advancements, equipping radiologists and radiographers with new skills to handle future health crises. Improved hygiene protocols and infection control measures were implemented, reducing the risk of disease transmission. Enhanced internet services enabled radiologists to offer remote image interpretation services, improving healthcare accessibility across regions. International support ensured a steady supply of medical consumables, further enhancing safety. Overall, the pandemic accelerated technological adoption, increased professional recognition, improved safety protocols, and fostered international collaboration, significantly advancing the field of radiology in Ghana.

**Keywords** COVID-19 · Pandemic · Advantages · Resource-poor settings · Radiology · Radiography

## Main text

The World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern (PHEIC) on January 30, 2020 [1]. As the number of cases and the spread to various territories increased globally, COVID-19 was declared a pandemic on March 11, 2020 [1]. Ghana recorded its first two cases on March 12, 2020 [2]. By February 22, 2021, the country's COVID-19 case count had reached 82,131, with 75,604 recoveries and 594 deaths [2]. As of April 7, 2024, Ghana's total number of cases stood

at 172,075, with 170,592 recoveries and 1,462 deaths, while 28.5 million vaccines had been administered [3].

As of mid-2023, Africa reported over 12.8 million COVID-19 cases and around 257,872 deaths [4]. This is significantly lower compared to North America, which had over 100 million cases and more than 1.1 million deaths, and Europe, with over 250 million cases and 2.2 million deaths [5]. Despite lower infection rates, Africa faced substantial economic impacts, with GDP growth in sub-Saharan Africa dropping from 2.4% in 2019 to -5.1% in 2020, marking its first recession in 25 years [6]. The devastating effects on the economy have caused a surge in unemployment and poverty levels in Africa compared to other continents [4, 7].

Despite the numerous harrowing events of the time, the pandemic, however, brought some blessings to the practice and study of radiology and radiography in some resource-poor communities [8]. We share our experiences regarding the positive effects of the pandemic from the perspective of radiologists and radiographers working and studying in Ghana for the past 20 years.

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Before the first two cases of SARS-CoV-2 were diagnosed in Ghana, leading to a lock-down a month later, working or studying remotely online was not a popular concept amongst Ghanaian radiologists and radiographers [9]. The lack of preference for working virtually could be due to the high cost of data, the poor internet connectivity and speed, and the high cost of computers, software and accessories. Radiology-specific strategic Teleconferencing was first attempted in 2016 during a 2-week course organised by the Ghana Association of Radiologists for their 4th Annual General and Scientific Meeting. This allowed radiologists and residents from 3 Teaching Hospitals in 3 different regions, and radiologists from other regions to join all the lectures. The transmissions were fraught with the challenge of unstable internet connectivity, hence physical meetings were subsequently preferred to online meetings [10].

The lock-down necessitated the use of improved virtual meeting applications such as Zoom and Teams, convenient enough to encourage even the most information technologically-challenged individuals to use them. Radiologists, radiographers and trainees in resource-poor settings like us and our friends had free access to various online international and national webinars, conferences and seminars. These included the Health4TheWorld's Grand Rounds, Reasrch4Life seminars, society seminars and weekly institutional/departmental lectures or tutorials. Some foreign trainers accepted invitations from our local training institutions to share information via scheduled online meetings. The cost of airfares, visa fees, hotel bills, transportation and feeding costs for conferences abroad were eliminated, further reducing the cost of acquiring knowledge. In a resource-poor setting where the net incomes of public workers, including lecturers and doctors, range from \$300 to \$1000 a month, online conferencing removed the cost burden. From our perspective, it allowed us and our colleagues and trainees to stay informed about the latest technological innovations and the current diagnostic criteria for various health conditions without having to pay a lot to learn. It also facilitated the formation of new and important collaborations with colleagues from other institutions abroad.

The pandemic has also heightened the recognition of the pivotal role played by radiologists and radiographers in our setting. Although our contributions to healthcare have been significant, our departments were not consistently prioritised for retooling by political leaders. However, the pandemic shifted the focus to our department, where we played a crucial role in generating images and reports for managing COVID-19 cases. This raised the importance of our professions, fostering a greater appreciation for our skills and contributions in our setting. In response, the government has decided to construct more hospitals equipped with state-of-the-art radiological equipment, enhancing our practice [11].

Global initiatives to combat COVID-19 have led to research collaborations and educational advancements benefiting the radiology workforce. Some of us are now engaged in collaborative research at various levels. In terms of education, we have acquired new skills and are better equipped to handle various types of clinical scenarios including future pandemics or emerging variants of the SARS-CoV-2 virus such as the outbreak of the XBB.1.16 subvariant [12]. Some radiographers, in particular, have also adapted new techniques, including the popular "X-rays through glass".

We have also observed the implementation of stringent protocols to minimise infection risks, including wearing masks, gloves, gowns, and face shields during patient interactions and imaging procedures. Consequently, hygiene in our departments has improved, reducing the risk of patient-facing staff contracting diseases such as TB is prevalent in our setting. The pandemic has encouraged international collaboration and aid. Various countries and organizations have provided support to resource-poor nations, ensuring an adequate supply of medical consumables like face masks. This coupled with an enhanced procurement process and policies has enabled patients to wear masks during radiological services, lowering the risk of staff contracting diseases.

Finally, improved internet service provision and the availability of online digital communication and radiology reporting software enabled local radiologists to provide image interpretation services for patients in other hospitals and regions in 2020 when there were fewer than 100 radiologists for a population of over thirty million Ghanaians [13]. Teleconferencing during radiological procedures with experienced colleagues from remote locations has allowed service providers to make real-time decisions during procedures.

## Conclusion

From our experience, the COVID-19 pandemic has brought about certain benefits, albeit amidst significant challenges, in resource-poor countries. The pandemic heightened the recognition of the pivotal role played by radiologists and radiographers in our setting. It also led to research collaborations and educational advancements without having to spend too much. Moreover, hygiene in our departments has improved, along with enhanced internet service provision and the availability of online digital communication and radiology reporting software. It appears Ghanaian radiologists, radiographers, and trainees are embracing the positive effects of the COVID-19 pandemic while still grappling with the disease.

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**Research involving human participants and/or animals** No applicable.

**Informed consent** Not applicable.

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