ISLAMIC REPUBLIC OF AFGHANISTAN
MINISTRY OF PUBLIC HEALTH

SCIENCE, EPIEMDIOLOGY AND RESEARCH COMMITTEE TO FIGHT COVID-19

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POLICY BRIEF

Mandatory Use of Mask Combined with Non-Pharmaceutical Measures by Public Will Flatten the Curve and Defeat COVID-19 in Afghanistan

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1. BACKGROUND

On end of December 2019 a novel coronavirus was recognized in Wuhan, China which rapidly resulted to a global a pandemic. Later in February, the WHO called the disease COVID-19 and the virus agent named SARS-CoV2. Since emerging of pandemic suggested non-pharmaceutical preventing measures such as hands washing, social distancing, school and university closures, case isolation and home quarantine are recommended; however, neither WHO nor CDC recommended use of mask as a public preventive measure. WHO recommends use of mask with specific conditions. Wearing mask have been common, as a strict social norm, in some Asian countries. In view of global picture, Afghanistan is now in the middle of pandemic, and use of mask mandatorily by the public will flatten the curve and depressurize the health sector.

POLICY RECOMMENDATIONS

- Universal use of homemade mask should be mandatory at public level to flatten the COVID-19 curve and avoid further spread.
- To avoid confusion, a comprehensive guideline should be developed for use of different types of masks.
- A clear direction for public orientation on how to produce, use and discard homemade, surgical and respiratory mask should be developed.
- Production and provision of masks inside the country should be encouraged.
- Universal mask use through media, social networks, phone networks and ministry related offices should be promoted.
- Recommendation based on local practices, socioeconomically context, predication of worst scenario and protection of health care workers on demand should be adjusted.
- Sourcing including import, reclaim, reuse, repurpose, create supply, extend, manage and other local practical aspects should be provided.

2. SCOPE OF THE PROBLEM

Despite of nation-wide spread of COVID-19 in Afghanistan, use of mask, neither homemade nor surgical, is not encouraged by public health authorities in the country. It is well known that if an infected person wearing surgical mask it decreases 3.4-fold reduction in virus aerosol shedding [1]; and no detectable virus can be seen in a cough plate held 20 cm from masked influenza patients [2]. Mask use reduces transmission from visitors to vulnerable transplant recipients [3]. If a contact wearing surgical mask, on average, 6-fold reduces in exposure to aerosolized virus [4]. Early, correct, consistent use of masks reduced influenza transmission in households and residential halls [5]. Consistent mask use in community was a protective factor against SARS [6]. Of course, masks are not 100% protective and they must be combined with other strict non-pharmaceutical preventive measures.

Consistent with WHO and CDC's preliminary references that use of masks was recommended only for sick, health care workers and those caring sick patients, US Surgeon General ordered don't buy masks it is not effective. In contrary, in mainland China, Hong Kong, Japan, South Korea, Thailand and Taiwan, the broad assumption is that anyone could be a carrier of the virus,

even healthy people. While in UK and the US to Sydney it was perfectly acceptable to walk around barefaced, but in other places - the Czech Republic and Slovakia – it was compulsory to use it from the beginning of the outbreak. In some parts of China individuals who didn't observe could even be arrested and punished for not wearing one [7]. On 1st and 6th of April the WHO recommended two inconsistent and contradictorily advice by media on live briefing of COVID-19 where beside of their previous stance, they added where your job or position requires (to be in a place where distance cannot be kept or governments can advise use of masks as per their own reasons), WHO will support the countries [8,9]. However, WHO emphasizing use of mask by ill and those caring for ill and never discourage its use by others [10]. Meanwhile, CDC recommends use of mask, even surgical and homemade, and expressed to all Americans to wear cloth masks if they go out in public areas [11], and US Surgeon General, recently, had taught the public how to make homemade masks.
In Afghanistan, strictly following of WHO recommendations, the use of masks by public is neither recommended and nor rejected, therefore in a such scenario, this consideration creates a gap between government and people while neighboring countries are practicing and European countries have started to practice use of masks. It should be managing in this critical time.

