

# Quality Rapid Diagnostic Laboratory Test: A Way for Curving COVID-19 Global Inferno

Abay S. Misganaw<sup>1,2\*</sup>, Abrham T. Bika<sup>1,3</sup>, Adey F. Desta<sup>2</sup>

<sup>1</sup>Department of Medical Laboratory Sciences, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia; <sup>2</sup>Department of Microbial Cellular and Molecular Biology, College of Natural and Computational Sciences, Addis Ababa University, Addis Ababa, Ethiopia; <sup>3</sup>Center for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa) Addis Ababa, Ethiopia

## ABSTRACT

Novel Coronavirus disease (COVID-19), is caused by a virus that belongs to coronaviridae family and have a severe respiratory disease, first reported in December 2019 from Wuhan China and became global public health emergency with high escalation rate throughout the world and insidious global threat. Within short period of time it reached all over the world as a global inferno. Hence, in order to curve the pandemic, quality assured laboratory with good networking diagnostic capacities have an indispensable role. Governments and stakeholders should invest in it, especially availing rapid diagnostic tests to manage this global crisis proactively. We have to stop this global menace.

Even though there was lots of information. Indeed, still there are increasing demands for quality rapid diagnostics for the novel pathogen to control. Thus, considering the paucity of diagnostic based data on COVID-19, this is to bridge information gaps.

**Keywords:** COVID-19; Diagnostics; Rapid test kits; Quality

**Abbreviation:** MERS-CoV: Middle East Respiratory Syndrome Corona Virus; POCT: Point of Care Testing; RDT: Rapid Diagnostic Tests; rRT-PCR: Real Time Reverse Transcriptase Polymerases Chain Reaction; SDG: Sustainable Development Goal; WHO: World Health Organization

## INTRODUCTION

The third zoonotic based corona virus, COVID-19 was detected in human beings in China, Huwan as of December 2019 from patients through whole sequencing and reverse transcriptase polymerase chain reaction (rRT-PCR) of bronchoalveolar lavage/Oropharyngeal swabs. It is most devastating and ongoing global health threats as the WHO declared it as a global pandemic in March 2020, mostly transmittable from human to human than the previous identified corona viruses [1,2].

Its fatality rate has been 3%-4% with more in older ages; however it has greater infectious rate and its incubation period is of 3-14 days on average. It had rapid escalation rate in the number of infections around the epicenter of the outbreak. It is fast and scary and became a bottle neck for the current chaotic status of the health system especially in Africa with relatively poor health systems and lack of diagnostic test kits, may have high undiagnosed cases, it is negatively and may be directly correlated with mortality rate [3]. Currently, even though there were overwhelming amounts of information.

Indeed, still there is a need of research based information and there are increasing demands for rapid diagnostics for the novel pathogen, SARS-CoV-2 to control this global pandemic. This work is done considering for bridging the paucity of information about diagnostic data gaps [4].

As of 22 April 2020, 210 countries around the world were affected by COVID-19 of 186,223 deaths from more than 2,667,527 cases. 55 African countries had reported more than 26,870 cases and 1,247 deaths due to COVID-19. More than 2,600 health care workers were infected with coronavirus in Italy and it indicates that strict safety measures were not placed while giving a medical service [5].

## CAN COVID-19 TRANSMIT VERTICALLY?

Corona viruses are of more zoonotic, which circulate with animals among some of them also known to cause diseases to humans. The whole genome sequence data indicates that it is most likely originated from Bats and as we more understand that there is more

**Correspondence to:** Abay Sisay Misganaw, Department of Medical Laboratory Sciences, College of health Sciences, Addis Ababa University, Addis Ababa, Ethiopia, E-mail: abay.sisay@aau.edu.et

**Received:** April 27, 2019; **Accepted:** May 20, 2020; **Published:** May 27, 2020

**Citation:** Misganaw AS, Bika AT, Desta AF (2020) Quality Rapid Diagnostic Laboratory Test: A Way for Curving COVID-19 Global Inferno. J Med Diagn Meth 9:292. doi: 10.35248/2168-9784.2020.9.292

**Copyright:** © 2020 Misganaw AS, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

homology and the virus was identified in environmental sample. Even if there were other species of animals related to this, Bats were considered as most natural hosts of these viruses. It has been transmitted from infected person to person. However, there is no objective evidence to indicate vertical transmission. This may give a clue for thinking and strengthen one health approach [1,6].

