

# Ensuring capacity building and biosafety in laboratories involved in detection of COVID-19

Saurabh R. Shrivastava<sup>a</sup>, Prateek S. Shrivastava<sup>b</sup>

<sup>a</sup>Member of the Medical Education Unit and Institute Research Council, Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth – Deemed to be University, Ammapettai, Nellikuppam, Chengalpet District, Tamil Nadu, India, <sup>b</sup>Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth – Deemed to be University, Ammapettai, Nellikuppam, Chengalpet District, Tamil Nadu, India

Correspondence to Dr. Saurabh R. Shrivastava, MBBS, MD Community Medicine, FAIMER, ACME, Professor, Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth (SBV) – Deemed to be University, Tiruppur - Guduvanchery Main Road, Ammapettai, Nellikuppam, Chengalpet District - 603108, Tamil Nadu, India. Tel: +91 988 422 7224; e-mail: drshrishri2008@gmail.com

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The coronavirus disease-2019 (COVID-19) pandemic has accounted for enormous disruptions in the different domains of human lives and the same stands true for the national as well as global economy. Ensuring timely diagnosis of the COVID-19 infection is the most important step to interrupt the chain of transmission, as once the positive cases are identified they can be isolated and the onward spread of the infection can be interrupted. Amidst the fact that the infection is highly contagious, it is important to ensure that each laboratory performs a local risk assessment to ensure that safety of the laboratory personnel is maintained by improving the quality of infection prevention and control measures. Moreover, the laboratory staff should also strictly adhere to the standard microbiological practice and procedures. To conclude, in the battle against the COVID-19 pandemic, there is an indispensable need to strengthen the laboratory network and also to improve the biosafety procedures to ensure wellbeing of the personnel.

## Keywords:

COVID-19 pandemic, diagnosis, laboratory, World Health Organization

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## Introduction

The coronavirus disease-2019 (COVID-19) pandemic has accounted for enormous disruptions in the different domains of human lives and the same stands true for the national as well as global economy [1,2]. The available global estimates suggest that as on August 15, 2020, a cumulative total of 21 026 758 cases and 755 786 deaths have been reported across the world, with the American, the European and the South East Asian regions being the most affected [1]. It is important to note that the novel viral infection has been detected in 216 nations and territories, while the overall case fatality rate has been estimated as 3.6% [1].

## Pillars for effective containment

A number of pillars have been identified to ensure the effective containment of the infection, such as diagnostic facilities, active case surveillance, treatment modalities, infection prevention and control, strengthening of international health regulations, and establishing a risk communication and community engagement system [2,3]. Ensuring timely diagnosis of the COVID-19 infection is the most important step to interrupt the chain of transmission, as once the positive cases are identified they can be isolated and the onward spread of the infection can be interrupted [2–4].

## Capacity building and biosafety

As the cases continues to rise, the need of the hour is to accordingly increase the diagnostic capacity in the nation, and in order to support the nations, 22 reference laboratory networks have been established across different nations by the World Health Organization as on April 29, 2020 [5]. Amidst the fact that the infection is highly contagious, it is important to ensure that each laboratory performs a local risk assessment to ensure that safety of the laboratory personnel is maintained by improving the quality of infection prevention and control measures [6,7]. Moreover, the laboratory staff should also strictly adhere to the standard microbiological practice and procedures [7]. As of now, the basic Biosafety Level 2 is considered appropriate for the diagnostic services.

In a number of nations, liaisons have been developed with private sector laboratories to enhance the number of samples which are being processed each day. Further, to maintain the quality of the performed

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laboratory tests, it is a must to establish an external quality assurance program [2,3]. As a number of things about the causative virus are still not known, it is recommended to give specific emphasis toward the choice of disinfectant, the time for which it has to be used, its dilution, shelf-life, and the number of days after which the prepared disinfectant should not be used [4,6–8]. For the process of virus isolation, it is a must to maintain controlled ventilation and at the same time the exhaust air from the laboratory should not be circulated to other parts of the laboratory facility [4,7]. Finally, specific precautions have to be taken whenever the samples have to be referred to other centers for processing [4].

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### Conclusion

To conclude, in the battle against the COVID-19 pandemic, there is an indispensable need to strengthen the laboratory network and also to improve the biosafety procedures to ensure well-being of the personnel.

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### Conflicts of interest

There are no conflicts of interest.

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