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Universal Coronavirus Testing to Control the Pandemic: Ethical Issues and Dilemmas

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Abstract

Every country had to make several difficult decisions in the initial phase of the Coronavirus (COVID-19) pandemic to allocate resources for COVID testing. Decisions on who should be tested for COVID-19 testing are extremely vital for pandemic preparedness. In this article, we highlight the need for prioritization of testing resources including direct-to-consumer testing methods, ethical dilemmas involved in obligatory testing, and testing of refugees and immigrants.

Keywords: Mandatory Testing, Coronavirus, Ethics, Immigrants, Direct to Consumer Testing, Health Democracy, Autonomy

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INTRODUCTION

SARS-CoV-2 pandemic requires ethical considerations for the allocation of resources for universal and mandatory testing. The decision of who should be tested is an important component of pandemic preparedness. Prioritizing the existence of scarce testing resources, the protocol to regulate commercial direct-to-consumer testing devices, the decision on testing immigrants, and the need for mandatory testing are the major ethical dilemmas of COVID testing.

Every country has its unique requirements and challenges for COVID-19 testing. The testing strategy should be chosen such that it can contribute maximum to stopping the spread of the disease. Commercial direct-to-consumer test services will increase the accessibility of COVID-19 testing for the public and facilitate the detection of asymptomatic carriers. It should be borne in mind that commercial tests should be subject to national and state regulations to ensure quality and accurate information to the end-user.

The COVID-19 pandemic can only be controlled and eliminated by rampant testing and large-scale mass vaccination. This includes testing for the issue of passport certificates for international travel and testing of unauthorized immigrants and refugees to stop the spread of the disease which will be easier if the society has been inclusive of the immigrants.

Universal testing paves the way for international solidarity during a pandemic. Universal testing can be successful only if it is done voluntarily and not on a mandatory basis, though prevention of the spread of disease in residential areas and workplaces will often require mandatory testing of all concerned individuals. The voice of the general public should be heard while drafting health policies to foster health democracy and ensure the success of such programs.[1-3] The ethical dilemmas involved in COVID testing and the challenges and solutions to implement universal COVID testing to prevent the spread of this fatal pandemic (Figure) are discussed below.

Prioritizing to Whom to do the Test

Ethical Issues in Prioritization of Testing

The major problem with the SARS-CoV-2 pandemic has been the provision of access to tests and the use of these tests. Previous pandemics due to infectious diseases offer few guidelines for this problem. In every pandemic, diagnostic tests are developed faster than vaccines. Diagnostic tests need to be validated before they can be rolled out for mass screening. In the current pandemic due to SARS-CoV-2, the deficiency in testing equipment and the presence of logistic hurdles created a number of problems in the introduction of mass screening. Later, the reorganization of laboratories and reassignment of monetary and laboratory resources lead to an increase in testing capacity.

