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

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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

https://www.health.harvard.edu/
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
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- Alcohol-based hand rubs with at least 60% ethanol or 70% isopropanol
- If above not available: 0.05% chlorine solution
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
Note: Non potable water is still effective for handwashing (Verbyla 2019)

<table>
<thead>
<tr>
<th>Recommended to limit cross-contamination</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td><strong>Elbow or forearm operated tap</strong></td>
</tr>
<tr>
<td><strong>Time delay self-closing tap</strong></td>
<td><strong>Tap with sensor</strong> (hardwired or battery-operated)</td>
</tr>
<tr>
<td><strong>Cross-contamination likely?</strong></td>
<td>No, by allowing to open/ close the tap with elbow or forearm</td>
</tr>
<tr>
<td><strong>Water saving compared to conventional taps</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>[Tap Diagram]</td>
</tr>
</tbody>
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Diaphragm pump, foot or elbow operated

spatap.com
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

$USD for Soap & Water Per 100 Handwashes

- Sink with tap
- Dual Tippy Tap
- Jug and Basin
- Povu Poa Pipe
- Povu Poa Bucket

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

GUIDE TO LOCAL PRODUCTION: WHO-RECOMMENDED HANDRUB FORMULATIONS

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)

<table>
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<tr>
<th>REAGENTS FOR FORMULATION 1:</th>
<th>REAGENTS FOR FORMULATION 2:</th>
</tr>
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<tbody>
<tr>
<td>• Ethanol 96%</td>
<td>• Isopropyl alcohol 99.8%</td>
</tr>
<tr>
<td>• Hydrogen peroxide 3%</td>
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</tr>
<tr>
<td>• Glycerol 98%</td>
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</tr>
<tr>
<td>• Sterile distilled or boiled cold water</td>
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</tbody>
</table>

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