

# Vaccine storage requirement

Briefing for VSS doctors  
July 2023



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# Background

- Storage and handling errors reduce vaccine potency, affect immune response and poor protection against disease
- The impact of thermal damage (exposure to temperatures outside +2°C to +8°C) varies for each vaccine.
- Once a vaccine has been thermally compromised, its loss of potency cannot be reversed. Single exposure to 0°C can destroy potency.



# Background

- Purpose-built vaccine refrigerators (PBVR) are specifically designed to store vaccines and should be used for all vaccine storage
- Provide a stable, uniform and controlled temperature throughout the unit

## Reference:

<https://www.health.gov.au/sites/default/files/documents/2020/04/national-vaccine-storage-guidelines-strive-for-5.pdf>

<https://www.hse.ie/eng/health/immunisation/hcpinfo/vaccineordering/sopnio01.pdf>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/223753/Green\\_Book\\_Chapter\\_3\\_v3\\_0W.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223753/Green_Book_Chapter_3_v3_0W.pdf)

[https://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/docs/reference/vaccine%20storage\\_handling\\_guidelines\\_en.pdf](https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/reference/vaccine%20storage_handling_guidelines_en.pdf)



## Progress of changing to PBVR

- Notified all enrolled VSS doctors in 30 July 2021 have to use PBVR for vaccine storage by year 2023/24.
- Progress of changing PBVR
  - Collection fridge information exercise from all enrolled practices



For VSS applicants only  
Appendix A(i)

**Application by Health Care Provider for Enrolment in the Vaccination Subsidy Scheme (VSS)**

**Record of the Vaccine Storage Refrigerator**

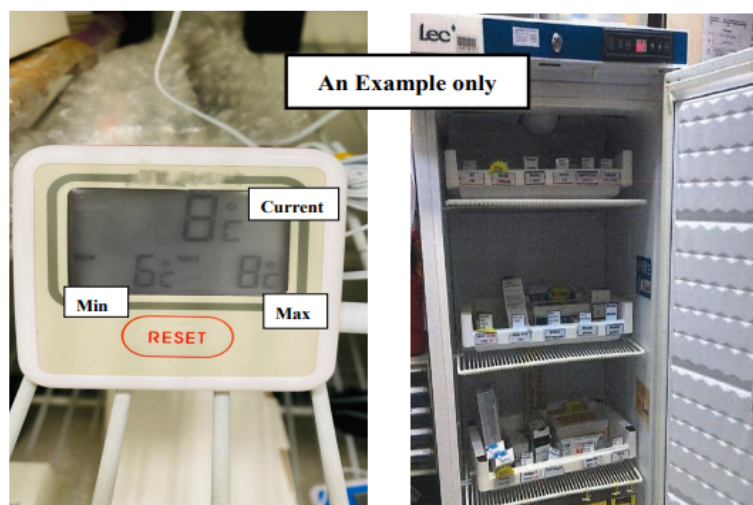
Doctors enrolled in VSS have to use Purpose-built vaccine refrigerators (PBVR) for vaccine storage by 2023/24 vaccination season. For further details regarding vaccine storage under VSS, please refer to Chapter 6 of the VSS Doctor's Guide – Requirements on vaccine storage and handling under VSS ([https://www.chp.gov.hk/files/pdf/vssdg\\_ch6\\_vaccine\\_storage\\_and\\_handling.pdf](https://www.chp.gov.hk/files/pdf/vssdg_ch6_vaccine_storage_and_handling.pdf)).

For record and follow-up purpose, please complete this form, supplemented with:-

- (1) One photo of the interior of the refrigerator **currently** used for vaccine storage at your clinic; and
- (2) One photo of the temperature monitoring device AND temperature record

Should you have any enquiries, please contact Ms. TAM at 3975 4848 or Ms. CHAN at 3975 4846.

