



Let's Recycle Better, Together.

TARGETING HARD TO
RECOVER WASTE IN HEALTHCARE

WEDNESDAY DECEMBER 1ST 12:00 - 1:30 P.M. EST.



Today's Panelists



Kyle Denison Martin

*Adjunct Assist. Prof. of
Emergency Medicine*

Warren Alpert Medical
School of Brown Univ.

Providence, RI

Glen Goodsell

Recycling Manager

Mayo Clinic

Rochester, MN

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*Sustainability
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Fraser Health, Providence Health Care, PHSA,
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Sonja Janousek

*Environmental
Sustainability Manager*

Margie Wood

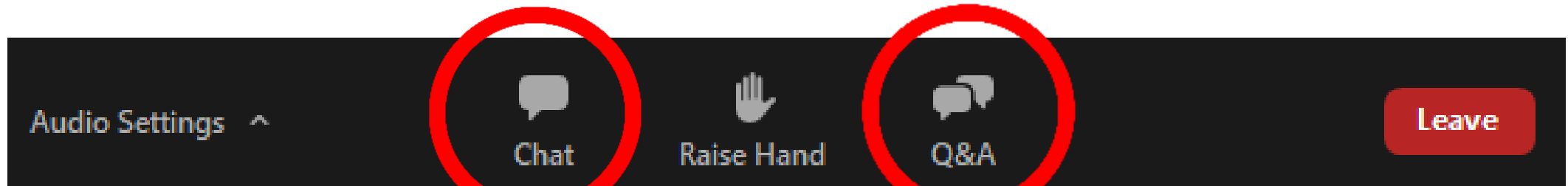
Registered Nurse, CNOR

Centura Health /
Littleton Adventist
Hospital

Denver, CO

Join the Discussion!

From your toolbar:



Share your experience
& opinions

Look for links
to resources

Type direct questions
for panelists

Hard to Recover Waste in HealthCare



Trash Talk: Takeaways from ED Waste Audits at New England Hospitals

Kyle Denison Martin, DO, MPH

December 1st, 2021



Objectives

- **Become familiar with ED waste audits recently conducted at New England Hospitals**
- **Know three takeaways from these audits that can lower costs and reduce environmental impact from ED waste**

Introduction



Kyle Denison Martin, DO, MPH

Core Academic Faculty & Research Director, Emergency Department, Kent Hospital (Warwick, Rhode Island)

Adjunct Assistant Professor of Emergency Medicine, The Warren Alpert Medical School at Brown University



Background

- **Emergency Department (ED) waste audits were conducted at two hospitals in New England**
 - **Kent Hospital:** a suburban community hospital in Rhode Island with 70,000 annual ED visits (January 2020)
 - **Mass General Hospital:** an urban tertiary care hospital in Massachusetts with 110,000 annual ED visits (July 2019)



Background

- **During these audits, all waste was collected from the ED for a 24-hour period**
 - **Regulated Medical Waste (RMW)**
 - Red biohazard bags
 - Sharps containers
 - **Municipal Solid Waste (MSW):**
 - Sorted into hard plastic, soft plastic, paper products, food waste, textiles, glass, metal, electronic waste, and unused items/mixed materials



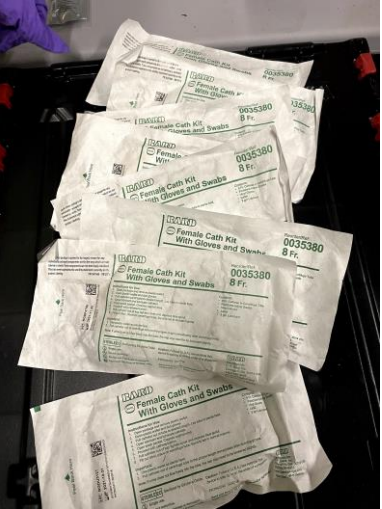
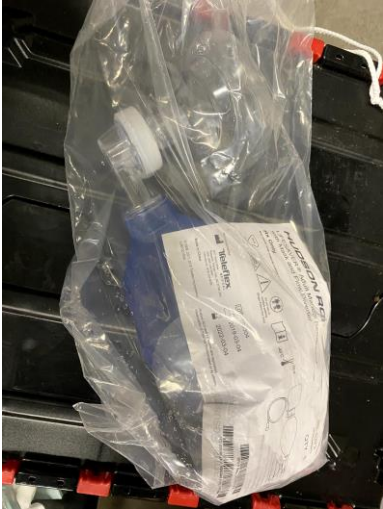
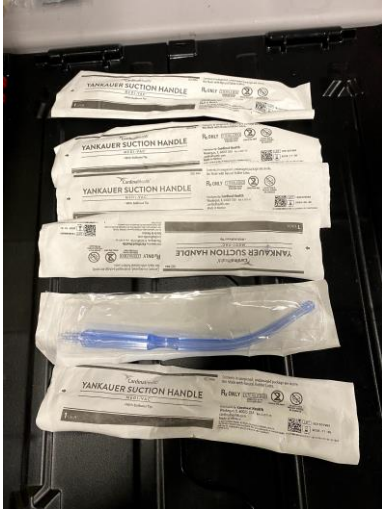
Takeaway #1

