

## Program/Service Information Report

# Vaccine Wastage for 2023

Jan 2023 – Dec 2023

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To: Board of Health

Meeting Date: April 3, 2024

Report No.: BH.01.APR0324.C07

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## Key Points

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- January to December 2023, Wellington-Dufferin-Guelph Public Health (WDGPH) distributed \$8,532,550.55 in vaccine (excluding COVID vaccine) to community partners in Wellington, Dufferin, and Guelph (WDG).
- January to December 2023, WDGPH had a combined internal/external wastage rate of 3.1% of vaccine (excluding COVID vaccine).
- Wastage occurring internally at WDGPH is calculated at 0.64% (excluding COVID vaccines).
- In 2023, 79,869 COVID-19 vaccine doses were administered in WDGPH, and the combined internal/external COVID-19 wastage was 28.4%.
- WDGPH continues to maintain a comprehensive inventory and monitoring system to mitigate internal vaccine wastage.
- 100% of 239 vaccine refrigerator inspections were completed.

## Program Requirements

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### 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.

N/A

# Highlights

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## Vaccine Distribution

WDGPH has the role of distributing publicly funded vaccine to providers locally and they receive these vaccines through weekly shipments of publicly funded vaccine from the Ontario Government Pharmacy (OGP). WDGPH packs and distributes routine vaccines to community healthcare providers, including physician's offices, long-term care homes, hospitals, and community clinics. Pharmacies receive influenza vaccine directly from a Ministry of Health (Ministry) designated distributor. Pharmacies receive COVID vaccine from either WDGPH or their Ministry designated distributor. The only publicly funded vaccine pharmacies carry, is influenza and COVID vaccine. WDGPH is accountable for reporting vaccine wastage incurred by all health care providers, including pharmacists. WDGPH is also responsible for providing annual vaccine education, cold chain education, routine vaccine fridge inspections and responding to cold chain incidents.

## Cold Chain

Vaccines require storage within a consistent temperature range of 2° and 8°C, known as maintaining "cold chain." Cold chain begins with manufacturing and ends when the vaccine is administered.

## Vaccine Wastage (Excluding COVID-19 Vaccine)

A vaccine is wasted if it is exposed to temperatures outside the appropriate range or expires before it is used. Vaccine wastage in Ontario is a significant and preventable liability, affecting vaccine safety and efficacy. The Ministry provides the Vaccine Storage and Handling Protocol (2018) to standardize the management of provincial vaccine inventories. The protocol outlines proper storage and handling of vaccines, quality assurance activities and strategies to reduce publicly funded vaccine wastage.<sup>1</sup> The protocol requires that WDGPH has no more than 5% wastage for any individual vaccine product annually. If wastage exceeds 5%, the Ministry specifies that additional inventory control measures shall be taken to reduce it.

Public Health is mandated to report any publicly funded vaccine deemed as wastage to the Ministry. WDGPH monitors and track vaccines distributed to community partners with greater accuracy using a provincial inventory system, called Panorama.

The overall wastage, in 2023, for all vaccines returned to OGP (Ontario Government Pharmacy) by WDGPH was 3.1% and valued at \$255,225.19. This is a decrease of 5.3% from 2022. Many returns were received in 2022 because vaccine returns were not accepted in 2021 during the COVID pandemic response.

**Figure 1. Annual comparisons of overall wastage**

	2018	2019	2020	2021	2022	2023
\$ Value Wasted	\$297,760.64	\$251,645.18	\$40,381.78	\$151,999.10	\$481,191.48	\$255,225.19
Percentage of distributed vaccine that was wasted	4.7%	3%	0.6%	4.2%	8.4%	3.1%

Part of the overall wastage rate includes vaccine that is wasted internally. WDGPH had an internal wastage rate of 0.64% in 2023. The internal rate reflects short, dated vaccines received from the Ministry and vaccines that could not be returned in the Reusable Return window.

The greatest risk for vaccine wastage is short-dated vaccine as well healthcare providers ordering excess quantities or stockpiling vaccine. An unpredictable factor in calculating wastage is that expired vaccines are not always returned to WDGPH in the calendar year that they are distributed. Due to the limited control over when wasted inventory is returned to be counted, wastage rates for some individual vaccines may be higher than the number of vaccines distributed during that specific year. Influenza products are the most frequently wasted as demand for these seasonal vaccines comes from all providers, occurs over a brief period, and has a short window for use.

