

# KISS GUIDE TO *the facts* VACCINE MANAGEMENT

**Keep it Simple and Safe!**

Your quick reference guide to the  
National Vaccine Storage Guidelines: Strive for Five

## Contact Details

GPQ would like to thank the following people who provided valuable input and advice on the development of this flipchart:

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- Karen Peterson, Queensland Health Immunisation Program
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GPQ would like to acknowledge the funding provided by the Queensland Government: Queensland Health for the Queensland Vaccine Management Project.

GPQ receives significant funds from the Australian Government: Department of Health and Ageing.

Good faith statement: The information contained in this document has been provided in good faith to support service providers in the implementation of best practice guidelines for vaccine management. All users of this document must refer to the latest legislation, standards and best practice guidelines regarding immunisation and vaccine management.

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## Source of material

GPQ has sourced material from the following documents to compile this flipchart:

- National Vaccine Storage Guidelines: Strive for Five, Australian Government: Department of Health and Ageing, 2005, copyright Commonwealth of Australia reproduced by permission.
- The Australian Immunisation Handbook, 8th Edition, National Health and Medical Research Council, 2003.
- Proceedings of the National Vaccine Storage Workshop, Queensland Government: Queensland Health, 2004.

## ➔ About this flipchart

The KISS Guide to Vaccine Management (the facts) has been developed as a joint initiative between General Practice Queensland (GPQ) and Queensland Health to support service providers in effective vaccine management.

Based on the **National Vaccine Storage Guidelines: Strive for Five**, the resource provides a concise reference guide to the following areas:

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### How do I use it?

This flipchart is designed to provide you with key information detailed in the **National Vaccine Storage Guidelines: Strive for Five**.

When you see this image, refer to the stated page(s) in the **National Vaccine Storage Guidelines: Strive for Five** available on [www.immunise.health.gov.au](http://www.immunise.health.gov.au).



**STRIVE** FOR **5**

### Need help?

For more detailed information, please refer to the current edition of the **National Vaccine Storage Guidelines: Strive for Five** and **The Australian Immunisation Handbook** which are both available on [www.immunise.health.gov.au](http://www.immunise.health.gov.au).

For an electronic copy of this flipchart and other vaccine management tools developed by GPQ and Queensland Health, visit <http://vaccinemanagement.gpqld.com.au>

## ➔ Ordering vaccines

1. Order from the Queensland Health Immunisation Program via phone: **07 3328 9888** or fax: **07 3328 9720**.
2. Orders can be placed monthly.
3. On order, the Queensland Health Immunisation Program will ask:
  - ➔ What is your vaccine service provider (VSP) number?
  - ➔ Have your vaccines been stored between minimum of +2°C and maximum of +8°C since your last order?
  - ➔ What quantities of each vaccine are remaining?
  - ➔ What is the expiry date of each vaccine?
4. A Queensland Health contracted distributor will deliver vaccine to your practice/clinic within 3 working days:
  - ➔ Metropolitan areas – In refrigerated delivery trucks packed in cardboard box with dual time-temperature indicator.
  - ➔ Country areas – Packed in cooler with freezer bricks, freeze indicator and dual time-temperature indicator.

**Please note:** Delays in delivery may occur because of remoteness, weekends, public holidays and adverse weather conditions.

**Note:** Contact the Queensland Health Immunisation Program on **07 3328 9888** if you need assistance with ordering vaccines.

## ➔ Receiving vaccines

1. Vaccines must only be received by the practice/clinic staff.
2. Sign the delivery docket and return to the courier.
3. Check that the consignment is correct against the delivery invoice and that the vaccines are packed appropriately.
4. Unpack the vaccine as soon as possible. All staff need to be familiarised with the urgency of this process.
5. In country areas check:
  - ➔ Freeze indicator (e.g. ColdMark) to ensure vaccine hasn't frozen (freeze indicators have colour bulbs that release a dye at the threshold temperature at or below 0°C).
  - ➔ Dual time-temperature indicator to ensure vaccine hasn't been exposed to heat for period of time (shows colour change on the indicator).
  - ➔ Freezer bricks still contain residual ice.
6. In metropolitan areas check:
  - ➔ Dual time-temperature indicator to ensure vaccine hasn't been exposed to heat for period of time (shows colour change on the indicator).
7. Transfer vaccines to the refrigerator immediately, minimising the time that the refrigerator door is open. Fresh vaccines should be placed to the rear of the current stock.
9. If you have any concerns about your vaccine delivery, isolate the vaccines in the vaccine refrigerator and contact the Queensland Health Immunisation Program as soon as possible after receiving your delivery.