**(1) Photo of the interior of the refrigerator and Max-min thermometer**



**An Example only**

Fridge Brand Name: \_\_\_\_\_ Doctor's Name: \_\_\_\_\_  
 Fridge Model No.: \_\_\_\_\_ Contact Phone number: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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**(2) Photo or copy of the temperature record kept in the clinic**

**貯存疫苗的雪櫃溫度檢查表**

**An Example only**

1. 所有疫苗(季節性流感疫苗及肺炎球菌疫苗), 須保存於攝氏 +2°C 至 +8°C 雪櫃內備用。
2. 須每日檢查 三次 (上午、中午及下午 各一次) 雪櫃內的 現時溫度、雪櫃最高及最低溫度, 並記錄在本表格上。請於每次記錄雪櫃溫度後, 重置最高最低溫度計。
3. 請保留此記錄至少一年, 以便有需要時作參考。

**\*\*註:** 如雪櫃溫度 低於攝氏+2 度 或 高於攝氏+8 度  
 1. 請暫勿使用受影響的疫苗, 並應將疫苗立即存放於攝氏+2 度至+8 度的雪櫃。  
 2. 請通知診所醫生及向疫苗供應商查詢  
 3. 在' 溫度超溫事故報告表' 填寫有關事故並傳真至項目管理及疫苗計劃科

日期	檢查 雪櫃 時間	雪櫃內溫度			記錄人員			備註
		現時	最高	最低	姓名	職位	簽署	
15-08-2022	09:00	5.3	6	4.1				
15-08-2022	13:00	5.4	6	4.1				
15-08-2022	17:00	5.4	6	4.1				

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- Collection the fridge information from enrolled VSS practices starting from May 2022
- Items collected:
  - Fridge photo
  - Temperature monitoring device photo
  - Temperature record
- The type of fridge using of enrolled VSS practices (as at **30 June**)

PBVR	%	Domestic Fridge	%	Bar Fridge	%	Others	%
3,411	88.32%	448	11.59%	0	0.00%	7	0.18%

## Progress of changing to PBVR

- Non-PBVR using practices are reminded to change their fridge to PBVR earlier.
- To provide ample time for PBVR ordering and delivery
- Once replaced by PBVR, please send the fridge photo, temperature monitoring device and temperature record to PMVD for record
  - Fax number: 2544 3927
  - Email: [pilotsiv@dh.gov.hk](mailto:pilotsiv@dh.gov.hk)





# Vaccine storage requirement under VSS

- All doctors under VSS:
  - Select and use the PBVR to store vaccines.
  - Do not use a domestic fridge for vaccine storage
  - Monitor vaccine temperature continuously
  - Written protocols for Vaccine Handling and Management of Cold chain breach





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## 2022/23 Vaccination Subsidy Scheme Doctors' Guide



2 November 2022

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[Chapter 6 - Requirements on Vaccine Storage and Handling under VSS](#)



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**Please check the VSS Doctors' Guide regularly for the most current version**

[https://www.chp.gov.hk/files/pdf/vssdg\\_ch6\\_vaccine\\_storage\\_and\\_handling.pdf](https://www.chp.gov.hk/files/pdf/vssdg_ch6_vaccine_storage_and_handling.pdf)



# Purpose Build Vaccine Refrigerator

- PBVR-also referred to as pharmacy or laboratory refrigerators
- The PBVR should have the following **features**:
  - Microprocessor-based temperature control system
  - Narrow tolerances with internal temperatures, providing appropriate temperature regulation
  - Forced air circulation system to main promoting stable and uniform temperature
  - Digital temperature monitoring system with an alarm
    - High /Low Temperature audible alarms
    - Power failure



# Purpose Build Vaccine Refrigerator

- **Other features**

- A display with current, max. and min. temperature providing a convenient means to monitor the temperature and to facilitate manual recording
- Open door sensor/alarm which alerts the user that the fridge door is not properly closed
- Locking mechanisms that restrict access



# Purpose Build Vaccine Refrigerator

- Different sizes of PBVR



## Non-compliance refrigerators

- Commercial display refrigerators (should not be used)
- Missing fans or advanced control mechanisms to maintain temperature uniformity



Wine Cooler



Display Cabinet

# Purpose Build Vaccine Refrigerator

- Keep vaccines in their original packaging
- Check the packaging and product insert for the storage condition
- Place vaccines in the center of the refrigerator, and position away from walls and doors.
- Remove any expired vaccines
- Connect vaccine refrigerators to a dedicated electric circuit

Store refrigerated at 2°C to 8°C (36°F to 46°F).  
DO NOT FREEZE. Discard if frozen.  
Protect syringe from light.



