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Covid-19 Testing of Asymptomatic Individuals - No Benefit but Consequential False Sense Security

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Abstract: The Coronavirus Disease 2019 (COVID-19) pandemic due to the infectious pathogen Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has altered ambulatory and inpatient health care. The COVID-19 RT-PCR Test is a real-time reverse transcription polymerase chain reaction (RT -PCR) test, which is an invaluable component of the differential diagnosis of a symptomatic individual. However, expert opinion supports use of PCR COVID-19 pre-admission or pre-surgery testing of asymptomatic to inform use of personal protective equipment (PPE), hospital isolation and bed assignment, maternal- neonatal bonding and breast feeding. Currently, there is no evidence-based data for a universal screening program of asymptomatic patients in the absence of contact tracing and even if it is done, it should not be in lieu of universal precautions and PPE use. The major method to decrease the spread of COVID-19 in the hospital setting and in general, would be to adhere to universal precautions, that is, using PPE at all times, hand hygiene, respiratory hygiene, self-quarantine if symptomatic or had possible exposure to COVID-19, social distancing and use of masks/ face coverings.

Overview: The Coronavirus Disease 2019 (COVID-19) pandemic due to the infectious pathogen Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has altered ambulatory and inpatient health care. The COVID-19 RT-PCR Test is a real-time reverse transcription polymerase chain reaction (RT -PCR) test, which is an invaluable component of the differential diagnosis of a symptomatic individual. However, expert opinion supports use of PCR COVID-19 pre-admission or pre-surgery testing of asymptomatic to inform use of personal protective equipment, hospital isolation and bed assignment, maternal- neonatal bonding and breast feeding. As racial and ethnic minorities are disproportionately affected by COVID-19, these healthcare isolation and separation polices of asymptomatic positive individuals will result in health disparities as well as racially segregated short- and long-term healthcare units.

Accuracy of COVID-19 diagnostic PCR testing: Currently, the confirmation of diagnosis of Covid-19 depends on real time polymerase chain reaction (RT-PCR) analysis to detect viral genetic material in either a nasal swab or bronchioalveolar lavage sample. The usual incubation period between viral infection to the appearance of symptoms is 5 to 7 days, with a range of 4-14 days. Currently, confirmation of SARS-CoV-2 infection depends on use of the highly specific real time polymerase chain reaction (RT-PCR) analysis to detect viral genetic material in either nasal swab or bronchioalveolar lavage sample. A positive test result indicates the individual had contact with the SARS-CoV-2 viral genome protein in the previous 21 days. However, the presence of viral protein does not inform the likely hood of progressing to COVID-19 disease, disease transmission risk or presence of viral shedding. In contrast up to 40% of a negative PCR test are false. RT-PCR COVID-19 testing of symptomatic individuals described by Yang et al(Feb 2020) is a non-peer reviewed publication reported false negative test rates in 11 %, 27 % and 40% of samples obtained from throat, sputum and nasal specimens, respectively. Similarly, for symptomatic individuals Wang reported false negative test rates from 7 % of samples obtained from bronchioalveolar lavage, 28% in sputum and 37% in from nasal specimens. False negative test results may lead to a false sense of security by health care workers. Their resultant decision to not use Personal Protective Equipment (PPE) in caring for a COVID-19 negative patients or for a designated COVID-19 negative unit could increase the risk of horizontal SARS-CoV-2 exposure between an unidentified positive healthcare worker and true negative patient as well as between a negative health care worker and positive patient falsely identified as negative.

Discussions: The COVID-19 pandemic has caused a significant strain on healthcare worldwide. As such, there is a dire need to urgently find a preventative vaccine or a cure and at minimum therapy to improve outcomes of those infected. To date, there are no medications that have undergone large clinical trials that demonstrate improved outcomes against SARS-CoV-2. Proper hand hygiene, respiratory hygiene, self-quarantine, social distancing and person protective equipment [PPE] for health-care workers is currently, the only evidence-based recommendations against further spread through. As the current test for COVID -19 has a false-negative test rate of up to 30% in symptomatic patient populations, the accurate use of the test as a diagnostic tool is limited. As such, healthcare workers must not give in to this false sense of

security and abandon safety precautions including the use of PPE needed for prevention. Healthcare workers must also recognize that working in a high-risk setting, makes them to more likely be asymptomatic carriers who can potentially infect patients and other workers alike. So, our suggestion would be that everyone, especially healthcare workers should continue to adhere to precautions including the use of PPE regardless of what the test results show.

Conclusion: Currently, the only proven recommendations to decrease the spread of COVID-19 is through proper hand hygiene, respiratory hygiene, self-quarantine, social distancing, use of masks in public and the use of personal protective equipment [PPE]. Until testing has a high and accurate sensitivity, a cure or vaccination is found and proven to be effective; universal precautions should always be adhered to in all settings especially healthcare settings.

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