Hand Hygiene in Low-Resource Settings in the Context of COVID19

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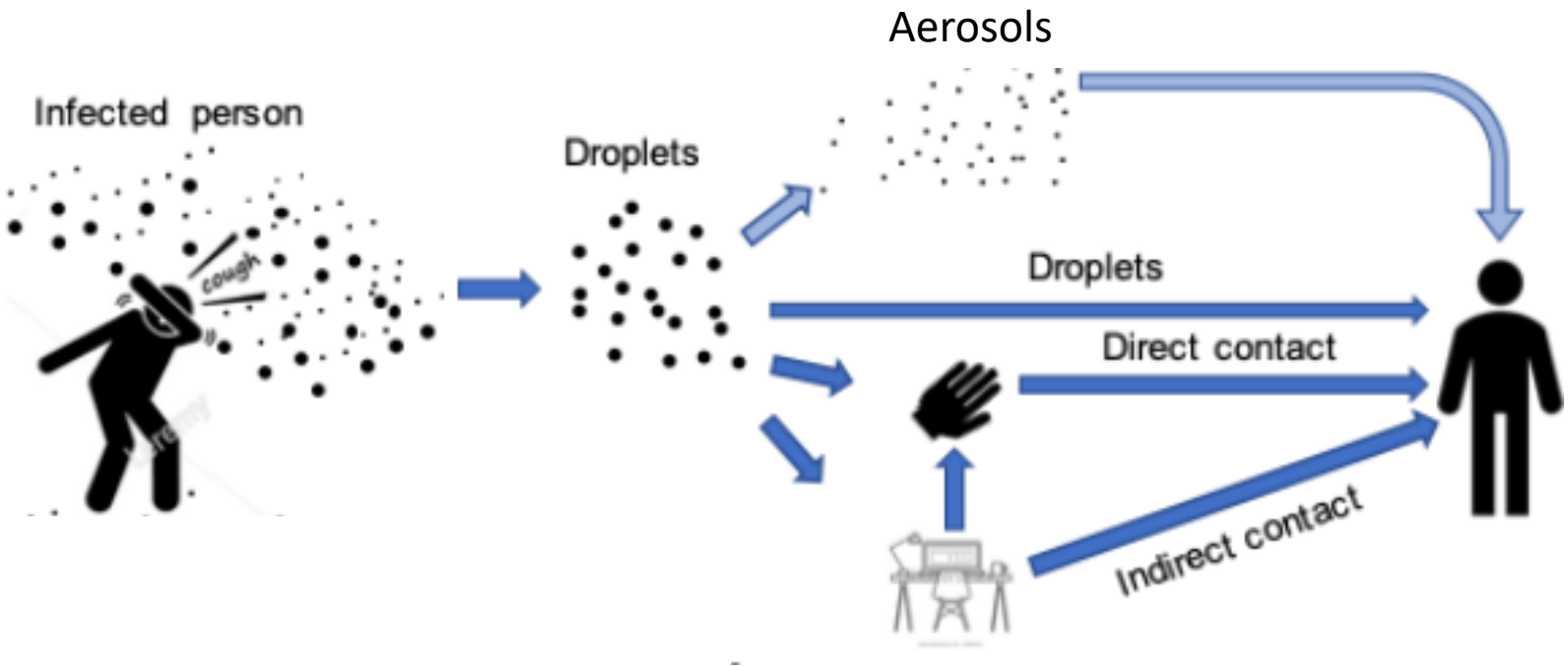
Respiratory Virus Transmission



