

WHO-recommended Hand Rub in COVID-19 Pandemic: A Public Health View

Running Title: Hand rub during Covid-19, India

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Dear Sir,

COVID-19 pandemic created an acute shortage of medical items mainly hand rubs and personal protective equipment. In any given situation, even though hand washing with soap is considered as superior, hand rub is preferred due to its comfort of use [1]. While the requirement for hand rubs has increased in every hospital during this pandemic, opportunity to produce the same locally was ventured by only a few medical institutions successfully [2–6].

World Health Organization (WHO) had published a detailed guideline on local production of hand rub in 2010 [1]. This was not taken in to consideration seriously until the COVID-19 pandemic. However, few medical institutions had tried and successfully utilized this procedure for their hospitals before this pandemic. Currently, many institutions are trying this [2, 5]. One medical college has even trained a women self-help group (SHG) for mass production and dissemination of hand rubs through government outlets [3].

Major two advantages of WHO hand rub preparation are, this is easy to make and cost effective in nature [1, 2, 5]. There

are two formulations available as per WHO guideline. One is isopropyl alcohol-based and another is ethanol-based. We prepared an isoprphyl alcohol based hand sanitizer on trial basis, where isoprophyl alcohol (99.8%), hydrogen peroxide (3%), glycerol (98%), and sterile distilled water were added. Glycerol is available as a formulation in the name of ‘Glycerine’. Hydrogen peroxide available in the market comes with a concentration of 6% (20 volumes). In our setting, cost of 500 ml of hand rub came around Rupees 200 on trial; whereas one of the medical college in South India has produced the same at a cost of Rupees 75 per 500ml on mass production, excluding bottle cost (Rupees 20 per bottle) [2]. At the same time commercial products are sold around 600 rupees per 500ml. Thus on local production, the cost will be reduced to one fifth of the commercial production [1,2,5]. In a pandemic like COVID-19 where there is partial to complete lockdown and an acute shortage of hand rubs, these low-cost formulations come as a saviour. Furthermore, these formulations reduce unnecessary panic among health force.

Few disadvantages of WHO solution are that a quality-check needs to be done with the help of hydrometer (alcoholmeter) to make sure the recommended level of alcohol present (above 70%) [1]. The hydrometer is an essential instrument, it is to be made available in every department of Community Medicine as per Medical Council of India. The cost of this instrument is not very high. [7]. Another disadvantage of this solution is that bottles should be quarantined for more than 72 hours (3 days) to ensure the destruction of bacterial spores present in the solution. Bacterial spores are highly resistant to any type of alcohol based hand rubs [1]. WHO doesn't recommend adding any fragrance to this hand rub. However, end users prefer to use scented hand sanitizers. While most of the commercial hand rub preparations contain fragrance, WHO doesn't recommend adding fragrance, as this may cause allergic reactions [1]. In situations like COVID-19, there is a possibility that one may use these sanitizers very frequently which may aggravate the situation. An important aspect of alcohol-based hand rubs is that they are inflammable and this should be kept in mind while mass production and storage. Another issue with these hand rubs is that though one can produce it locally for their own use especially during pandemic, but selling it to others is not permitted under legal background. Institutions need to apply for a license from the competent authorities (Food Safety and Drug Administration) at district level for mass production and selling; the Government of Uttar Pradesh has speeded this process [8].

It is high time to think about including the preparation of hand rub in the practical session for both under- and post-graduate medical students of Community Medicine, Pharmacology and Microbiology, so that they can be

empowered to handle such disasters in future, with confidence.

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