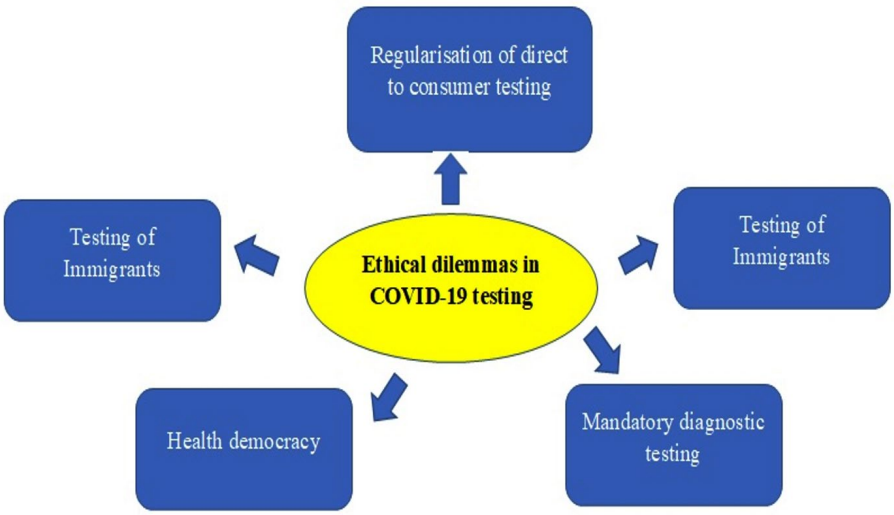

Figure. Ethical dilemmas in COVID testing

The introduction of rapid diagnostic tests (RDT) also helped the process as it is suitable as a point-of-care test and did not necessitate the need for a laboratory. The presence of rapid diagnostic tests is a boon to poor economic countries as it enables them to be prepared to handle any pandemic situation.

Dilemmas in Prioritization of Testing

The major dilemma currently is who should be prioritized for testing? The standard method to prioritize testing is to give preference to the community which will be affected the most without access to testing and healthcare benefits. Individuals of age group more than 65 years will fall in this category. This prioritization will support the argument that those who have the most to lose will benefit from testing and appropriate medical management. This is ethically fair and will do justice to the community. Early diagnosis in this age group will help them to receive timely treatment and prevent the development of complications of SARS-CoV-2. Previous studies mention that COVID-19 management in the elderly maximizes their remaining life expectancy. The argument on the other side is that testing is most needed for those who will lose the maximum quality of life. Adults >18 years of age and less than 65 years of age will fall in this category. If the quality of life is given prioritization, then the younger people should be given preference for diagnostic testing. It is also important that testing covers individuals who have the maximum capacity to spread the disease to healthy individuals. Health care professionals should also be prioritized for diagnostic testing.[4] They play a major role in public health measures and are instrumental in the management of the pandemic

Besides this, testing should lead to the allocation of resources for the delivery of healthcare to patients who are identified as positive for SARS-CoV-2. There is no point in prioritizing or introducing mandatory or universal testing if there are no resources to curb the spread of the pandemic. Priority setting for diagnostic testing in a pandemic needs to be done based on the disease burden, transmission pattern of the disease, access to healthcare, and the economic situation of the country.

Regularization of Commercial Direct-to-consumer Testing (DTC)

Ethical Issues Involved in DTC

Direct-to-consumer testing has revolutionized the arena of diagnostic testing as it has made laboratory tests available to the general public without the need to visit a laboratory. The rate of testing for SARS-CoV-2 has increased with the introduction of direct-to-consumer testing but it has a number of limitations. Direct-to-consumer testing does not have low false positives which means that it will give a false sense of relief of an immunity status and confidence to patients with SARS-CoV-2 infection who may spread the infection to others in their ignorance. The sensitivity of direct-to-consumer testing also depends on the thoroughness of taking the specimen sample. Inappropriate specimen collection may lead to false-negative results and may encourage the patient to have a number of social interactions which can spread the disease. Direct-to-consumer testing is thus not an appropriate testing strategy to implement universal and mandatory diagnostic testing of the general population for SARS-CoV-2.

Pitfalls of Direct-to-consumer Testing

Accuracy of the Test

The clinical validity of direct-to-consumer testing depends on a number of factors such as the quality of specimen collection, the stability of the specimen, and specificity and sensitivity of the given test.

Interpretation of Results

DTC testing does not involve interaction with a healthcare individual. This has can result in misinterpretation of results. A false-positive result can keep individuals out of schools and the workplace and affect their quality of life while a false negative result will result in the spread of the virus through social interactions. Serological diagnostic tests of SARS-CoV-2 are in particular difficult to interpret without medical assistance. DTC tests must be provided with ample information about their potential limitations to prevent the adverse outcome of misinterpretation of the test.[5-7]

Inadequate Product Information

Since the origin of the COVID pandemic, the market has been flooded with direct-to-consumer test kits. It is important to select the kit based on its sensitivity and specificity and to check for government authorization of the kit for diagnosis of SARS-CoV-2.

