

Program/Service Information Report

Vaccine Wastage Report

January-December 2024

To: Board of Health

Meeting Date: April 2, 2025

Report No.: BH.01.APR0225.C05

Key Points

- **Vaccine Distribution & Storage:** Wellington Dufferin Guelph Public Health (WDGPH) ensures compliance with cold chain protocols (2°C–8°C) for vaccine storage. In 2024, all 245 fridge inspections were completed, with 11 cold chain incidents, primarily due to power outages.
- **Vaccine Wastage (Excluding COVID-19):** In 2024, the overall wastage rate was 1.6%, a decrease from 3.1% in 2023.
- **COVID-19 Vaccine Wastage:** In 2024, 53,162 COVID-19 vaccine doses were administered in WDGPH, internal/external wastage was 7,659 doses (excluding pharmacies).
- **Wastage Reduction Strategies:**
 - Limiting provider orders to two-week supplies
 - Improved inventory monitoring and adjusted distribution
 - Cold chain and stock management education

Program Requirements

Compliance with OPHS and Accountability Indicators:

☒ In compliance

☐ Not in compliance. If not in compliance, provide additional information about the variance and how it will be addressed.

Highlights

Introduction

Wellington Dufferin Guelph Public Health (WDGPH) is responsible for distributing publicly funded vaccines to local healthcare providers, ensuring their safe storage and administration and reporting vaccine wastage to the Ontario Ministry of Health. This report outlines vaccine wastage statistics for 2024, factors contributing to wastage and strategies employed to minimize loss.

Vaccine Distribution

WDGPH receives weekly shipments of publicly funded vaccines from the Ontario Government Pharmacy (OGP) and distributes them to healthcare providers, including physician's offices, hospitals, long-term care homes and community clinics. Pharmacies receive influenza vaccines directly from a Ministry-designated distributor, while COVID-19 vaccines are supplied either through WDGPH or a Ministry distributor. WDGPH is also responsible for monitoring vaccine storage and handling, providing annual cold chain education and inspecting vaccine refrigerators to ensure compliance with provincial guidelines. From January to December 2024, WDGPH distributed \$12,199,018.41 worth of vaccine (excluding COVID vaccine) to community partners in Wellington, Dufferin, and Guelph.

Cold Chain Management

Cold Chain refers to the system of transporting and storing vaccines within a specific temperature range to ensure their potency and effectiveness are maintained. Cold chain is crucial for maintaining vaccine efficacy by ensuring vaccines remain at temperatures between 2°C and 8°C throughout storage and transportation. Breakdowns in cold chain, such as power outages or improper storage, can compromise vaccine effectiveness and contribute to wastage. In 2024, WDGPH completed 100% of its required 245 vaccine refrigerator inspections and responded to 11 cold chain excursions, primarily caused by power outages. See Appendix A for further cold chain excursion details.

Vaccine Wastage (Excluding COVID-19 Vaccine)

- Minimizing vaccine wastage is a priority for WDGPH. The Ontario Ministry of Health mandates that annual wastage rates do not exceed 5% for any individual vaccine. In 2024, the overall vaccine wastage rate for WDGPH was 1.6%, a decrease from 3.1% in 2023, with a total estimated value of \$190,520.43 this year.

Key Factors in Vaccine Wastage:

- **Short-dated vaccines:** Some vaccines received from the Ministry have short expiry dates, limiting the time they can be used before they must be discarded.
- **Program transitions:** The 2024 transition of the pneumococcal vaccination program led to the phasing out of Pneu-C-13 (Prevnam®13) and Pneu-P-23 (Pneumovax®23), necessitating the return of these vaccines.
- **Unreturned expired vaccines:** Some expired vaccines are not returned to WDGPH in the same calendar year they were distributed, complicating wastage tracking.
- **Seasonal demand fluctuations:** Influenza vaccines are frequently wasted due to their short usability window and variability in provider demand.

See Appendix B for details of overall vaccine wastage.

