

# The Online Courses at OpenWHO Platform Integrated into the Medical Undergraduate Curriculum to Teach Microbiology: A Microbiologist's Perspective

Venkataramana Kandi\*

Department of Microbiology Prathima Institute of Medical Sciences, Karimnagar India

\*Corresponding author: [ramana20021@gmail.com](mailto:ramana20021@gmail.com)

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**Abstract** The Coronavirus Disease 2019 (COVID-19) caused by the novel Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has severely affected people throughout the world. The initial months of the pandemic were horrifying due to the increased spread of infections and the resultant morbidity and mortality. Healthcare workers (HCWs) and hospital establishments were overwhelmed by high rates of infections and hospital admissions. Additionally, the general population, mostly belonging to developing and poor countries, had minimal knowledge of infectious diseases and their dynamics including disease transmission and its control and prevention. Despite having some basic knowledge, HCWs struggled to prevent infections due to a lack of infrastructure and logistics that included laboratory equipment and personal protective gear among others. The pandemic showed how people and administrations throughout the world were under-prepared to face such infectious disease catastrophic situations. Therefore, both medical and non-medical persons require some basic training that prepares them to face pandemic-like situations in the future. Additionally, the knowledge could be extremely helpful to HCWs to efficiently manage patients. The medical undergraduate curriculum should include and integrate online courses which stress on the contemporary issues related to infectious diseases and public health problems that may be unavailable in the text books and routine training processes. We attempt to increase the focus on platforms that disseminate knowledge that meets international standards and is useful both during routine lives and patient management. OpenWHO is such a platform that is being discussed in this editorial.

**Keywords:** *OpenWHO, Infections, Healthcare workers (HCWs), Knowledge Infectious Diseases, curriculum, medical undergraduate, public health, pandemic*

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## 1. Introduction

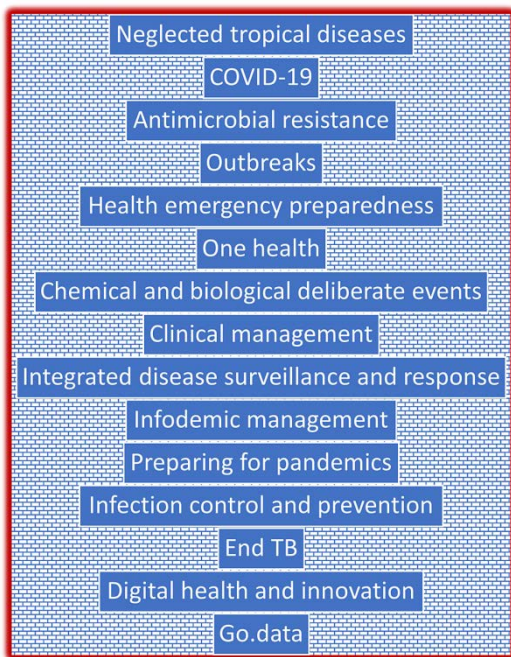
The general population and individuals working in healthcare establishments like hospitals and laboratories are particularly required to acquire basic knowledge and essential skills that enable them to face public health-related challenges attributed to infectious diseases. Medical students are an integral part of healthcare institutions who will, in the future, become physicians and clinical experts who are involved in patient management, infection control, and prevention practices. It is therefore important for them to acquire knowledge and skills that enable them to tackle public health-related problems in an efficient manner. However, it may not be possible for medical students to acquire skills to face contemporary public health issues that result from emerging and re-emerging infectious diseases through routine academic curriculum-based learning processes.

The World Health Organization (WHO) has taken the initiative to impart knowledge to individuals that allows them to be equipped with reliable, standard, and high-quality information regarding various existing public health-related problems. The OpenWHO is an open access online learning platform that offers courses free of charge about essential healthcare-related issues that are accessible to everyone globally [1]. These courses are meticulously designed by the experts at WHO. The courses are available in more than 80 languages and all of them are self-paced, allowing people to choose their free time to complete. The OpenWHO platform concentrates on the infectious disease aspect of public health and covers various issues related to them. The platform provides various courses under 25 different channels some of which can be seen in [Figure 1](#).

The OpenWHO platform was conceived by experts at WHO following the horrific outbreak of the Ebola virus that resulted in the death of several physicians and HCWs apart from other people. Recently, OpenWHO organized

an online exhibition of abstracts that highlighted the utility of this platform. Physicians, HCWs, academicians, and researchers throughout the world shared their experiences of utilizing the OpenWHO platform's courses [2].

The National Medical Commission (NMC), which is the medical education regulatory authority of India recently revised both the undergraduate and postgraduate curricula. This initiative was taken by the NMC to improve the standards of medical education in India and boost the quality of Indian medical graduates on par with global standards [3]. This revised curriculum was designed to ensure that medical students acquire better practical knowledge and training. However, this cannot be achieved unless the students are exposed to contemporary material that is of international standards.