**Figure 2. Reasons for overall vaccine wastage**

Excessive Quantity	0.25%
Cold Chain Incident – Human Error	0.089%
Cold Chain Incident - Malfunction: Refrig/Equip	0.3%
Expired Product	2.4%
Facility Closure	0.04%
Ordered in Error	0.024%

### COVID-19 Vaccine Wastage

Public Health is mandated to report any COVID-19 vaccine deemed wastage through COVAX, the provincial repository for COVID-19 vaccinations. The overall wastage for all COVID-19 vaccine distributed in WDGPH for 2023 was 28.4%. In July of 2021, towards the end of the mass vaccination campaign, the province of Ontario advised that certain amount of wastage would be acceptable to vaccinate residents of Ontario.

The allowable wastage is related to multi dose vials (6-10 doses per vial) where not all doses could be given before expiry, and public perception on efficacy and safety on one COVID vaccine over another.

In the year 2023/2024 the demand for COVID-19 vaccinations has decreased, but the amount of wastage has increased. Vials are being opened to administer to clients, but unfortunately there are not enough clients booked to complete a vial.

**Figure 3. Reasons for overall COVID-19 vaccine wastage**

Vaccine vial stored in ult/freezer/fridge temperatures beyond expiry date	8.39%
Vaccine vial left in room temperature conditions beyond use time	0.21%
Fridge Stable (2 - 8 degrees C) Vaccine Vial Refrigerated beyond use time	4.98%
Vaccine vial punctured and not used before beyond use time	0.09%
Suspected Vaccine Contamination – Human error	0.01%
Suspected Vaccine Contamination - Manufacturer	0.05%
Vaccine Administration Issue	0.02%
Unused Pre-Drawn Syringe	13.73%
Full Dose Syringe Use to Administer Half Dose	0.01%
Vaccine Stored Temperature Excursion at Clinic	0.05%
Dose(s) Remaining in a Multi-dose vial	0.85%

### Community Cold Chain Excursions

WDGPH’s Cold Chain team completed 100% of 239 vaccine refrigerator inspections in 2023 and responded to 14 cold chain excursions. Follow-up to reported excursions involves collaborative resolution of the immediate cold chain issue and consultation with the vaccine manufacturer(s) with time and duration of exposure.

An assessment is made whether the vaccine can be used or must be wasted. Education on cold chain storage and handling is provided, where required. Re-inspections and unscheduled audits are conducted in cases where re-occurring issues are attributed to human error. Expired vaccine is still the most common cause for vaccine wastage in the community, rather than cold chain excursions.

**Figure 4. Cold Chain Excursions**

Reason for Excursion	Number of Excursions
Human Error – Improper Storage	2
Human Error - Other	1
Malfunction – Refrigerator/Freezer	2
Unknown	7
Power Outage	2

### Challenges and Strategies

Vaccine distributed to health care providers cannot be returned for redistribution and any vaccine that cannot be used is wasted. Excess product ordering by community partners is difficult to control without adversely affecting client service and immunization coverage rates. Community partners monitor their own vaccine supply and demand as orders should not exceed a two-week supply. Inventory is difficult to control as supply and demand fluctuates weekly.

WDGPH monitors vaccine orders that come in from facilities by requesting an accurate count of office inventory on the order form or in the vaccine portal. Distribution is adjusted accordingly. Health care providers are asked to order a maximum two-week supply of any vaccine product to minimize the potential for wastage.

### Conclusion

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WDGPH follows Ministry recommended processes to eliminate vaccine wastage. WDGPH continues to implement innovative measures aimed at decreasing vaccine wastage. In 2023, WDGPH completed 100% of the vaccine fridge inspections. During these inspections, all wasted and expired vaccines remaining at offices were collected and processed to OGP (Ontario Government Pharmacy).

## Related Reports

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BH.01.MAR0123.C06 – Vaccine Wastage for 2022.

[https://wdgpublichealth.ca/sites/default/files/bh.01.mar0123.c06 -  
\\_vaccine\\_wastage\\_for\\_2022.pdf](https://wdgpublichealth.ca/sites/default/files/bh.01.mar0123.c06_-_vaccine_wastage_for_2022.pdf)

## References

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1. Ontario Public Health Standards: Requirements for Programs, Services and Accountability.  
[https://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/docs/protocols\\_guidelines/Ontario\\_Public\\_Health\\_Standards\\_2021.pdf](https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Ontario_Public_Health_Standards_2021.pdf)
2. 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)

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