COVID-19 Vaccine Wastage

WDGPH reports all COVID-19 vaccine wastage through COVAX, the provincial vaccination repository. COVAX provides data on COVID-19 vaccine wastage for WDGPH and all healthcare providers, excluding pharmacies. This report does not include the number of doses wasted in pharmacies, as this data is not available through COVAX. In 2024, 53,162 COVID-19 vaccine doses were administered in WDG region with 7,659 doses (excluding pharmacies) reported as internal/external wastage.

In August 2024, Health Canada mandated the discontinuation of all COVID-19 XBB vaccine products, which led to a significant increase in product wastage. Providers were required to quarantine and dispose of these doses following Ministry directives.

See Appendix C for details of overall COVID-19 vaccine wastage.

Challenges and Strategies for Wastage Reduction

Managing vaccine supply and demand remains a challenge due to fluctuating provider needs. Healthcare providers are instructed to order a maximum of two weeks' worth of vaccine supply to reduce excess stock and potential wastage. Additional strategies include:

- Monitoring provider orders and requiring accurate vaccine inventory counts.
- Adjusting distribution quantities based on reported inventory levels.

- Conducting education sessions on cold chain management, vaccine stock management, and forecasting.

Conclusion

The Ontario Ministry of Health's Vaccine Storage and Handling Protocol (2018)¹ provides a framework for minimizing vaccine wastage through proper storage, handling, and monitoring. WDGPB adheres to these guidelines through regular inspections, education initiatives, and inventory management strategies. In 2024, WDGPB achieved a 100% completion rate for required fridge inspections and continued efforts to enhance cold chain compliance and minimize wastage. Moving forward, WDGPB will focus on further refining inventory control measures to optimize vaccine utilization and reduce unnecessary loss.

References

1. Vaccine Storage and Handling Protocol, 2018

[https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Vaccine Storage and Handling Protocol 2018 en.pdf](https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Vaccine_Storage_and_Handling_Protocol_2018_en.pdf)

Prepared By:	Karen Mulvey, Manager Vaccine Preventable Disease Program
Approved By:	Rita Isley, VP Community Health Division
Submitted By:	Dr. Nicola J. Mercer, MD, MBA, MPH, FRCPC Medical Officer of Health & CEO

Appendix A

Figure 1. Cold Chain Excursions

Reason for Excursion	Number of Excursions
Human Error – Fridge door left ajar	1
Human Error – Electricity disconnected	2
Malfunction – Refrigerator/Freezer	2
Unknown	2
Power Outage	4

Appendix B

Figure 2. Annual comparisons of overall wastage

	2019	2020	2021	2022	2023	2024
\$ Value Wasted	\$251,645.18	\$40,381.78	\$151,999.10	\$481,191.48	\$255,225.19	\$190,520.43
Percentage of distributed vaccine that was wasted	3%	0.6%	4.2%	8.4%	3.1%	1.6%

Figure 3. Reasons for overall vaccine wastage (%)

Excessive Quantity	0.06%
Cold Chain Incident – Human Error	0.03%
Cold Chain Incident - Malfunction: Refrig/Equip	0.02%
Cold Chain Incident – Power Outage	0.08%
Defective Product	0.003%
Discontinued Product	0.17%
Excessive Quantity	0.06%
Expired Product	1.2%
Ordered In Error	0.01%
Total wastage %	1.6%

Appendix C

Figure 4. Reasons for overall COVID-19 vaccine wastage (doses)

Damaged Product	6
Other - Discontinued Product	2,270
Vaccine vial stored in ult/freezer/fridge temperatures beyond expiry date	1,084
Dose(s) Remaining in a Multi-dose vial	696
Insufficient Dose(s) From a Single/Multi-Dose Vial	104
Fridge Stable (2 - 8 degrees C) Vaccine Vial Refrigerated beyond use time	1,818
Unused Pre-drawn Syringe	1,655
Vaccine Administration Issue	6
Vaccine Stored Temperature Excursion at Clinic	20
Total wastage	7,659