**Note:** Contact the Queensland Health Immunisation Program on **07 3328 9888** if you need assistance with receiving vaccines.

## ➔ Daily monitoring of vaccines

- 1. RECORD** minimum/maximum temperatures preferably twice per day but at least daily before vaccine is used. Twice daily temperature checks will give you a better indication of problems.
- 2. RESET** to clear the temperature memory after recording the temperature. See **page 13** of this flipchart for information about your temperature monitoring system.
- 3.** If vaccine storage temperatures have been outside the recommended range of +2°C and +8°C, **NOTIFY** the Queensland Health Immunisation Program on **07 3328 9888** during business hours as soon as possible to inform them of the breach and to seek advice. See **page 10** of this flipchart for more information.

**STRIVE** FOR **5**  
See page 14

- 1. CHECK** minimum/maximum temperatures:

- ➔ on receipt of vaccines, and
- ➔ last thing Friday afternoon and first thing Monday, if the centre closes over the weekend, and
- ➔ hourly during outreach clinics, and
- ➔ every time you open the refrigerator.

**STRIVE** FOR **5**  
See page 14

- 2. PLUS** record comments and any action taken in the temperature chart/log every time the minimum and maximum temperature exceeds the recommended range of +2°C and +8°C, e.g. if restocking or defrosting the refrigerator.
- 3. NEVER** reset the thermometer unless the temperatures have been recorded.

### Where is your thermometer probe?

If using an external thermometer:

- the probe needs to be located inside an empty vaccine package with retained product information,
- label the vaccine package “EMPTY”, and
- place package inside and near the back of an enclosed plastic drawer or container storing freeze-sensitive vaccines.



# Monitoring vaccines using a thermometer or data logger

# 05

## Using a thermometer

- 1. Check** both the minimum (MIN) and maximum (MAX) temperatures displayed on the thermometer.
- 2. Record** the date, time, the minimum and maximum temperature and your initials on the temperature chart or log.
- Press **RESET** to clear the temperature memory **AFTER** the temperatures have been recorded.

**STRIVE**<sup>TM</sup><sub>15</sub>  
See page 22



## Using a data logger

- 1. Download** the readings from the data logger.
- 2. Check** both the minimum (MIN) and maximum (MAX) temperatures.
- If using computer software, **record** in the software the time checked (if not logged automatically) and your initials.
- If unable to edit computer software:
  - ➔ Print the log, circle the minimum and maximum temperatures and sign.
  - OR
  - ➔ Record the date, time, the minimum and maximum temperature and your initials on the temperature chart or log.

**STRIVE**<sup>TM</sup><sub>15</sub>  
See page 23 & 49-51

**STRIVE**<sup>TM</sup><sub>15</sub>  
See page 49

## What is a data logger?

Temperature data loggers are small, electronic devices that measure temperatures and keep a record of the results over a period of time. They can be built into a vaccine refrigerator or be external.

If using an external data logger, it must be programmed using a computer. The data logger is then disconnected and placed in the vaccine refrigerator. The data logger operates independently on its own battery until the recording is downloaded to the computer.

