

ULTRA LOW TEMPERATURE FREEZERS: KEY CONSIDERATIONS FOR COVID-19 VACCINES

Many cold chain issues occur in the “last mile/kilometre” of vaccine distribution, with samples lost due to improperly handled freezers. ISBER, the International Society for Biological and Environmental Repositories, offers our shared expertise in cold chain management to educate new users of ultra-low temperature (ULT) -70C freezers as part of COVID-19 vaccine distribution programs.

For more information on the Best Practices referenced here visit (or scan QR Code):

isber.org/page/BPR

Training Resources available at:

isber.org/page/webinars-on-demand



STAFF TRAINING IS CRITICAL

- * Provide all vaccination staff with proper training in cold chain supply, freezer operations and frozen sample handling.



This document is intended to provide guidance for managing the deployment of frozen COVID vaccines.

ULT FREEZER SELECTION MUST MEET LOCAL REQUIREMENTS

ISBER Best Practices C.3. Mechanical Freezers & B.5. Backup Power

- * Choose freezers with the widest temperature range to accommodate vaccine candidates and choose the smallest freezer required.
- * Confirm the power configuration available in your lab prior to purchase, especially in areas with low-grade power supply.
- * Have a dedicated backup power system in place in case of power outage.
- * Install an independent internal thermometer sensor to log/alert against temperature fluctuations. Ensure internet or Wi-Fi access and send alerts to multiple staff.



ULT FREEZER INSTALLATION REQUIRES A SPECIFIC STORAGE AREA

ISBER Best Practices B. Facilities

- * Each freezer requires an independent circuit. Ensure outlets are on an emergency circuit with built-in redundancy.
- * Ensure room where freezer will be housed can handle additional heat load. ULT units will increase humidity and temperature.
- * ULT freezers need to pull air in and exhaust without restriction. Check clearance requirements outlined by each manufacturer before purchase.



ULT FREEZER OPERATION AND MAINTENANCE MUST BE COORDINATED

ISBER Best Practices C.12 Equipment Maintenance

- * Access to vaccines needs a strict procedure for how staff will manage door openings. Aim for few and short door openings to avoid freezer temperature fluctuations. Allow the freezer to return to set temperature.
- * Avoid an empty unit. If you do not have product to fill the unit, consider adding empty aluminum racks to fill it.
- * Regularly clean the condenser and gaskets to prevent ice formation, especially around doors.
- * Ensure ULT freezers are calibrated for accuracy of temperature display.



ULT FREEZER EMERGENCY PLANNING

ISBER Best Practices B.8 Emergency Preparedness

- * Draft an emergency plan in case of freezer failure, power outage, natural disaster, and other common hazards.
- * Have a written procedure for transferring specimens to alternative storage (e.g. dry ice).

