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Short Communication

A Practical Approach to Testing for Coronavirus COVID-19 Should Include Both Rapid Immunological Assays, as Well as, Virological Realtime RT-PCR Assays

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Quotation: "A practical approach to testing for Coronavirus COVID-19 should include both immunological assays, as well as, virological real time RT-PCR Assays".

The continued increase in the number of cases of Coronavirus COVID-19 is a clear indication that we need to practice "social distancing" and also need to institute a policy of broad scale testing in order to flatten the "curve of occurrence" of COVID-19 [1,2].

The viral presence of Coronavirus COVID-19 is detected by Real-time RT-PCR testing which utilizes throat and nasal swab specimen samplings [1-4]. In the USA and also in other parts of the world, the genetic based assay is in short supply, and its application has in many cases been restricted to those individuals who are manifesting advanced symptoms of this viral infection [4]. In the early stages of COVID-19 an infected individual is often asymptomatic but, highly infectious [1,4].

The rapid spread of Coronavirus COVID-19 has literally overwhelmed many of our "off site" public health and private labs that perform viral carriage testing so that backlogs and delays have occurred. These delays can cause a scenario in which an asymptomatic infected person is walking around in public and spreading infection to others because his or her physician has not yet received the results of the patient's RT-PCR viral carriage profile report [2].

This unacceptable situation has led to the urgent need to develop the concept of "in house" or "point of care" testing in which hospitals are starting to acquire newly available largely automated "Black Box" systems for performing Real-time RT-PCR Assays very rapidly [5,6]. These automated Real-time PCR Machines are being manufactured in the USA by Cepheid and Abbott Labs [5,6].

The advantage of having "in house" or "point of care" Real-time PCR Machines is that one is able to perform multiple testing in short order to confirm the infection status of a patient, or if a specimen processing error had occurred [2,4]. These advanced automated "Black Box" systems, are very costly, and at present, are often beyond the financial means of many small or rural hospitals.

What is needed therefore is the kind of "point of care" assay that is inexpensive and could be performed in a matter of a few minutes by a physician, nurse practitioner, nurse or other healthcare professional.

There have recently emerged "point of care" rapid immunological testing chips that can be performed by a physician or other healthcare professional at his or her office in a period of 5 to 15 minutes.

These rapid immunological testing chips focus on a person's prior exposure to COVID-19 antigens, in the form of IgM/IgG antibodies present in whole blood, serum or plasma samples. Many of these testing chips , however, have not been thoroughly vetted by the US Federal Drug Administration but, have been allowed to be utilized under emergency guidelines due to the current global pandemic of COVID-19.

The initial results with these rapid testing chips have been mixed but, they do, however, provide a physician or healthcare professional with an inexpensive "point of care" device for performing initial scans to determine if a person: a) has been initially exposed to COVID-19 related antigens in the form of a positive IgM reaction on the testing chip, or b) is recovering from a COVID-19 infection, and has developed antibodies to this viral pathogen in the form of IgG antibodies.

With the passage of time, physicians will undoubtedly become better acquainted with these "point of care" immunological testing chips as relates to the most effective way to employ these new devices to best advantage. There undoubtedly will also be improvements made to these devices as relates to their sensitivity and specificity, based upon experience and practical application of these devices in clinical settings.

These immunological testing chips can perhaps have a potential role in the future to serve to be utilized for performing rapid screenings of large numbers of asymptomatic individuals who carry the virus, and spread this infection to other individuals.

It is so crucial to our efforts to decrease the rate of infection by identifying and isolating asymptomatic carriers of COVID-19, and then having them tested for the carriage of these viral pathogens via PT-PCR.

Thus, a practical approach to testing for Coronavirus COVID-19 should include both immunological assays, as well as, virological real time RT-PCR Assays (1-7)

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