## ➔ About your vaccine refrigerator

### Purpose-built vaccine refrigerator

- Purpose-built vaccine refrigerators have a stable, uniform, and controlled cabinet temperature unaffected by ambient temperature.
- Good temperature recovery will be achieved soon after the door is closed.
- Most have standard alarm and safety features alert.
- Nearly all of the internal space can be used for storing vaccine.
- Purpose-built vaccine refrigerators still require daily monitoring – they do not run themselves!
- For more information about choosing a purpose-built vaccine refrigerator, visit <http://vaccinemanagement.gpqlld.com.au>

**STRIVE5**  
See pages 19-21

### Modified domestic refrigerator

- Domestic refrigerators are designed for food storage and not the specialised needs of vaccines.
- Modification of domestic refrigerators is necessary to reduce the risk of adverse storage events.
- Frost-free refrigerators are suitable following modification.
- Cyclic defrost and bar refrigerators are not recommended.
- Careful monitoring and knowledge of the refrigerator is required to minimise risk to the vaccine.
- Thermostat overriding devices do not guarantee safety of vaccines and should not be considered a substitute for good vaccine management.

**STRIVE5**  
See pages 7-18

### Bar and cyclic defrost refrigerators



Bar and cyclic defrost refrigerators are not recommended because of the risk of freezing, temperature instability and susceptibility to ambient temperatures.

**STRIVE5**  
See page 7

## ➔ Packing your purpose-built vaccine refrigerator

- Vaccines can be stored in shallow plastic baskets/trays clearly labelled with the name(s) of vaccine(s).
- Allow space between baskets/trays for air circulation.
- Some purpose-built vaccine refrigerators have a cooling plate. If this is the case, ensure there is a gap of at least 4cm between the vaccines and the back of the refrigerator.
- Keep the door closed as much as practical.
- Place a sticker on the fridge door reminding GPs and staff to only open the door when required.
- Always leave vaccines in their original packaging – do not remove from box to fit more in the refrigerator.
- Cool the refrigerator before stocking with vaccine.
- Don't overstock the refrigerator with vaccines – allow air to circulate.
- If there is a small amount of stock in the refrigerator, place bottles of salt water or unfrozen ice packs/gel packs to help stabilise the temperature.

**STRIVE**<sup>15</sup>  
*See pages 19-21*

## ➔ Packing your modified domestic refrigerator

### STRIVE5

See pages 11 & 47

- Know your refrigerator by:
  - ➔ recording temperatures throughout the refrigerator (this will help you find the “cold spots”),
  - ➔ locating the air vents, and
  - ➔ knowing how to adjust the thermostat.

### STRIVE5

See pages 41-43

- Store vaccines in their original packaging in a set of sliding plastic drawers or enclosed plastic containers. Label drawers/containers clearly with the name(s) of vaccine(s).
- Ensure there is a gap of at least 4cm between the plastic container and all refrigerator walls including the back.
- Place freeze-tolerant vaccines in the shelves identified as being the coldest and freeze-sensitive vaccines on shelves identified as having more stable temperatures.
- Fill the lower drawers and the door with salt water bottles/containers. Leave a small gap between the bottles/containers.
- Place water bottles or ice packs/gel packs in the freezer compartment.
- Keep the door closed as much as practical.
- Place a sticker on the fridge door reminding GPs and staff to only open the door when required.

- Always leave vaccines in their original packaging – do not remove from box to fit more in the refrigerator.
- Cool the refrigerator before stocking with vaccine.
- Don't overstock the refrigerator with vaccines – allow air to circulate.
- If there is a small amount of stock in the refrigerator, place bottles of salt water or unfrozen ice packs/gel packs to help stabilise the temperature.

**Important!** Vaccines must never be stored in the door of the refrigerator.

### STRIVE5

See pages 9-15

# ➔ Caring for your vaccine refrigerator and monitoring equipment

# 09

## Maintaining your refrigerator

- Conduct a vaccine storage self-audit (including people, equipment and procedures) at least every 12 months.
- Report refrigerator problems immediately to the nominated person in your practice (such as the Practice Manager) so that repairs can be made.
- Check the rubber seal around the door. If brittle or torn, arrange for replacement.
- Refrigerators requiring defrosting are not recommended. However if the refrigerator is not frost-free, defrosting should be done on a monthly basis. Transfer your vaccines to a portable cooler and monitor the temperature as detailed on **page 12** of this flipchart.
- If there are exposed coils on the back of the refrigerator, keep them clean and dust free to improve operating efficiency.