- **Inappropriate Disposal of Regulated Medical Waste (RMW) is expensive, inefficient and environmentally impactful**
- While waste generated per patient encounter was similar at Kent and MGH, **estimated carbon emissions with 10 times higher at MGH**
 - This difference was **driven by RMW**
 - **RMW accounted for 70% of carbon emissions at MGH**
 - **Only 15% of waste disposed in RMW containers** (red biohazard bags and sharps bins) at MGH **met criteria for RMW**
- There are specific requirements for the disposal of RMW, which lead to higher costs and a larger environmental impact

Takeaway #2

- **ED waste is filled with unused medical items**
- **Kent:** More than 170 unused items, consisting of **5.2% of overall waste**
- **MGH:** A total of 201 unused items, including 76 bundled and unused tourniquets
- **Unused resuscitation supplies** were common in both audits

Unused Medical Supplies



Unused Medical Supplies

- | | |
|---|---|
| <ul style="list-style-type: none">• 2 unopened boxes of non-sterile gloves• 2 partially finished boxes of non-sterile gloves• 3 unopened sets of sterile gloves• 8 unopened female catheterization kits• 6 unopened <u>yankauer</u> suction handles• 8 unopened suction tubing sets• 1 unopened sterile drape• 2 unopened 4x4 sponges• 4 unused (and folded) adult diapers• 7 unopened urine sample collection kits• 13 unused bedpans• 1 unopened Tegaderm• 1 unopened C-collar• 2 unused bags of IV fluids• 12 unopened normal saline flushes• 3 unopened IV catheters• Multiple unopened food items | <ul style="list-style-type: none">• 75 unused clear <u>ziplock</u> bags• 10 unopened pairs of socks• 1 partially finished box of procedural masks• 2 sterile large cotton swab applicators• 1 sterile solution bowl• 4 unopened electrode sets• 1 unused suction container• 1 unopened <u>ambu-bag</u>• 34 unopened alcohol prep pads• 6 unopened small gauze packets• 6 unopened <u>ChloroPrep</u> swab kits• 1 unopened pill of Lorazepam• 13 unused emesis basins• 2 unopened Iodine prep pads• 6 unused large pink irrigation containers• 26 unused <u>Castille</u> soap towelettes• 1 unused bag of IV antibiotics |
|---|---|

Takeaway #3

- **How and where waste is disposed matters: consider in-house sterilization of re-usable supplies**
- **Many hospitals transport their waste thousands of miles for processing and/or disposal**
- **Consider in-house sterilization**, particularly of **re-usable supplies**
 - Procedure kits
 - Personal Protective Equipment (PPE)



Summary: The Three Takeaways

(1) Inappropriate Disposal of Regulated Medical Waste (RMW) is expensive, inefficient and environmentally impactful

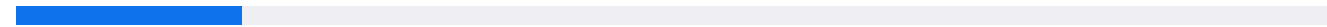
(2) ED waste is filled with unused medical items

(3) How and where waste is disposed matters: consider in-house sterilization of re-usable supplies

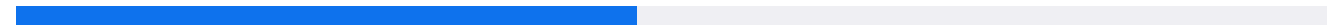
Live Poll #1

1. Where have you had success in reducing waste from clinical settings? Check all that apply. (Multiple Choice) *

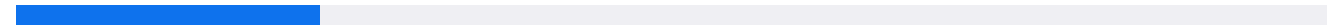
Removing unnecessary supplies from OR packs 17%



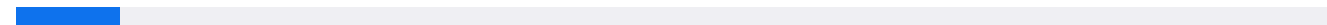
Establishing recycling collection for blue wrap/other packagin... 47%



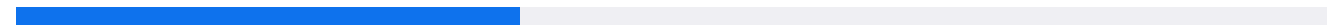
Replacing single use items with reusable/refurbished equival... 23%



Other (share the details in the chat!) 8%



No recent initiatives or noteworthy progress 38%





Mayo Clinic's Recycling Center
and the plastics, we recycle.