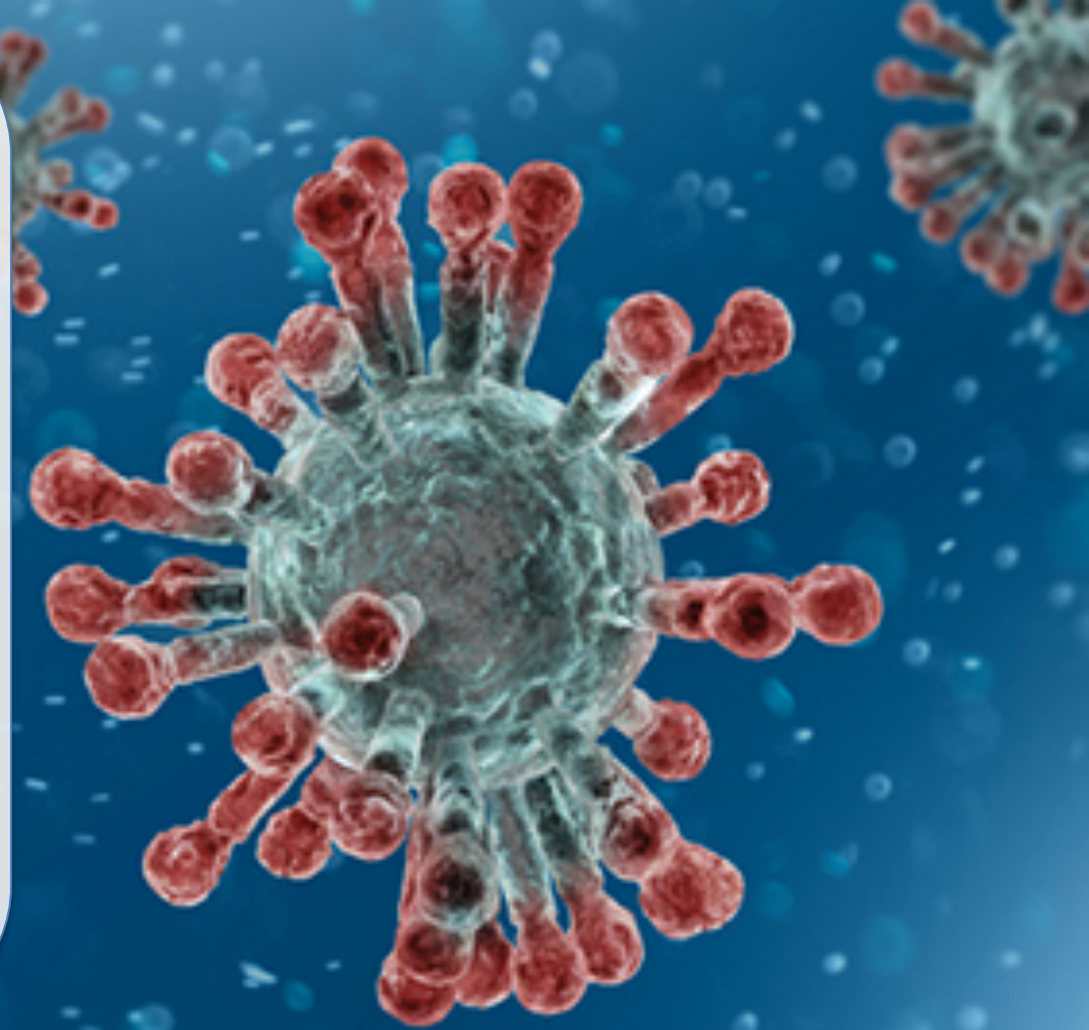
Hand hygiene interrupts transmission and stops symptomatic/asymptomatic people from infecting others

SARS-CoV-2

Enveloped single-stranded RNA virus

Survives longer on hard surfaces such as steel, glass, metal (2-3 days) than on soft surfaces such as cloth, paper, cardboard (hours)

