

TECHNOLOGY SPOTLIGHT

COLD CHAIN FOR HEALTH IN INDIA

POWER FOR ALL

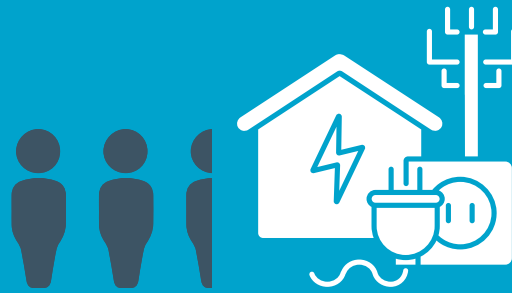
Vaccines are sensitive biological products. To maintain quality, vaccines must be protected from temperature extremes. Vaccine quality is maintained by using a cold chain that meets specific temperature requirements between +2°C and +8°C, which requires special equipment along the vaccines' supply chain.¹



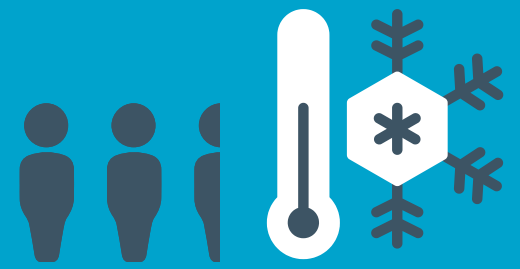
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Every year, 24 million newborn infants need vaccines. At least 16% of them do not receive basic vaccination.^{2,3} In Uttar Pradesh and Bihar, 2 in 5 children have incomplete immunization, leaving them susceptible to disease.⁴



Uttar Pradesh and Bihar are also 2 of the states with the lowest healthcare electrification rate. One-third of the PHC receive irregular or no electricity supply.⁵



As of 2019, 4.8% of the PHC and 26.3% of the Sub Health Centres (SHC) do not have access to electricity.⁶ Not only are the PHCs short of electricity supply, one-third of the PHCs do not have fully functional cold chain equipment.⁷

ESSENTIAL COLD CHAIN EQUIPMENT FOR PHC



Refrigerators: The WHO prequalified ice-lined, solar battery, and solar direct-drive refrigerators for maintaining the temperature between +2°C and +8°C. They usually hold at least one month's supply of vaccines and diluents.



Cold boxes: An insulated container that can be lined with water packs to maintain temperature. They have a cold life⁸ of 2–7 days at a constant +43°C.



Vaccine carriers: Vaccine carriers are smaller than cold boxes and easier to carry. They have a cold life of 18–50 hours at a constant +43°C.

Key Programmes for Cold Chain Access



Ministry of Health & Family Welfare
Government of India

The UIP is one of the world's largest immunization programmes. It aims to provide vaccines (for 12 diseases) free of charge to all pregnant women and newborn infants.



The electronic Vaccine Intelligence Network (eVIN) is an indigenously developed technology system, that digitizes all 27,000 cold chain points and monitors the temperature of the cold chain equipment through a smartphone application.⁹



National Centre for Cold Chain Development (NCCD) is a centre that have put tremendous efforts by developing 135 cold chain projects to promote and integrated cold chain in India.

Sources:

- 1 "Module 2: The vaccine cold chain." WHO. 2015.
- 2 Basic vaccines for children include BCG, DTP (3 doses), measles (2 doses) and polio.
- 3 "WHO vaccine-preventable diseases: monitoring system." WHO database.
- 4 Sadhika Tiwari "India's Vaccination Mission Narrows Focus To Meet March 2020 Target" IndiaSpend, 2019.
- 5 Mani, S., Patnaik, S. & Dholakia, H. "The State of Electricity Access for Primary Health Centres in India." CEEW. February 2019.
- 6 "Rural Health Statistics: 2018–2019." Government of India.
- 7 Mani, S., Patnaik, S. & Dholakia, H. "The State of Electricity Access for Primary Health Centres in India." CEEW. February 2019.
- 8 The "cold life" of a cold box is the maximum length of time that a closed cold box can maintain temperatures below +10 °C when it is lined with frozen ice packs.
- 9 Electronic Vaccine Intelligence Network (eVIN). National Health Mission, Ministry of Health and Family Welfare, Government of India, 2016.