**STRIVE**<sup>5</sup>  
See pages 36-38

## Maintaining your monitoring equipment

- Know the accuracy of your external thermometer by conducting a “slush” test. The results should be within one degree above or below 0°C. An accuracy check should be conducted after receiving your new thermometer and at least every 12 months or sooner if you are having thermometer or cold chain problems. Record the results on your temperature chart for future reference.
- Replace the battery of your thermometer or data logger at least every 12 months or sooner if you are having thermometer or data logger problems.

**STRIVE**<sup>5</sup>  
See page 22

## The location of your vaccine refrigerator

- Place your vaccine refrigerator away from warm external walls and out of direct sunlight.
- Ensure that the refrigerator is in a secure area only accessible to staff.
- Follow the manufacturer’s instructions about positioning the refrigerator to enable sufficient air circulation around the back and sides.
- Ensure the power source is labelled clearly to prevent the refrigerator from being accidentally unplugged or turned off.

**STRIVE**<sup>5</sup>  
See pages 16-18

**STRIVE**<sup>5</sup>  
See pages 9-10

## ➔ Action in the event of a cold chain breach

1. Isolate the vaccines immediately to prevent further use (e.g. sign on the refrigerator door) and notify relevant staff.
2. Keep vaccines refrigerated between +2°C and +8°C.
3. Contact the Queensland Health Immunisation Program on **07 3328 9888** during business hours as soon as possible to inform them of the breach and to seek advice.
4. Have important details on hand including the vaccine service provider number, date of the breach, the minimum and maximum temperature reading, when the thermometer was last reset, how long you think the temperature was outside +2°C and +8°C and what you think was the cause of the cold chain breach.
5. Do not discard any vaccine unless advised by the Queensland Health Immunisation Program.
6. Take active steps to correct the problem and prevent the problem from recurring.
7. For privately purchased vaccines, contact the manufacturer for advice.
8. Record notes on your temperature log regarding what happened and how the problem was corrected.

**STRIVE**<sup>10</sup>  
See pages 26-27

**Important!** Repeated temperature excursions outside the temperature range of +2°C and +8°C can have a cumulative effect on vaccine efficacy.

**STRIVE**<sup>10</sup>  
See page iii

### What is a cold chain breach?

A cold chain breach is when vaccine storage temperatures have been outside the recommended range of +2°C and +8°C.

All temperatures below +2°C must be reported.

This does not include temperature deviations or excursions up to +12°C lasting no longer than 15 minutes when stocktaking or restocking.

Always contact the Queensland Health Immunisation Program on **07 3328 9888** for advice.

## ➔ Managing a power failure

### Purpose-built vaccine refrigerator

- Some purpose-built vaccine fridges warm quickly during a power failure. If your area is prone to power failures, consider adding water bottles or ice packs/gel packs to your vaccine refrigerator to help keep it cool during these periods.

**STRIVE5**  
See pages 26-27

### Principles for both purpose-built vaccine refrigerators and modified domestic refrigerator

- Frequently monitor the temperature of your refrigerator.
- Always have an alternative means of vaccine storage available such as a cooler.
- If your vaccines are transferred to a portable cooler, continue to monitor the temperature of the vaccines by placing the thermometer probe inside a vaccine box inside the cooler.

**STRIVE5**  
See pages 26-27

### Modified domestic refrigerator

- During a power failure of 4 hours or less, the refrigerator door should be kept closed.
- For power failures more than 4 hours, store your vaccines in a portable cooler.