Virus transfer to hands more likely from hard surfaces

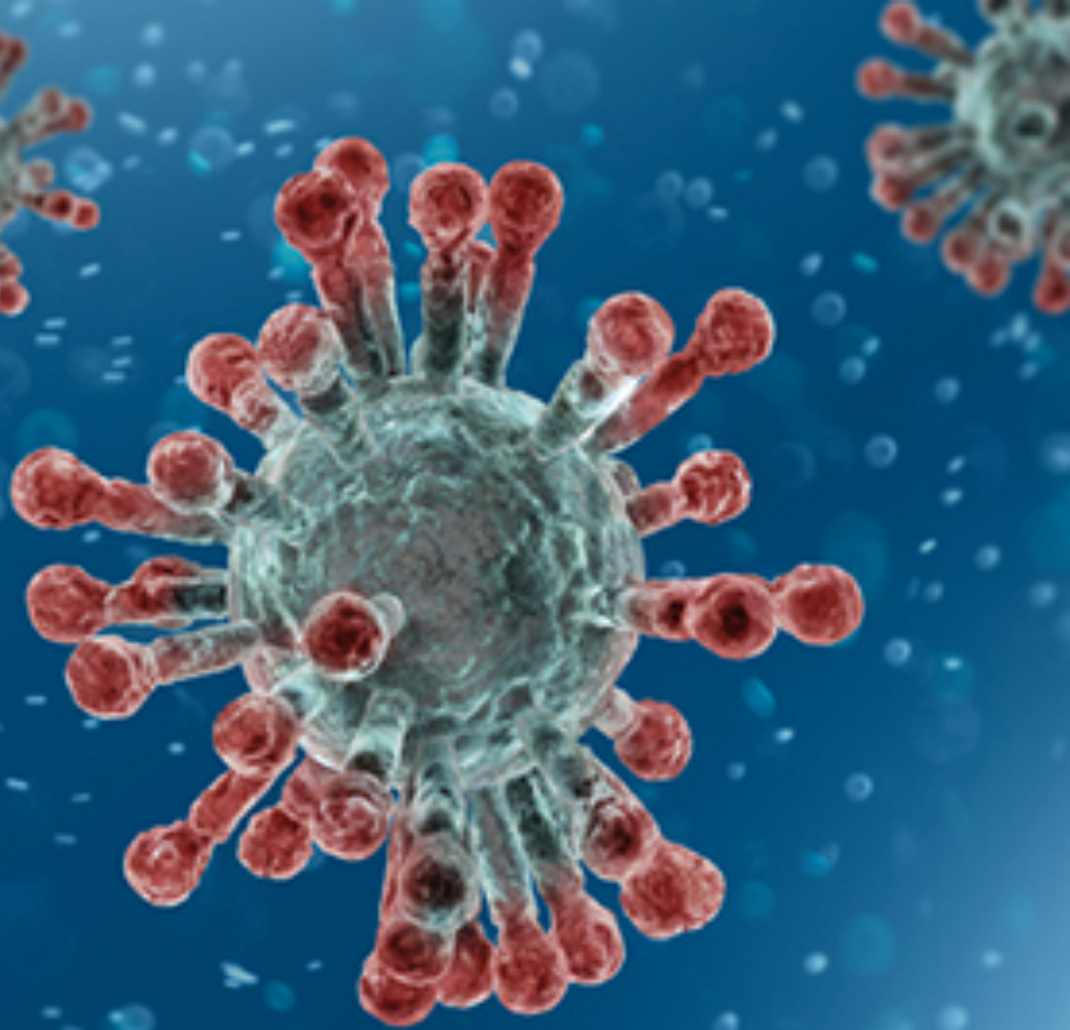


https://www.health.harvard.edu/

SARS-CoV-2

Survives longer in colder temperatures and low humidity conditions

Susceptible to heat, UV light, ethanol, isopropanol, bleach, soap, and other disinfectants