COVID-19: Coronavirus Disease-2019; TB: Tuberculosis

Figure 1. Some of the channels available from the OpenWHO platform

**Integration of microbiology training with OpenWHO courses**

There are several important courses available on the OpenWHO platform that could be integrated with undergraduate practical training. Courses related to the faculty of microbiology that are available on the platform include needle stick injury, personal protective equipment, hand hygiene methods, blood-stream infections, surgical site infections, catheter-associated urinary tract infections, and antimicrobial stewardship among several others as shown in Table 1.

The microbiology-related learning courses cited in Table 1 could be included in the medical undergraduate course as a part of the curriculum. The contents of these courses are meticulously drafted and are of internationally approved standards and endorsed by the WHO. These courses focus on the enhancement of the quality of healthcare provided to the patient along with considering the safety of the HCWs.

I have introduced some of these courses including hand hygiene, personal protective equipment (PPE), needlestick

injury, and antimicrobial stewardship to my students and found them to be extremely easy to access, allow students to complete the courses at their preferred time, and are self-paced. Moreover, students receive a completion certificate that confirms their participation. However, it was noticed that the students were less interested in pursuing the courses attributed to their busy academic schedules and the fact that these courses were not a part of the curriculum.

Table 1. Some channels and courses related to microbiology on the OpenWHO platform

Course channel	Courses	
Antimicrobial resistance	Antimicrobial Stewardship: A competency-based approach	
COVID-19	Severe Acute Respiratory Infection (SARI) treatment facility design	
	Introduction to COVID-19: methods for detection, prevention, response and control	
	SARS-CoV-2 antigen rapid diagnostic testing	
	Key considerations for SARS-CoV-2 antigen RDT implementation	
End TB	Rapid diagnostics for tuberculosis detection	
	Drug-resistant tuberculosis: how to interpret rapid molecular test results	
	Systematic screening for tuberculosis disease	
Infection prevention and control	Healthcare-associated infection surveillance	
	Bloodstream infections	
	Antimicrobial resistance and infection prevention and control	
	Surgical site infections	
	Catheter-associated urinary tract infections	
	Standard precautions: The role of personal protective equipment	
	Standard precautions: Hand hygiene	
	Standard precautions: Injection safety and needle-stick injury management	
	Decontamination and sterilization of medical devices	
	Standard precautions: Waste management	
	Basic microbiology	
	Neglected tropical diseases (NTDs)	Chromoblastomycosis: Training for national and district-level health workers
		Buruli ulcer: training of health workers at national and district levels on skin-NTDs
Visceral leishmaniasis East Africa		
Leprosy: training of health workers on skin-NTDs		
Mycetoma: Training of health workers at national and district levels on skin NTDs		
Scabies: Training of health workers at national and district levels on skin NTDs		
Tungiasis – Sand Flea disease: Training of health workers at national and district levels on skin-NTDs		

COVID-19: Coronavirus Disease-2019; SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus-2; RDT: Rapid diagnostic test; TB: Tuberculosis

**Review of some courses offered by OpenWHO**

The needle stick injury course is valuable as it provides insight into the safety protocols that need to be followed by HCWs when injured by contaminated needles and sharps with patients' blood or body fluids since there is a high chance of transmitting infections. The course explains the appropriate measures during pre- and post-exposure situations that need to be followed to prevent

infection among HCWs. Beginner medical students and other HCWs often make mistakes and have a high chance of experiencing such situations due to a lack of experience and knowledge. So, this course helps provide awareness about the protocol and safety measures to be taken by HCWs during patient management.

The courses on PPE and hand hygiene are very important for medical students because students often overpass the steps of hand hygiene and donning (wearing process) and doffing (removing process) of PPE while handling patients. These courses explain in detail the important steps of hand hygiene with soap and alcohol-based hand sanitizers, basic movements of hand hygiene, and methods to wear and remove PPE, which are quite important for medical students and HCWs. This enables self-protection and keeps families safe and healthy, especially in times of pandemics. Additionally, such scientific practices help HCWs to provide improved health care to the patient.

Considering antimicrobial resistance (AMR) as a potential silent pandemic, medical students should be well aware of antimicrobial stewardship. Besides, awareness and knowledge about concerns related to AMR could contribute to a reduction in the burden of AMR and improved patient outcomes. The course on antimicrobial stewardship will provide medical students with a basic understanding of the issue.

Tungiasis is a clinical condition wherein people are infested with fleas belonging to *Tunga penetrans*. Tungiasis is prevalent, especially among people living in poor and developing countries of the world including Nigeria, and Brazil among others [4]. Despite its high potential to affect humans, tungiasis has not been given enough consideration to be included in the textbooks. The OpenWHO platform provides a learning course about tungiasis which could be very helpful to physicians and other people to suspect, diagnose, treat, and prevent the disease.

