A controlled temperature chain (CTC) is an essential component of transporting and storing vaccines, allowing for:

1. Controlled transportation at temperatures between +2°C to +8°C for up to 24 hours.
2. Reduced risk of freezing, maintaining the safety and potency of the vaccine.
3. Potency and quality are monitored through cumulative and peak temperature threshold indicators (PTTI).
4. Half the cost compared to traditional cold chain.

HOW ARE VACCINES APPROVED FOR CTC?

Not all vaccines can be used in a CTC. To be used in a CTC, four conditions should be met:

1. The vaccine must undergo and pass stability testing.
2. The vaccine must be prequalified by the World Health Organization (WHO).
3. The vaccine must be approved for CTC by a regulatory authority.
4. The vaccine must be in a condition that is thermostable.

HOW DOES A CTC COMPARE TO A TRADITIONAL COLD CHAIN?

Traditional Cold Chain vs. Controlled Temperature Chain (CTC):

- Reduced coverage: 22% vs. 98.7%
- Fewer resources: 12% vs. 3%
- Easier distribution: 7% vs. 80%
- Increased cost: 80% vs. 20%
- Increased resource use: 20% vs. 80%
- Reduced risk of freezing: 98.7% vs. 22%
- Potency and quality: 7% vs. 80%
- Monitoring cumulative and peak temperature: 80% vs. 20%
- Training and supervision required: 7% vs. 80%

WHO IS BEING REACHED WITH CTC?

- Percentage of health facilities in surveyed countries that have no refrigerators: 4%
- Number of days that health workers can remain in the field to reach more remote communities: 7
- Percentage of cold chain equipment in surveyed countries that is non-functional: 4
- Temperature range during mass vaccination: the case of meningitis A in Chad.

Delivering Meningitis A vaccine in a controlled temperature chain during the mass immunization campaign in Benin. 2014. Vaccine;32:1431-1435.


Economic benefits of keeping vaccines at ambient temperature needed daily.