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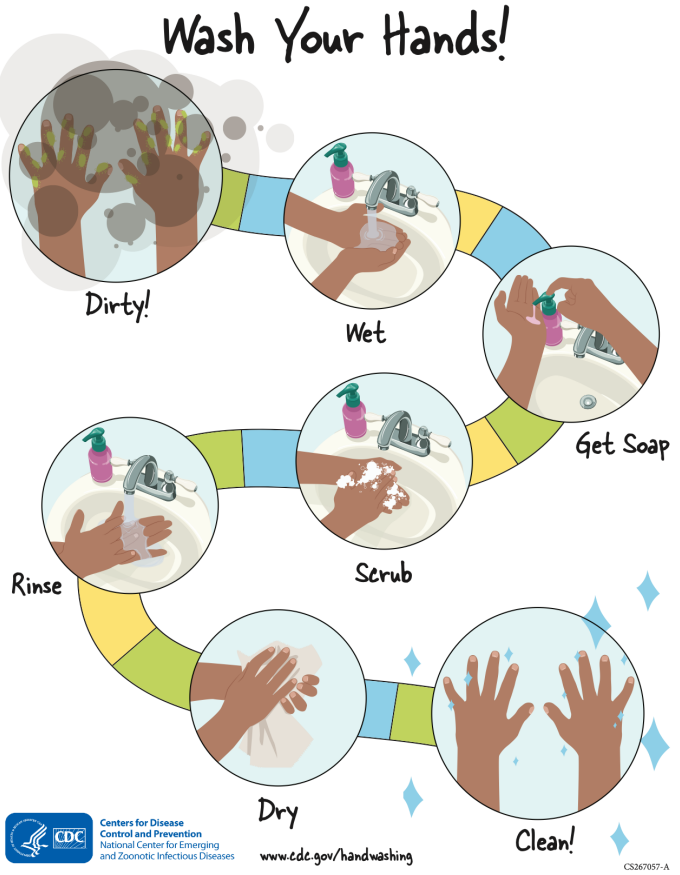
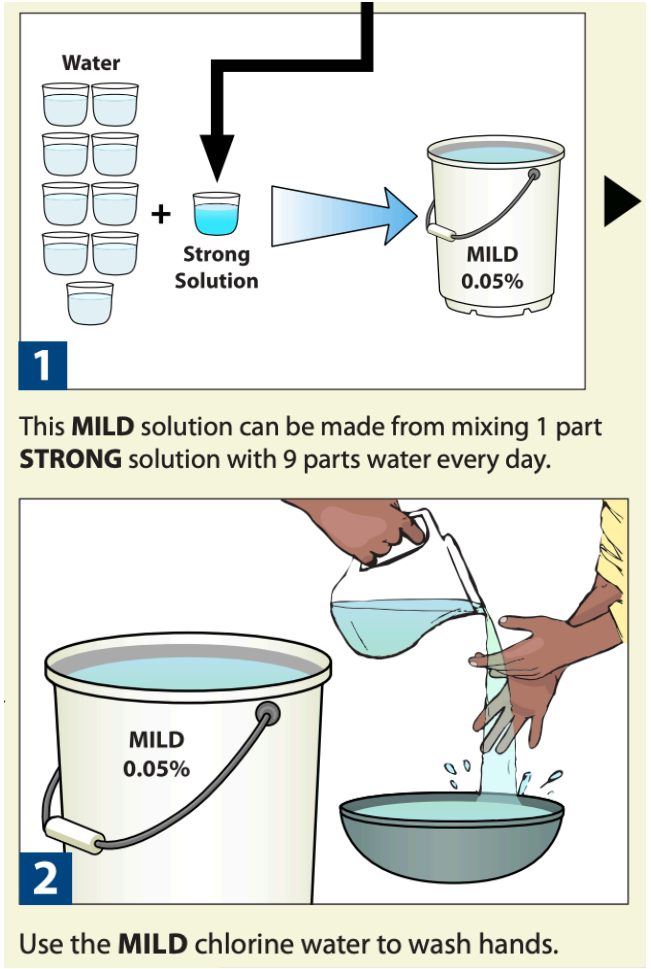
Hand Hygiene Methods

- Handwashing with soap and water for at least 20 seconds
- Alcohol-based hand rubs with at least 60% ethanol or 70% isopropanol



Hand Hygiene Methods

- Handwashing with soap and water for at least 20 seconds
- Alcohol-based hand rubs with at least 60% ethanol or 70% isopropanol
- If above not available: 0.05% chlorine solution