3. CURRENT POLICY ARENA

Despite consistency in use of masks by symptomatic and those in health-care settings, there are discrepancies in general public, community and governments settings. However, there is an essential distinction between absence of evidence and evidence of absence. There are few thoughts on discouragement of universal masking:
First the thoughts for COVID-19 transmission is in favor of droplets transmission rather than aerosols transmission. Public health authorities define a significant exposure to COVID-19 as face-to-face contact within 6 feet with a patient with symptomatic that is sustained for at least 15 seconds and some a few minutes (others stated more than 10 minutes or even 30 minutes). The chance of catching COVID-19 from a passing interaction in a public space is therefore minimal [12].
Second the surgeon general of USA urged the public to stop buying masks, warning that it won't help against the spread of the coronavirus but will take away important resources from health care professionals [13].
Third, in many cases, the desire for wide masking is a reflexive reaction to anxiety over the pandemic. Focusing on universal masking alone may lead to more transmission of COVID-19 if it diverts attention from implementing more fundamental infection control measures.
Fourth there is cultural consideration also, in eastern countries you can say anyone easily to wear mask, but in western countries if someone wear mask is meant to be sick. In Afghanistan still there is no any guideline or official advice regarding wearing mask of public, authorities recommended as per WHO updates. Generally, in local practices we are facing 4 main problems: public's lack of knowledge about mask use, reuse, sterilization, preparation; lack of clear guidelines regarding mask use and provision for both health care professional as well as public; fear of mask advice may not cause to avoid people from other important and strict preventive measures and how to convince people to use only homemade masks and discourage to not buy surgical masks from shops to prevent shortage for health workers in worst scenarios.

4. SOLUTION AND RECOMMENDATION

More compelling evidences are the possibility that wearing a mask may reduce the likelihood of transmission from asymptomatic and minimally symptomatic health care workers with COVID-19 to other providers, patients and public. This concern increases the risk as COVID-19 becomes more widespread in the community, therefore a person with early infection may bring the virus and transmit it to others. It is thought that SARS CoV-2 is able to spread through breathing and conversation.

The idea of separating smaller particles from larger droplets dates back to 1930 by William Wells that pathogens can spread through air and they proved this claim by a tuberculosis patient. Recently National Academy of Sciences (NAS) has declared that the novel coronavirus can spread through the air not just via the large droplets emitted in a cough or sneeze. Committee on Emerging Infectious Diseases and 21st Century Health Threats declared the results of available studies are consistent with aerosolization of virus from normal breathing. Again, recent report is from NAS on April 4, said COIVD-19 can spread just by talking or breathing, resulting in many countries, including India, to revise guidelines on masks [14,15]. CDC and other health agencies have insisted that the coronavirus can be suspended in the ultrafine mist that we produce when we exhale, protection becomes more difficult, strengthening the argument that all people should wear masks in public to reduce unwitting transmission of the virus from asymptomatic carriers. Suspension of <5 μm particle on air which lasting for 3 hours up to 2 meters of patient's surrounding which is received from air samples of COVID-19 patients and detecting the viral RNA by RT-PCR, strongly indicates aerosolization route. A recent RCT on 246 symptomatic patients which 90% infected with human seasonal Coronavirus, influenza virus and rhino virus indicates that surgical face masks significantly reduced detection of coronavirus RNA in aerosols, with a trend toward reduced detection of coronavirus RNA in respiratory droplets. From mechanic viewpoint, particles of >10 μm is defined as droplets or large spray and< 10 μm is called aerosols. Droplet larger than aerosols, when exhaled (at velocity of <1m/s), fall to the ground less than 1.5 m away. When expelled at high velocity through coughing or sneezing, especially larger droplets (> 0.1 mm), can be carried by the jet more than 2m or 6m, respectively. coughing or sneezing can shoot them like projectiles out of the mouth with a "muzzle velocity" of 50 meters/second (for sneezing) or 10 m/s (for coughing), and droplets can reach up to 6m away. Therefore, what frequently mentioned "safe distance" of 6 feet or 2 meter according to media and authorities may not suffice except you wear a mask.

Coronavirus is extremely tiny, mostly cannot be trapped by fabrics, but when stuck to larger water or mucus droplets can be blocked by homemade masks. Recently scientists' research show; if you want to prevent yourself from others of 100% particles; surgical masks 25%, homemade masks (tea cloth) 33% and N95 can leak 1% of these particles towards you. If you want to protect others from you, of 100% particles, homemade masks (tea cloth) 90%, surgical mask 50% and N95can leaks 30% of particles to-ward others.

CDC recommends two layers of tightly woven 100 percent cotton fabric, such as quilter's material or bedsheets with a high thread count, but tea cloth can be useful. Instruction is easy; if you are a medical staff can wear N95 or surgical masks, if you are not, can you sew it? if yes, wear a sewed mask and if not, cut a cloth (mask), but be sure it should be included multiple layers of fabric and fit snugly and cover from nose bridge to below the chin and do not restrict the wearer's ability to breath, secure its ties. It can be used multiple time according to the users understanding of its hygiene and it can be sterilizing by hydrogen peroxide.

In conclusion, urge of evidence showing that at least 30% asymptomatic carriers, 70% is the average sensitivity of various samples according to the location, aerosol rout of transmission and diagnosis of increased cases of unrecognized contacts are enough measures to push the governments toward making universal mask wearing as a compulsory approach to flat the curve. In order to mitigate the spread of infection and flatten the curve, use of homemade mask should be encourage by public. Along with other prevailing nonpharmaceutical measures already taken it certainly interrupt transmission and spread in the community.

5. ACKNOWLEDGEMENT

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