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**COMMENTARY**

# Don't abandon your mask (and other public health measures) quite yet

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The impact of Covid-19 vaccinations continues to make a significant difference with the pandemic. Recent CDC guidelines provide advice on being able to do more activities without the mask if you are fully Covid-19 vaccinated. But before you put that mask away there are a few things to remember. When the pandemic broke out there were no vaccines and no medications to combat the Covid-19 virus. Four key public health measures were instituted. One, if you were infected, you needed to quarantine, two wear a mask, three keep your social distance and four, always perform proper hand hygiene.

These public health measures really worked and had a synergistic impact. In fact, in our hospital, DHR Health, the only outbreaks in the hospital occurred when someone infected and sick with Covid-19 came to work and when Health Care Workers (HCW) congregated together such as for a coffee or meal at which time they did not wear a mask and were not social distancing. Otherwise, the public health measures were effective in controlling the spread of the Covid-19 (DHR Health Infection Prevention and Control data). It is important to understand that vaccination does not prevent you from becoming infected with Covid-19; it prevents you from becoming very ill or dying from Covid-19. Even then the vaccination effect is not absolute. Vaccinated people have become very ill, have been hospitalized, and yes, vaccinated people have died from Covid-19; usually due to having comorbidities such as obesity and diabetes or they are immunocompromised. This is why the CDC has continued to

recommend that Health Care Workers in the hospital continue to wear masks, social distance and observe good hand hygiene no matter what their vaccination status (CDC Ref).

What has been very educational is the effect of these public health measures on other infectious diseases. The best example was the influenza viruses. Over the past year of 2020, influenza became almost extinct as compared to all the years of influenza reporting. Adult infections were dramatically decreased, not only in North America but globally. The WHO organization data for all continents showed a similar effect (WHO). Not only were influenza infections decreased but influenza deaths as well.

This effect was also evident in children where there was a significant, 65.7%, decrease in respiratory infections. Associated with this decrease in infections was a 60% decrease in outpatient visits, and a significant decrease in hospitalization and hospital Length of Stay (LOS). Even more impressive is that the CDC reported only one pediatric flu related death in the 2020-2021 flu season versus 196 in the 2019-2020 season. This decrease in pediatric respiratory infections represented cases of adenovirus, influenza A, influenza B, and respiratory syncytial virus (RSV). These data help to illustrate that the public health measures are effective in controlling infectious diseases, particularly those for which there is no medical therapy nor vaccine. These public measures have an interesting history and by no means are new...they are historic. The important concept of quarantine has been around

for a long time. The term comes from “quaranta” meaning 40. Started in Venice, Italy to control the plague, the number 40 was the chosen number of days of isolation. The data behind the 40 days is quite variable ranging from being derived from Hippocrates theories to the number of days Jesus spent in the wilderness. Since then the quarantine process has evolved and is quite effective. The principle is to isolate the infected person until they are beyond the infectious state. For Covid-19 it was for 10 days in the asymptomatic persona and up to 21 days for those severely ill or hospitalized. Longer times were recommended based on the severity of the disease and the health status of the infected person. An extension of the quarantine principle is social distancing which is based on the effective distance to minimize aerosolization based contamination. Initially it was 6 feet for the Covid-19, but it has been suggested that it might be increased to 10 feet based on the highly contagious delta variant.

The wearing of masks has been around mankind for thousands of years. The use of masks was seen with the dead and at the burial site and funerals. They were used as part of a religious ritual and it is very possible that the masks were actually used to protect from contamination with the dead person's infection. Perhaps the most memorable use of masks are the sinister looking masks that were developed from the carnival masks of Venice and were used by medieval doctors to protect them against the plague and the black death. Of note is that the beak of these masks were used to hold herbs to absorb the noxious air based on the Miasma theory of disease propagation. Unfortunately there is no proof that this mask was effective. It was principally the use of the masks to cover the mouth and nose during the flu pandemic of 1910 to 1911 and the effectiveness of mandatory masks during the influenza pandemic of 1918 to 1919 that supported the principle that facemasks are a means of protecting medical workers and patients from infectious disease outside of places such as the operating room. While controversial, in the city of San Francisco, the decline in deaths from influenza was attributable to the mandatory mask wearing policies. A systematic review meta analysis of Public Health masks to prevent person to person transmission concluded that the facemask had good results with an 85% reduction in risk of infection. The evidence from this review was stronger for the use of face masks as part of the personal protective equipment in the health care settings rather than in the community setting. In addition, the review supported the use of specific masks such as the N95 over the use of surgical or cotton masks. Studies particularly based in Asian countries such as China and Japan have shown some effectiveness in the wearing of masks however the overall effectiveness is a concern due to the lack of consistent compliance throughout the community. Despite this the CDC strongly supports the wearing of masks. It is important to point out that these must be worn properly covering both the nares and the mouth, and the mask must be

changed if it gets wet. Mask changing also requires proper hand hygiene when handling the masks. Advocates for wearing the mask believe that they will protect those from individuals who have been infected with Covid-19 but are asymptomatic. It is certainly felt that the mask alone is not as effective unless it is part of the complete public health care measures including social distancing, isolation, or quarantine of the infected and proper hand hygiene.

One of the most important aspects of Public Health control of Infectious Diseases is proper hand hygiene. While religious hand hygiene was around for thousands of years, the idea that hand hygiene was associated with germs, diseases and was a life-saving measure has only been around for about 170 years. This was through the work of Ignaz Semmelweis who in the Vienna Obstetrical Clinic demonstrated that hand washing reduced the maternal mortality from 18.3% to below 2%. Although his work was criticized, in part due to the fact the exact reason for the improvement was not identified, his work was subsequently validated with the work of Dr. Joseph Lister. Despite many ups and downs, hand hygiene has been identified as a major public health measure. Compliance with hand hygiene has been a moving target requiring constant reminders including in the healthcare settings. The WHO has identified hand washing as the leading public health measure to control the spread of disease and this is supported by the CDC. The WHO guidelines emphasizes that Clean Care is Safe Care and provides the support for regular hand washing. So how are we doing with this health measure particularly in the health facilities? In the public setting the data shows that we are very poor at hand hygiene. Unfortunately in the health facilities the data is also not promising. Previous studies have demonstrated hand washing compliance to be only 47.5% across eight hospital surveyed. Identifying barriers and addressing them improved the hand washing to 81% which is still low for a hospital. The recent pandemic can have a positive effect on hand hygiene, but the actual compliance is based on the individual's sex, their perceived susceptibility, and the actual effectiveness of the hand washing. Addressing these are very important in improving the hand washing. However, continually personnel in healthcare facilities need to be reminded about the importance and effectiveness of hand washing. That is why it continues to be a key element of The Joint Commission's National Patient Safety Goals.

So does this mean that we need to continue to wear masks all the time? No, but we do have to rethink our personal approach to Public Health measures and Infection Control. Covering ones nose and mouth particularly in doors, respecting social distancing, and performing regular hand hygiene have once again been proven to work and to be effective. The CDC continues to advocate these Public Health measures as we wait for the global pandemic to subside. We have the opportunity to continue to use these measures to

protect ourselves, our patients and our families from Covid-19 and other infectious diseases even as therapies are being instituted: they supplement the therapies. Making them part of our regular routine as health care workers is what is really important; and is our responsibility.

So, remember what your mother told you: “Cover your mouth and nose when you cough or sneeze, stay well away from the sick kids, and wash your hands!” ---- as usual she was right!

### Diclosures

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