

# Temperature control matters!

## Fact sheet to prepare for COVID-19 vaccination programmes

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### General issues with temperature control:

- Control range of temperature
- Control exposure: deviation from range, time period of exposure

### Typical issues with vaccines:

- Vaccines with live components: cannot freeze (kills the live component)
- Ultra-cold chain ones, e.g. ebola vaccine
- NB! Pfizer's potential vaccine needs an ultra-cold chain, but other COVID-19 vaccines in the making need different temperature ranges

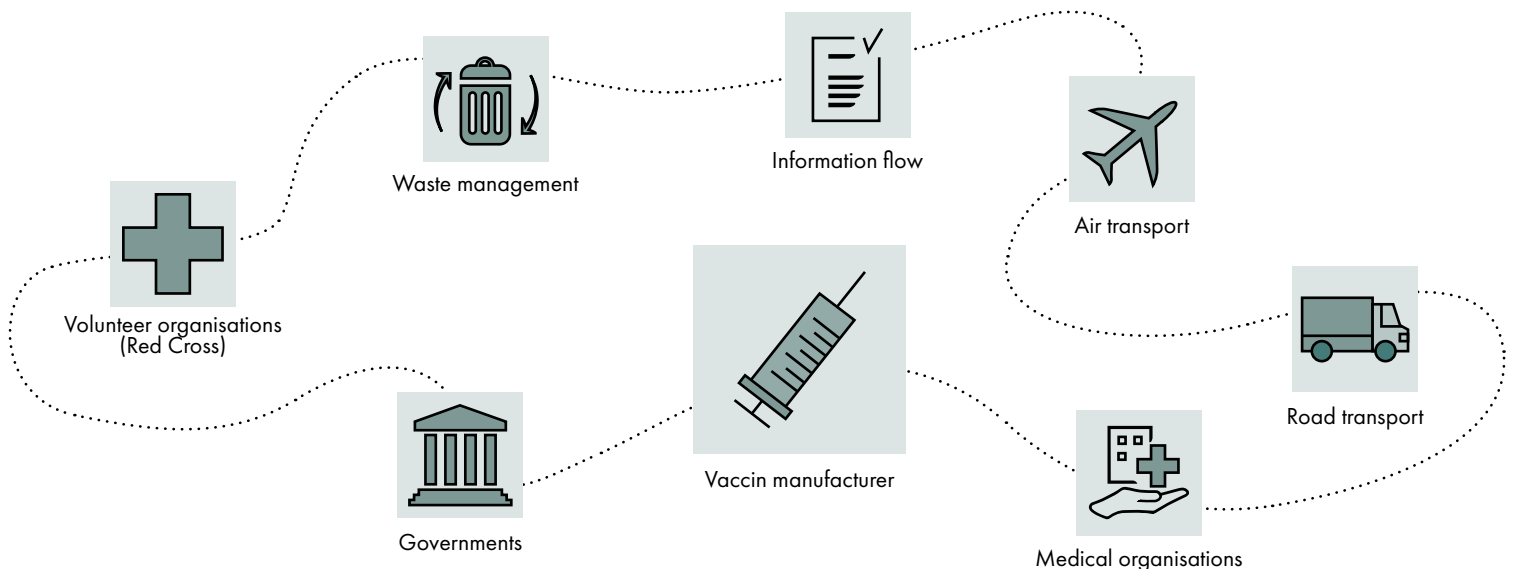
### Typical issues with temperature control supply chains:

- Sticky points aka where temperature control usually breaks down:
  - » Materials handling (offloading, cross-docking, intermodal transportation, customs clearance)
  - » At the user's end: health care centres without stable electricity, patients (if they can buy a vaccine themselves)

- Needs handling spaces (warehouses, cross-docking spaces, special units at customs) and equipment that works with the required temperatures
- Needs special transportation, e.g. reefer containers (the ultra-cold chain even special reefer containers)
- Vaccines need special medical clearance for materials handling! (i.e. staff that has the required certifications in warehouses, transportation etc.)
- Don't forget about the kits! (e.g. syringes, gloves, test swabs, lab equipment ... ) to go with the items. Note, they may need different temperatures.
- Packaging sizes matter in light of how long you can open a package
- Peri-urban/rural distribution
- Avoiding too many people coming to a vaccination centre – disease control!

### Administering vaccination programmes:

- Ideally not overloading the same health care centres
- Segregation of patients (sick) from those to be vaccinated
- Medical training for staff that vaccinates (in most countries you need special training for being allowed to administer vaccines)



## Industry initiatives for handling temperature control:

- GDP – good distribution practice, esp. in pharma
- CEIV – IATA’s pharma distribution practices for freight forwarders (not just airlines)

## Current initiatives for potential COVID-19 vaccines:

- UNICEF Covax: pre-procurement of items for the kits (e.g. syringes), stocking up
- Logistics service providers (currently esp. UPS): developing more temperature control warehouses around the world
- Pfizer developing their own cold chain packages

## Recommendations, aka what different organisations and countries can do to prepare for it:

- Increase cold chain capacity in warehouses, transportation etc. With
  - » Actual spaces and equipment
  - » Cold chain training
  - » Certifications (GDP, CEIV, medical materials handling requirements)

- Be part of vaccine procurement initiatives – e.g. the EU has one for all EU countries together, and has signed agreements with several potential providers
  - » Joint procurement may give better purchasing power, but this is a sole supplier situation, after all
  - » Remember equity in health
- Start off getting the rest of the kit together! Vaccine distribution will require all the rest of it, from materials to set up vaccination centres, to actual testing and vaccination kits
  - » Potential reuse/adaptation from the Ebola vaccination campaign in challenging contexts
  - » Benchmark/best practice from INGOS continuously involved in EVD (e.g. MSF, IFRC, ICRC, UNICEF)
- Develop vaccine distribution plans
  - » Identify places (health care centres or other, depending on the current burden in existing health care centres) with good coverage
  - » Know your coverage!
  - » Train people both in logistics, and for managing vaccination centres

## References

Comes, T., Bergtora Sandvik, K. and Van de Walle, B. (2018), “Cold chains, interrupted: The use of technology and information for decisions that keep humanitarian vaccines cool”, *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 8 No. 1, pp. 49-69. <https://doi.org/10.1108/JHLSCM-03-2017-0006>

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## Other important links

Finnish news on the matter of Pfizer’s vaccine: <https://yle.fi/uutiset/3-11641577>

Fact sheet on the Ebola ultra-cold chain: <https://www.who.int/features/2015/guinea-ebola-vaccine/en/> - the same has been used later in DRC according to WHO logistics

ICRC Podcast on lessons from Ebola: <https://intercrossblog.icrc.org/intercross-icrc-podcast-episodes/episode-1104-covid-conflict-ebola-drc#sthash.5ZUID3d1.dpbs=>

MSF Ebola response: <https://www.msf.org/ebola>

UNICEF Ebola response: <https://www.unicef.org/emergencies/ebola>

HUMLOG Institute <https://www.hanken.fi/en/departments-and-centres/departments-and-centres/humlog>

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