Privacy Issues

DTC tests require that the consumer provide his personal information to the companies for the use of the test. The company is however required by government policy to reveal the personal information of the consumer in cases where the test result is positive. This may be considered a breach of privacy by the consumer. Most DTC tests mention this in their terms and agreement section which is most often not read by consumers in their anxiety and hurry to perform the test.[5,8-10]

Dilemmas Involved in Direct-to-consumer Testing

The real dilemma in direct-to-consumer testing is to whom should it be made available. DTC testing helps in the implementation of mass screening of the population but utilization of DTC testing without understanding the techniques involved in sampling, and implications of faulty interpretation of results could lead to dire consequences. Hence, the government must frame protocol and policy on the appropriate use of DTC before authorizing it for public use.

Testing of Immigrants

Ethical Issues in Testing Immigrants

Unauthorized immigrants require medical attention more than the general public of a given country. Their healthcare status is more often in a precarious situation. Immigrants on entry into the country are tested for infectious diseases such as SARS-CoV-2, tuberculosis, and others. This mandatory testing is not appreciated by the immigrants as they fear the response to positive testing. The fear arises from the belief that asylum will not be provided in the country on positive testing. Thus, immigrants reject any form of medical help on entry into the country as they fear cooperation between the country which provides asylum and the immigration law enforcement system.

Dilemmas in Testing Immigrants

The question here is how important is it to test immigrants for SARS-CoV-2. The fear that the transmission and burden of infection in a country is because of immigrants is false and unfounded. Infection is spread in large numbers due to social interactions between colleagues at the workplace, members attending places of religious belief, recreational places, and social meetings, and not due to the entry of immigrants from a foreign country. Also, the screening of immigrants for SARS-CoV-2 is important in countries that have very well controlled the transmission of the disease but this should not be any different for persons who approach a country for asylum. Returning citizens with a number of social contacts have more chance of spreading the disease in a country than immigrants who enter the country for asylum. Hence governments across the world should tread the topic of immigrant testing with caution. Immigrant screening for SARS-CoV-2 will be appreciated by the asylum seekers better when it is accompanied by comprehensive healthcare.[11-13]

Mandatory Diagnostic Testing

Ethical Issues in Mandatory Diagnostic Testing

Universal and mandatory testing is important during a pandemic to identify and quarantine individuals who have tested positive for SARS-CoV-2 to stop the transmission of the disease. Mandatory testing can be implemented in many ways, at a particular residential area or workplace, for intercountry border crossing travelers. This initiative will be successful if it's done on a voluntary basis. However, conflicts may arise between the general population and the government for multiple reasons if done on an obligatory basis. Some of the specific reasons are the feeling of discrimination and stigmatization when testing positive for SARS-CoV-2 and the spread of pseudoscience regarding the disease among the population. The cost involved in the implementation of universal and mandatory screening is also high.

Dilemmas in Mandatory Diagnostic Testing

The dilemma here is whether can countries use legislation to implement mandatory testing, the subsequent management of the

disease, and quarantine for SARS-CoV-2 to stop the transmission of the disease. The use of legislation for mandatory testing is based on the concept that the person who is positive for SARS-CoV-2 infection is not just a victim of the pathogen but also a vector for the disease and can spread it to a large number of people in the general population. Thus, the principle of medical ethics, patient autonomy cannot be applied to SARS-CoV-2 due to the high transmission rate of SARS-CoV-2.[14,15] Mandatory testing and quarantine implementation using legislation has been an aged old practice to prevent the spread of infectious diseases. In 1993, the New York Commissioner of Health implemented forced quarantine and treatment for patients diagnosed with tuberculosis to prevent the spread of this infection and the development of drug resistance in the city.[16]

Mandatory testing can be justified only when it leads to a better health outcome which cannot be achieved by performing the diagnostic tests on a voluntary basis. There should not be coercion on the part of the government to implement mandatory testing. Coercive measures will induce emotions of discrimination and stigmatization in the general public. Mandatory testing needs to be implemented in a way that the public does not lose faith and trust in the government and its public health measures.[3,17-26]