U.S. Centers for Disease Control and Prevention

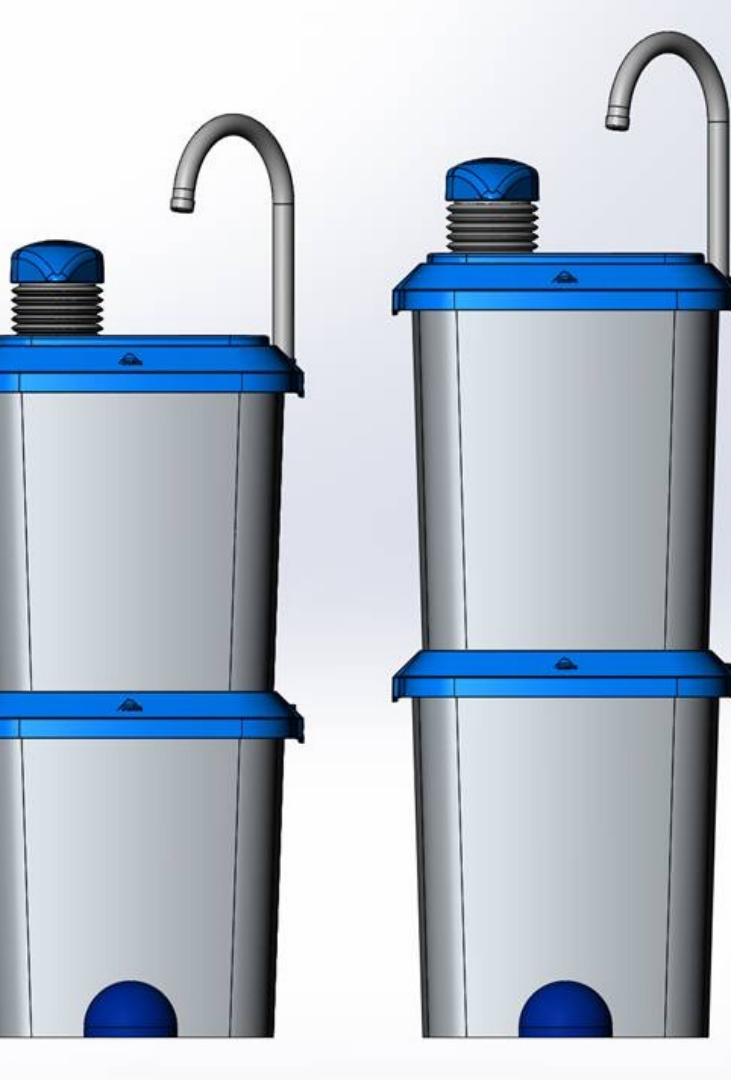
Infrastructure Barriers

- 2 billion people (26% of global population) lack access to a place to wash their hands at home
- 50% of people in SSA lack access to handwashing
- Alcohol-based hand rubs are expensive and unavailable
- Handwashing awkward and time consuming when there is no piped water/tap

Enabling Infrastructure

- Provide convenient (easy to access) and reliable access to soap and water
- Higher-end, more durable, attractive commercial products
- Plan for refilling water and soap

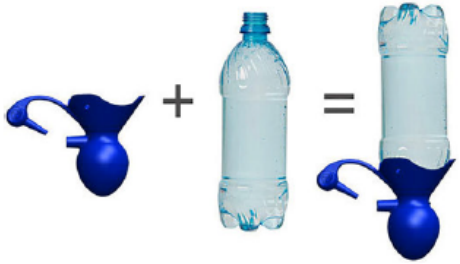
https://happytap.net/en/



Enabling Infrastructure, cont.

- Ideal design features:
  - Water conserving
  - Soap frugal
  - Parts easy to clean and disinfect
  - Durable materials
  - Location visible and hard to avoid
- COVID19 specific
  - Minimal touching
  - Taps spaced 1m apart for social distancing

Tap Options



spatap.com

Note: Non potable water is still effective for handwashing (Verbyla 2019)

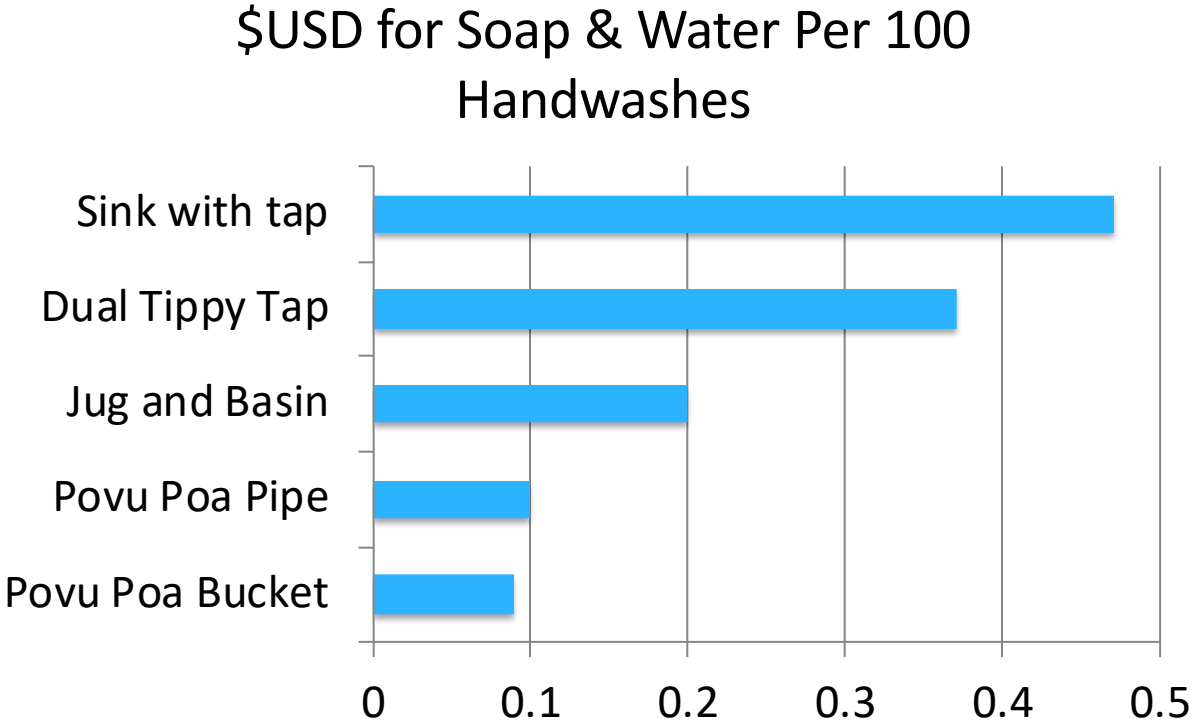
	Recommended to limit cross-contamination			
Type	Elbow or forearm operated tap	Time delay self-closing tap	**Tap with sensor** (hardwired or battery-operated)	Diaphragm pump, foot or elbow operated
Example				
Cross-contamination likely?	No, by allowing to open/ close the tap with elbow or forearm	No, by closing without need to manipulate; often allows operation with the elbow or forearm	No, due to hands-free water supply	No, by controlling water flow with foot or elbow
Water saving compared to conventional taps	No	Might reduce water wastage especially in public facilities	Yes, water only runs when it is needed	Yes, user needs to press the pump for water to flow.