# Temperature monitoring

## Max-min monitor (in-built)

## Data logger (in-built)

Displaying the current, max. and min. temperature

- Records high and low temperature fluctuation over a period (after the reset to the record time)
- Manually record the readings

Displaying current temperature, provided most accurate storage temperature information

- Programmed by the user to measure and record temperatures at least every **30** minutes
- Downloaded at least weekly (or more often if required)





# Temperature monitoring device (External)

- External temperature data logger / digital max-min thermometer to monitor the vaccine temperature if necessary
- Regular thermometers should not be used because they only show the temperature at the exact time



# Temperature record

- The 1-year-record can provide a comprehensive vaccine storage temperature readings that could facilitate the the manufacturers to access the stability and effectiveness of the multiple excursion vaccines
- The “Temperature Chart” should be posted at visible location such as the refrigerator door



# VSS Outreach (Non-Clinic)

- Prepare the vaccine order and delivery in advance
- Consider the cold chain (within 2 to 8°C) maintenance and duration of outreach activity
- The vaccines if is taken from clinic, should be stored in clinic's PBVR
- Proper monitoring of the temperature throughout the activity



# VSS Outreach (Non-Clinic)

- Appropriate equipment should be used for vaccine transport and on-site storage.
- These includes:
  - Cold boxes
  - Ice packs
  - Temperature data loggers / maximum-minimum thermometers
  - Insulating materials (e.g. bubble wrap or Styrofoam)
- The setup should be tested for insulation time and temperature stability before it is used.
- Place the device temperature probe in the center



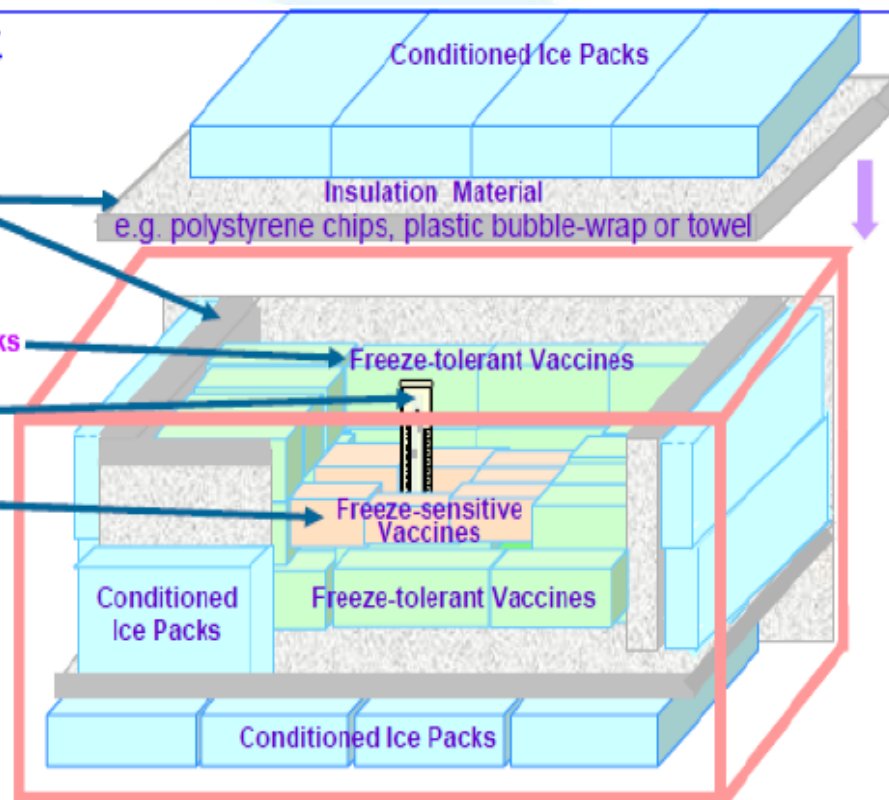
## Principles for Packing A Cold Box

- Adequate insulating material between conditioned ice packs & vaccines to prevent freezing

- Freeze-tolerant vaccines closer to ice packs

- Max./min. thermometer in the centre of vaccines

- Freeze-sensitive vaccines in the centre



### N.B.

- ◇ Conditioned ice packs are frozen ice packs having been exposed to room temperature for 15 minutes to 1 hour, depending on the room temperature, until water drops appearing on the exterior surface and movements of water being heard when the ice packs are shaken
- ◇ If the ice box is small, put ice packs on top and bottom only
- ◇ If heat and freeze indicators are available, use them in ice box when transporting vaccines



# Points to note

- Vaccine storage: **PBVR**
  - Keep vaccines / pharmaceutical products only
  - Wine cooler and display cabinet shall not be used
  - Continuous monitoring the storage temperature
  - Keep temperature record
- Inspection findings from previous outreach activities:
  - Max-min thermometer without reset
  - Temperature probe misplaced
  - Ad-hoc borrow the on-site domestic fridge for temporary storage





**THANK YOU**