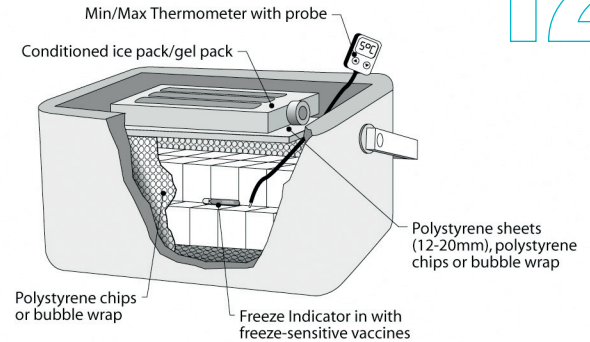
**STRIVE5**  
See pages 26-27

## ➔ Packing a portable cooler

### How to pack a portable cooler

1. Chill the inside of the cooler prior to use by placing ice packs/gel packs in it for a few hours.
2. Place insulating material at the bottom of the container.
3. Pack the **freeze-sensitive** vaccines in the centre of the container and the **freeze-tolerant** vaccines closest to the ice packs/gel packs.
4. Place a minimum/maximum thermometer (and if available, a freeze indicator) in the centre of the vaccine stock.
5. Surround the vaccines with more insulating material.
6. If using a small cooler, place the conditioned ice packs/gel packs on top, close and seal the lid of the cooler.
7. If using a large portable cooler, place conditioned ice packs/gel packs around the sides of the cooler as well as on top. You will need to experiment to find the correct combination for your needs.
8. Ensure vaccine is not in direct contact with the ice packs/gel packs to minimise risk of freezing.

**STRIVE**<sub>15</sub>  
See pages 28-31



Example of a packed 10 litre cooler

### Monitoring your portable cooler

For an outreach clinic, check the temperature of your cooler:

- before you leave,
- when you arrive,
- prior to administering vaccine, and
- regularly throughout the immunisation session (at least hourly).

**STRIVE**<sub>15</sub>  
See pages 29 & 31

## ➔ Our vaccine management profile

### Our equipment

Our vaccine refrigerator is a .....

We get it serviced by ..... and their phone number is .....

To monitor the temperature of our vaccine refrigerator, we use ..... (e.g. thermometer, data logger)

### Our contact details

Primary person in charge for vaccine management .....

Secondary person in charge for vaccine management .....

### Our vaccine management checklist

What	When
Check and record minimum and maximum temperature (Note: Reset thermometer after recording)	At least daily before vaccine is used (recommended to check twice daily)
Order vaccines	Public monthly on Private on
Receive vaccines	Public monthly on Private on
Check vaccine expiry dates and rotate stock	Monthly on
Change thermometer or data logger battery	Every 12 months on or if concerned about accuracy
Check the accuracy of thermometer	Every 12 months on or if concerned about accuracy
Do a vaccine refrigerator audit	Every 12 months on
Defrost and clean fridge (if applicable)	Monthly on or as required

## ➔ Key external contact details

### Queensland Health Immunisation Program

Phone: **07 3328 9888** Fax: **07 3328 9720**

#### Role:

- Manage public vaccine orders.
- Develop policies on immunisation issues for Queensland.
- Manage in collaboration with Information Services Data Management Unit the Queensland Health vaccination database.
- Assist with National Immunisation Program Schedule queries and changes to the schedule.
- Assist with vaccine management queries or concerns.
- Record and forward cold chain breach reports appropriately.
- Distribute resources and information produced by Queensland Health.
- Manage the implementation of the Queensland School Based Vaccination Program.
- Provide education for service providers.

### Queensland Health: Population Health Units

Brisbane South	Phone: 07 3000 9148
Brisbane North	Phone: 07 3624 1111
Gold Coast	Phone: 07 5509 7222
Sunshine Coast	Phone: 07 5409 6600
Darling Downs (Toowoomba)	Phone: 07 4631 9888
Central (Rockhampton)	Phone: 07 4920 6989
Hervey Bay	Phone: 07 4120 6000
Tropical (Cairns)	Phone: 07 4050 3600
Townsville	Phone: 07 4753 9000
Mackay	Phone: 07 4968 6611
Mount Isa	Phone: 07 4744 4846

#### Role:

- Assist with National Immunisation Program Schedule queries including catch-up and changes to the schedule.
- On request, supply vaccine service providers with the status of a child's immunisation through access to the VIVAS/ACIR database.
- Assist with vaccine management queries or concerns.
- Distribute resources and information produced by Queensland Health.
- Promote best practice in vaccine management.
- Issue overdue notices.