Similarly, scabies is another clinical condition that fails to get attention despite its prevalence. Scabies is a skin infestation of mites belonging to *Sarcoptes scabiei* [5]. A majority of scabies cases remain undiagnosed due to their unfamiliar presentations, unknown epidemiological features, and underreporting. The OpenWHO platform provides a learning course on scabies that could be of high value for public health experts, HCWs, and health administrators to efficiently manage, control, and prevent the disease.

Moreover, the OpenWHO platform includes several other online courses highlighting neglected tropical diseases (NTDs) like leprosy, visceral leishmaniasis, mycetoma, chromoblastomycosis, and others [6]. This online platform also provides courses on infectious disease outbreaks and pandemic preparedness.

Additionally, the current times have been witnessing the emergence of newer microbes like the Zika virus, and Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), among others [7,8]. Learning materials about such emerging and re-emerging microbial infectious causes and other diseases may not be available in contemporary books. Therefore, medical students, physicians, and other HCWs must be encouraged to pursue online courses like those available on the OpenWHO platform.

Although there are some other online platforms like Coursera, they do not offer learning courses free of charge [9]. Therefore, individuals belonging to poor and developing countries like India will find it difficult to pursue them. Also, these platforms include courses endorsed by universities that are not limited to the medical field [10]. The Government of India (GOI) under the Ministry of Education has also taken a similar initiative in the form of the Swayam platform. This platform hosts several learning courses that cater to a broad community of students including those studying in schools, and undergraduate and postgraduate students [11]. The NMC has made it mandatory for medical postgraduates and assistant professors to pursue a basic course in biomedical research hosted on the Swayam platform to become eligible for promotion.

The Public Health Foundation of India (PHFI), an autonomous institution has come up with an online platform called Center for eLearning (PCEL) that hosts several courses [12]. These courses are extremely useful to individuals working in public health-related departments and other HCWs. However, PHFI charges course fees and all the participants receive certificates of completion.

## 2. Conclusion

The regular medical undergraduate curriculum doesn't impart sufficient practical training. Additionally, there is a continuous update of the knowledge related to medicine and public health-related issues that cannot be found in the textbooks. Therefore, it is recommended to include online learning programs available on the internet like those accessible from the OpenWHO platform. The medical education and training regulatory authorities in India and other countries are encouraged to integrate such online programs within the curriculum. This could enhance the skills and knowledge of the medical undergraduate students thereby allowing them to acquire updated knowledge and skills to become better physicians/clinicians and public health experts. Additionally, these courses may be considered as continuing medical education (CME) for credits recognizing the faculty's progress and development.

## References

- [1] About us. (2023). Accessed: November 15, 2023; <https://openwho.org/pages/about>.
- [2] Session videos. (2023). Accessed: November 22, 2023; <https://sites.google.com/learningsaveslives.org/openwho-virtual-exhibition/home/session-videos>.
- [3] Kandi V. Medical Education and Research in India: A Teacher's Perspective. *Cureus*. 2022 May 2; 14(5): e24680.
- [4] Kandi V: Tungiasis presenting as onychomycosis: probably the first report of flea infestation of the nail observed using modified potassium hydroxide mount technique. *Cureus*. 2018, 10: e2278. 10.7759/cureus.2278.
- [5] Kandi V. Laboratory Diagnosis of Scabies Using a Simple Saline Mount: A Clinical Microbiologist's Report. *Cureus*. 2017 Mar 19; 9(3): e1102.
- [6] Mohapatra RK, Kandi V, Seidel V, Rabaan AA. Editorial: Re-emergence of neglected tropical diseases amid the COVID-19 pandemic: epidemiology, transmission, mitigation strategies, and

- recent advances in chemotherapy and vaccines. *Front Pharmacol.* 2023 Sep 18; 14: 1265803.
- [7] Suvvari TK, Mohanty A, Kuppili S, Kandi VR, Padhi BK, Sah S, Sah R. A fungus among us: The strange tale of *Chondrostereum Purpureum* - A plant pathogen that found a new home in humans: A correspondence. *New Microbes New Infect.* 2023 Apr 26; 53: 101143.
- [8] Suvvari TK, Kandi VR, Mohanty A, Padhi BK, Sah R. The emergence of drug-resistant super fungus - A serious public health threat that needs an immediate action: Correspondence. *International Journal of Surgery Open* 2023; 53: 100603.
- [9] Learn without limits. (2023). Accessed: November 15, 2023: [https://www.coursera.org/?utm\\_campaign=B2C\\_INDIA\\_subscribe\\_FTCOF\\_courseraplus\\_arte\\_bing\\_monthly&utm\\_content=B2C\\_INDIA...](https://www.coursera.org/?utm_campaign=B2C_INDIA_subscribe_FTCOF_courseraplus_arte_bing_monthly&utm_content=B2C_INDIA...)
- [10] Reinventing education. (2023). Accessed: November 15, 2023: <https://openlearning.mit.edu/>.
- [11] About swayam. (2023). Accessed: November 15, 2023: <https://swayam.gov.in/about>.
- [12] Center for eLearning. (2023). Accessed: November 22, 2023: <https://cdl.phfi.org/portal/>.



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