UNICEF 2020

Soap Options

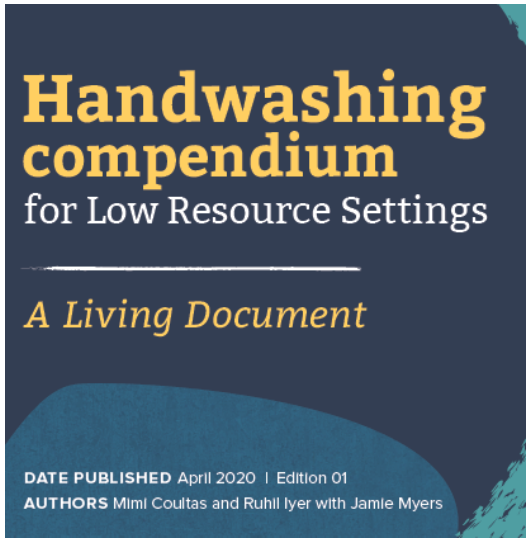
- Note: soap does not have to be “antimicrobial”
- Soapy water
  - Mixing water with powdered detergent and storing in a plastic bottle
  - Hole in top of bottle dispenses soapy water
- Foaming soap
  - 5g detergent + 250ml water + dispenser
  - 15,000 handwashes per 1USD spent on soap

Reducing Operational Costs



Whinnery J et al. Glob Health Sci Pract. 2016 Jun 19;4(2):336–41.

Handwashing Station Resources



http://www.fountainheadsolution.com/draft/covid19/mobile/index.html
https://www.unicef.org/media/68716/file/Handwashing-Facility-Factsheet.pdf
https://www.ids.ac.uk/publications/handwashing-compendium-for-low-resource-settings-a-living-document/

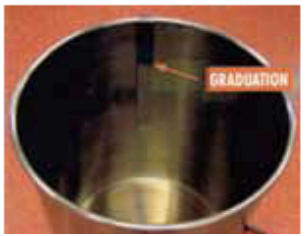
WHO Guide to Local Production of Alcohol-based Hand Sanitizer

PART A: GUIDE TO LOCAL PRODUCTION

Part A is intended to guide a local producer in the actual preparation of the formulation.

Materials required (small volume production)

REAGENTS FOR FORMULATION 1:	REAGENTS FOR FORMULATION 2:
• Ethanol 96%	• Isopropyl alcohol 99.8%
• Hydrogen peroxide 3%	• Hydrogen peroxide 3%
• Glycerol 98%	• Glycerol 98%
• Sterile distilled or boiled cold water	• Sterile distilled or boiled cold water



https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf