St. Paul's Hospital Glove Recycling Pilot Project

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Contents

Overview

Nitrile and latex gloves are not accepted in the traditional hospital recycling program; however since they are a necessary high-use, high-volume item, there is a lot of interest from health care staff to divert them away from landfill. When Providence Health Care opened a funding opportunity for staff environmental sustainability projects, the Transfusion Medicine Laboratory at St. Paul's Hospital submitted a project proposal to pilot a glove recycling initiative through the TerraCycle Zero Waste Box program.

From March – September 2020, approximately 7140 nitrile and latex gloves were recycling in the Zero Waste Box, the vast majority of gloves used. There were no issues with contamination, since lab staff were already trained on disposing gloves that have been exposed to hazardous materials into the hazardous waste container.

Overall learning highlights include:

- The program can work well in areas where the large majority of gloves are not exposed to biomedical or hazardous waste material and are therefore eligible for recycling.
- Contamination is not an issue when staff education is provided and thoroughly communicated.
- The program is simple to run with no large logistical hurdles. All that is needed is a budget and a system of accountability to bring the full Zero Waste Box to the loading dock for pick up.

Background

In Winter 2019, Providence Health Care (PHC) allocated funding for projects with an objective to create a more environmentally sustainable workplace. Through a collaboration with GreenCare's Energy and Environmental Sustainability team (EES), a call for projects was communicated to the PHC staff volunteer Green+Leaders Network. A Green+Leader from the Transfusion Medicine Laboratory at St. Paul's Hospital (SPH) proposed a project to divert nitrile and latex gloves away from landfill. The project was approved by EES and PHC with $2000 budgeted for the entire project (Appendix 1).

Project Description

The project focused on the reduction of nitrile and latex gloves sent to landfill in the Transfusion Medicine Laboratory at St. Paul's Hospital by introducing Zero Waste Boxes provided by TerraCycle.

Fig 1. The Zero Waste Box installed in the SPH Transfusion Medicine Laboratory

The Zero Waste Box program collects used, non-hazardous nitrile and latex gloves for recycling. TerraCycle reports that none of the gloves are landfilled. They are aggregated at a TerraCycle sorting facility and then sent for processing where they are pelletized and moulded into new plastic products. Most recycled gloves are used in construction as insulation, or rubber flooring in gymnasiums and community centres (TerraCycle, personal communication, January 9, 2020).

The Transfusion Medicine Laboratory was deemed a suitable pilot location for this program since the majority of gloves are not exposed to hazardous or biomedical material and are therefore eligible for recycling. The lab is also almost entirely separate from the adjacent labs and at low to zero risk of other lab staff accessing the Zero Waste Box and potentially introducing cross-contamination.

The project was also intended to have a more passive outcome to engage lab staff with waste reduction discussions and increase interest in the topic. Through a small initiative like glove recycling, the intent is to increase desire, knowledge and ability of staff to foster change across the entire lab at St. Paul's Hospital.

Project Objectives

The project objectives included:

1. Increase the recovery rate at Providence Health Care through the recycling of nitrile and latex gloves otherwise sent to landfill
2. Raise awareness of the importance of waste reduction strategies and initiatives at Providence Health Care
3. Increase the number of staff interested in waste reduction within the lab overall through their involvement in the Green+Leaders program

Assumptions

1. Gloves are a significant proportion of the lab garbage waste.
2. The majority of lab gloves are eligible for recycling.

Project Results

The project began in March 2020 and is ongoing. As of the publishing of this report, the lab has purchased three Zero Waste Boxes (one small, two large). A small box holds approximately 620 gloves and a large box holds approximately 3260 gloves. This means that approximately 7140 gloves were recycled between March and September 2020.

Fig 2. Jodi Shad, Medical Laboratory Technologist, using the Zero Waste Box.

The first Zero Waste Box purchased was a small size due to a TerraCycle supply shortage of the large size. It was filled in approximately one week and was replaced by a large size box. The second box was in use from April 1 – June 11 (71 days). It took longer than expected to fill the box, however the lab was not as busy as usual in April and May due to workflow changes from the Covid-19 pandemic. The third box was in use from June 11 – October 2 (113 days). The rate of fill seems to fluctuate, with approximately 30-45 gloves recycled per day. This fluctuation is likely a result of variation in service levels in the lab.

Objective 1: Increase the recovery rate at Providence Health Care

Based on an estimate of lab purchasing data, the Transfusion Medicine Laboratory purchases between 750 – 1300 gloves per month. The purchasing data is in line with the results from the Zero Waste Box fill data. Close to 100% of those gloves were originally going into the garbage, with a small amount going into the hazardous waste container. With the Zero Waste Box in place, close to 100% of those gloves were being recycled, with the same small amount going into hazardous waste when needed.

Since the garbage containers are serviced on a daily schedule rather than when full, it is difficult to specifically calculate a decrease in garbage generation. However, we know that all gloves were previously going into garbage and now they are being recycled, so we can infer the decreased garbage generation as a result.

Additionally, the large Zero Waste Boxes also accept surgical masks for recycling. While Transfusion Medicine lab staff do not often need to wear surgical masks (approximately two generated per day), with the increased precautions due to Covid-19, many staff chose to wear masks more frequently (approximately 10 per day). Those masks were able to be placed in the Zero Waste Box and did not go to landfill.

Objective 2: Raise awareness of the importance of waste reduction strategies and initiatives

The Transfusion Medicine lab staff were on board with the new segregation stream and were diligent in placing their gloves in the correct place.

Fig 3. Melissa, another lab staff member, found using the glove Zero Waste Box easy.

This project can be used as a success story to further raise awareness about the importance of waste reduction strategies and initiatives and to promote participation in the staff volunteer Green+Leaders Network. Post-project work will include sharing the story on the BC GreenCare website and writing a PHC intranet news story.

Objective 3: Increase the number of interested staff within the lab

This project did not seem to be effective at increasing staff engagement. While staff were happy to participate and properly sort the gloves into the new boxes, it did not increase the numbers of Green+Leaders in the lab. It may be that recycling projects like this one are good for waste diversion, but not as effective for staff engagement.

Confounding Factors

The Covid-19 pandemic had an impact on the Transfusion Medicine Laboratory's usual workflow. The lab's volume of work is tied to the number of Operating Rooms providing services, which decreased in the early months of the pandemic. After May, surgical procedures began to increase again and the lab returned to more regular operations.

Conclusion and Next Steps

The pilot was implemented seamlessly with no incidents of hazardous or biomedical material contamination. It created new opportunities to discuss waste reduction and recycling behaviours among staff.

Next steps include promoting this opportunity to other areas that may be suitable locations for nitrile and latex glove recycling. Labs who would not regularly be handling biomedical or hazardous material appear to be good candidates. One constraint is budget, however with funding available from either the health organization, the site, or the department, this recycling stream is a viable option to divert more waste away from landfill and address the issue of glove waste in health care.

Acknowledgements

The Energy and Environmental Sustainability team would like to recognize the support and assistance from Providence Health Care, without which this project could not have succeeded. Specific thank you to the Green+Leader who led this project Jodi Shad, Team Lead Tina Jacobucci, PHC CFO Brian Simmers, and all staff in the Transfusion Medicine Laboratory who made the pilot a success.

Appendices

Appendix 1

Pilot Project Plan

Green+Leader Nitrile and Latex Glove Waste Reduction Project

A. Contact Information	
Department:	Transfusion Medicine Laboratory
Building:	St. Paul's Hospital
Address:	1081 Burrard Street, Vancouver
Project Lead:	Jodi Booth, Green+Leader
Position title:	Medical Laboratory Technologist
E-mail:	jmbooth@providencehealth.bc.ca
Name of Manager / Unit Head:	Tina Jacobucci, Team Lead

B. Project Summary	
Project Name:	Nitrile and Latex Glove Zero Waste Box Pilot Project
Total Funding Requested 2019/20 ($):	$500
Total Project Budget ($):	$2,000
Project Timeline	March 2020 – September 2020 (6 months)

C. Project Description

This pilot project will focus on the reduction of nitrile and latex gloves sent to landfill in the transfusion medicine lab at St. Paul's Hospital.

Project objective:

- Pilot the introduction of Zero Waste Boxes provided by Terra Cycle in order for gloves used by the lab to be recycled as opposed to being put in the garbage

Project Goals:

- Increase the recovery rate at Providence Health Care through the recycling of nitrile and latex gloves otherwise sent to landfill
- Raise awareness of the importance of waste reduction strategies and initiatives at Providence Health Care
- Increase the number of staff interested in waste reduction within the lab overall through their involvement in the Green+Leaders program

Appendix 1 continued

D. Project Need and Outcomes

Gloves are a necessary item that are universal in healthcare, however, are currently garbage after use. Diverting gloves from landfill will contribute to the overall increase in waste diversion rate at St. Paul's Hospital, and therefore Providence Health Care as a whole.

E. Change Statement

By shifting to a Zero Waste Box to recycle gloves, the transfusion medicine lab will be much more aware of the need to reduce waste by seeing something tangible. The lab is a waste intensive department and gloves are used readily. Through a small intervention such as this, we can demonstrate to staff the impact it has and therefore, increase desire, knowledge and ability to continue to foster change across the entire lab at St. Paul's Hospital.

F. Timeline and Milestones

March 2020:

- Purchase Zero Waste Box
- Update staff in the transfusion medicine lab about the Zero Waste Box and train staff to use this for gloves rather than putting gloves in garbage
- Begin using box and monitoring of usage

April 2020:

- Sustainability team invited to team huddle to provide more information about GreenCare and initiatives at PHC
- Project lead to monitor usage of box and purchase remaining boxes as needed (up to 4 boxes budgeted for this pilot)

September 2020:

- Pilot project check-in with sustainability team to evaluate project success to date, learn about challenges, limitations and barriers (if applicable)
- Completion of project debrief report in order to determine sustainability of project going forward
- Initiate phase 2 of project, depending on project success which would involve rolling out initiative to the Anatomical Pathology and Microbiology Lab, where there are additional Green+Leaders to lead the project.

Appendix 1 continued

G. Budget
Total project budget: $2,000, to be spent on purchasing 4 large Zero Waste Boxes, valued at approx.. $500 each. Transfusion Medicine Lab disposes of approx.. 700 individual gloves per week, or, 2800 per month. Each large Zero Waste Box holds up to 3200 gloves. It is estimated that over the course of 6 months, the Lab would go through 4 large boxes. $500 will be spent fiscal 19/20, with the remainder spent fiscal 20/21.

H. Evaluation and Dissemination
Monitoring: - Project Lead will monitor how box is being used by conducting twice monthly spot checks as well as reminding staff about box during team huddles Evaluation: - Number of gloves placed in Zero Waste Box vs the garbage - Overall satisfaction with service with vendor - Staff survey post pilot completion