At this stage imported case of transmission were more than local one, this may give indication for way of controlling measures and risk assessment should be performed and mitigation action should have been in place, including the treatment centre and diagnostic laboratory.

## DIAGNOSIS CAPACITIES

Despite the fact that much efforts and resources were injected, still the virus is difficult to control and staidly goes running out of control throughout the world, as the cases are increasing daily. Undeniably, for control of any epidemic diagnostics are very critical. WHO has recommended and published different testing protocols but the costs and infrastructures of most laboratories are not in this page. Hence the scientific community should think other options considering the low income countries capacities with better sensitivity and specificity [7].

We all are confronting COVID-19 with deprived healthcare infrastructure and testing competence, especially low income countries. To appreciate the recent WHO recommendation: “test”, “test”, “test” as a mitigation and control means of the situation, everybody should test, screen and know their status and take care of themselves. Hence, in order to realize this accessible, affordable, user friendly laboratory test kits, mainly rapid and point of care tests should be considered. These are relatively more realistic for low and middle income countries that can be managed by minimal trained personals [8].

In Africa the laboratory diagnostic capacities were at the state of questionable to detect outbreaks as early as possible. Accordingly, the 2030 of SDG beg a question of realization with as big gaps at the diagnosis stage and with many people failing to get diagnosed. Irrefutably, RDTs are fundamental components of a successful outbreak containment strategy, minimize response costs and save lives due to outbreak of the current COVID-19 [8,9].

Several assays that detect SARS-CoV-2 have been and are currently under development, both in house and commercially. For sure despite its simplicity and low cost its quality come has under scrutiny that exposed and weakened the health systems and forced the countries and diagnostic companies to tousled for rapid screening, but weight its available near to the clients [6,9].

In addition to test and diagnosis contact tracing and isolation of cases is a common intervention for controlling the outbreaks. Strengthening the research, especially whole genome sequences, phylogenic analysis considering its involvement in global population heterogeneity and accordingly vaccination and drug trial also try-out immediately. Moreover, it needs a political commitment and concerns [10].

## CONCLUSION

To combat the spread of COVID-19 and to curb the graph: everyone

should give a due attention for availability and accessibility of validated quality diagnostic test kits, more focused on rapid test kits. Policy makers should consider self-testing and telemedicine programs for increased access and to tackle further transmission risks due to congestion and health facilities acquired transmission of this pandemic. Also as a global citizen, everybody ask and knows how much we are prepared to face this disaster proactively and should keep themselves safe and not panic.

## DISCLOSURE

### Competing interests

We the authors declare that, have no any competing interests

### Funding

None

### Authors' contributions

ASM and ATB designed the study, reviewing the articles and wrote the first draft; AFD was responsible for guiding the methods. All authors read and approved the final manuscript for publication.

## ACKNOWLEDGEMENTS

Our gratitude goes to all brave experts and scientist working on COVID 19 to get scientific findings.

## REFERENCES

1. [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it).
2. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020;382:727-733.
3. Woo PCY, Lau SKP, Huang Y, Yuen KY. Coronavirus diversity, phylogeny and interspecies jumping. *Exp Biol Med* (Maywood). 2009;234(10):1117-1127.
4. Pandey U, Greninger AL, Levin GR, Jerome KR, Anand VC, Bard JD. Pathogen or bystander: Clinical significance of detecting Human Herpesvirus 6 in pediatric cerebrospinal fluid. *J Clin Microbiol*. 2020;58(5):e00313-20.
5. <https://www.worldometers.info/coronavirus/>
6. Hui DS, Azhar E, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health-The latest 2019 novel coronavirus outbreak in Wuhan, China. *Int J Infect Dis*. 2020;91:264-266.
7. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395(10223):497-506.
8. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--8-may-2020>.
9. Green K, Graziadio S, Turner P, Fanshawe T, Allen J. Molecular and antibody point-of-care tests to support the screening, diagnosis and monitoring of COVID-19. *CEBM*. 2020.
10. Yang T, Wang YC, Shen CF, Cheng CM. Point-of-care rna-based diagnostic device for COVID-19. *Diagnostics* (Basel). 2020;10(3):165.