Rapid Tests vs Molecular Tests for COVID-19 Diagnosis

Ethical Issues in the Choice of Tests for Diagnosis of COVID-19

The global mantra for controlling the COVID-19 pandemic has been testing, tracking, tracing, and isolation strategies. The various testing strategies for COVID-19 are the quintessential tools for the diagnosis of COVID-19. The most widely used methods for diagnosis are the nucleic acid amplification test (reverse transcriptase polymerase chain reaction, RT-PCR) and the rapid antigen testing (RAT) for SARS-CoV-2. The nucleic acid amplification test is the gold standard for the diagnosis of COVID-19. They are extremely reliable and can identify active infections. It reduces the probability of a misdiagnosis when the sample is collected appropriately. They have high sensitivity and specificity and are used as confirmatory tests following a positive result in rapid antigen testing.

On the other hand, the rapid antigen testing for SARS-CoV-2 is cheap, has a faster turnaround time, and can be used as a point-of-care test. These qualities of RAT, make it attractive to the consumers but the test itself suffers from poor sensitivity. Thus, a negative RAT must be confirmed with a nucleic acid amplification test to prevent misdiagnosis

Dilemmas in the Choice of Tests for Diagnosis of COVID-19

The government and the public are often faced with the dilemma of choosing the appropriate testing method. The government needs to identify the testing strategy most suited for a specified population. Molecular diagnostic testing is more suited for clinical diagnosis and for contact tracing while RAT is suited for screening large populations. Large-scale testing requires a diagnostic test with a rapid turnaround time such as the RAT though it comes with lower sensitivity than nucleic acid amplification tests. Molecular testing with its high sensitivity has the capacity to detect patients with low viral load who are not contagious. Hence, testing strategies must utilize both methodologies in a complementary fashion to effectively diagnose COVID-19.[27-29]

Health Democracy

Ethical Issues Concerning Health Democracy

Management of the COVID-19 pandemic has required the need for good and organized health governance. During this time, most of the advice provided to the political leaders whereby specialist experts, and those who already had a good relationship with the government with the government organizations, which are most often not inclusive. often not inclusive. The opinion of the general population, communities, minorities, and civil society groups should be heard and considered for adherence to health policies and to build trust among the people. People's voices must be heard to foster healthy democracy and to understand their needs in times of emergency.

Dilemmas in the Maintenance of Health Democracy

Mandatory testing and quarantine were implemented in most countries across the world as one of the emergency decisions on public

health measures to reduce the transmission of SARS-CoV-2. (4) Policymakers had to make these decisions at times of crisis when the mortality rates due to COVID-19 were very high. These decisions were taken by the government under the guidance of task forces which mostly comprised virologists, epidemiologists, physicians, and government administrators. But is such a task force inclusive of public opinion? Task forces need to represent the general population. It should have inclusiveness with respect to race, socio-economic status, gender, faculty of various disciplines of medical health programs, social workers, and advocates of human rights.

When there is healthy democracy, people feel justified in following the health policies and will be more comfortable adhering to the health restrictions. Health democracy will also foster transparency and social participation in the government's health policies.[24,30-32]

CONCLUSION

Mandatory and universal testing for SARS-CoV-2 can be implemented in dire situations after thorough discussions with all stakeholders. The decision should be inclusive and made after consideration of the opinion of representatives from various medical and non-medical organizations. Real-time PCR and direct-to-consumer tests can be utilized to achieve universal testing. Immigrant testing for SARS-CoV-2 must be followed by comprehensive health care for better acceptance of the national health policies and guidelines. Healthcare workers, front-line workers of SARS-CoV-2 such as the police force, and other essential work personnel must be prioritized for testing. When health policies and decisions are taken with health democracy in mind, there will be acceptance and better participation of the general public is mandatory and universal testing.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest

AUTHORS' CONTRIBUTION

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication

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DATA AVAILABILITY

The data generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

ETHICS STATEMENT

Not applicable.

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