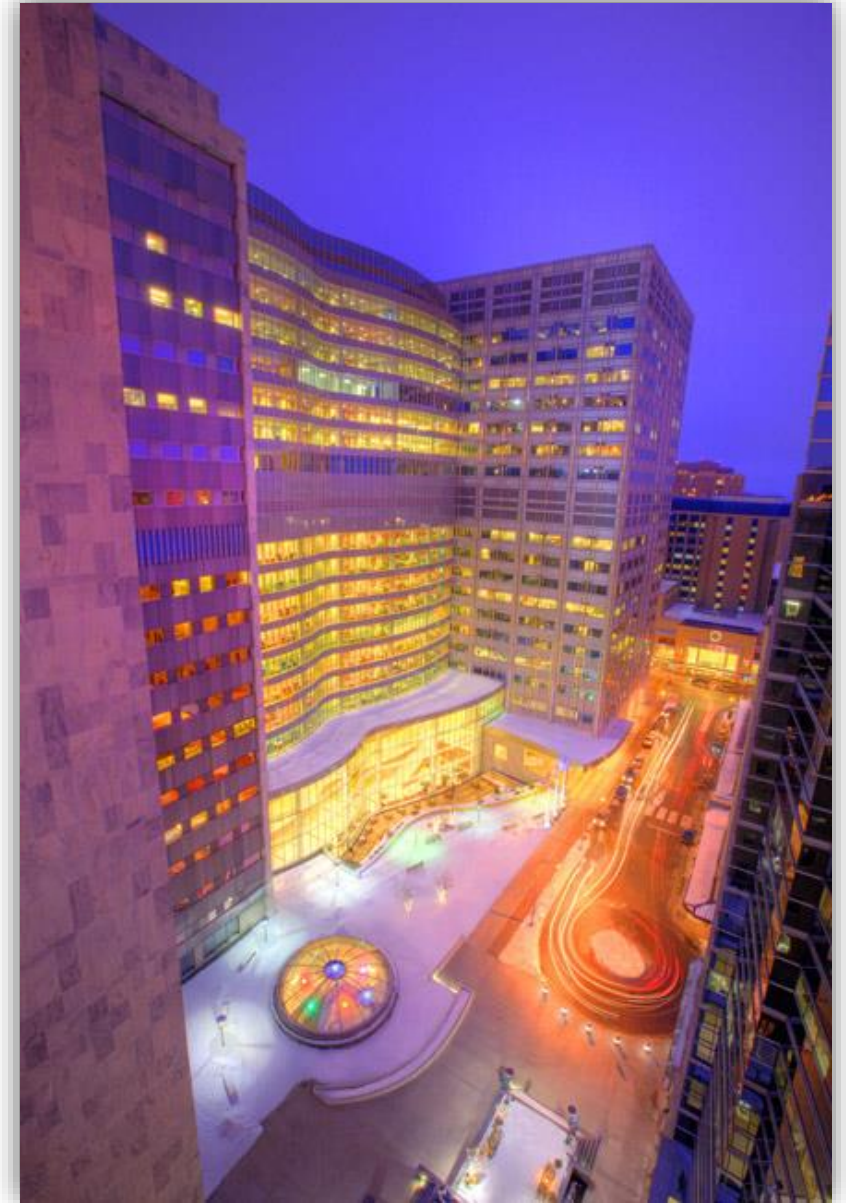
The "Green at Mayo Clinic" logo, featuring a green square icon above the word "Green" in a large, bold, white sans-serif font, with "at Mayo Clinic" in a smaller, white sans-serif font below it.

Green
at Mayo Clinic

Glen Goodsell – Recycling Coordinator

Mayo Clinic in Rochester, MN

- **3 Campuses**
 - **Mayo Clinic (outpatient)**
 - **Mayo Clinic Hospital, Saint Marys**
 - **Mayo Clinic Hospital, Methodist**
- Founded 150 years ago, Mayo Clinic continues to be guided by our patient-first core value and dedication to delivering medical excellence through a team-based approach. This conviction is at the heart of our success and is infused into the three shields in our logomark representing patient care (center), education and research.



Stewardship

*Sustain and re-invest in our mission
and extended communities by wisely managing
our human, natural and material resources.*



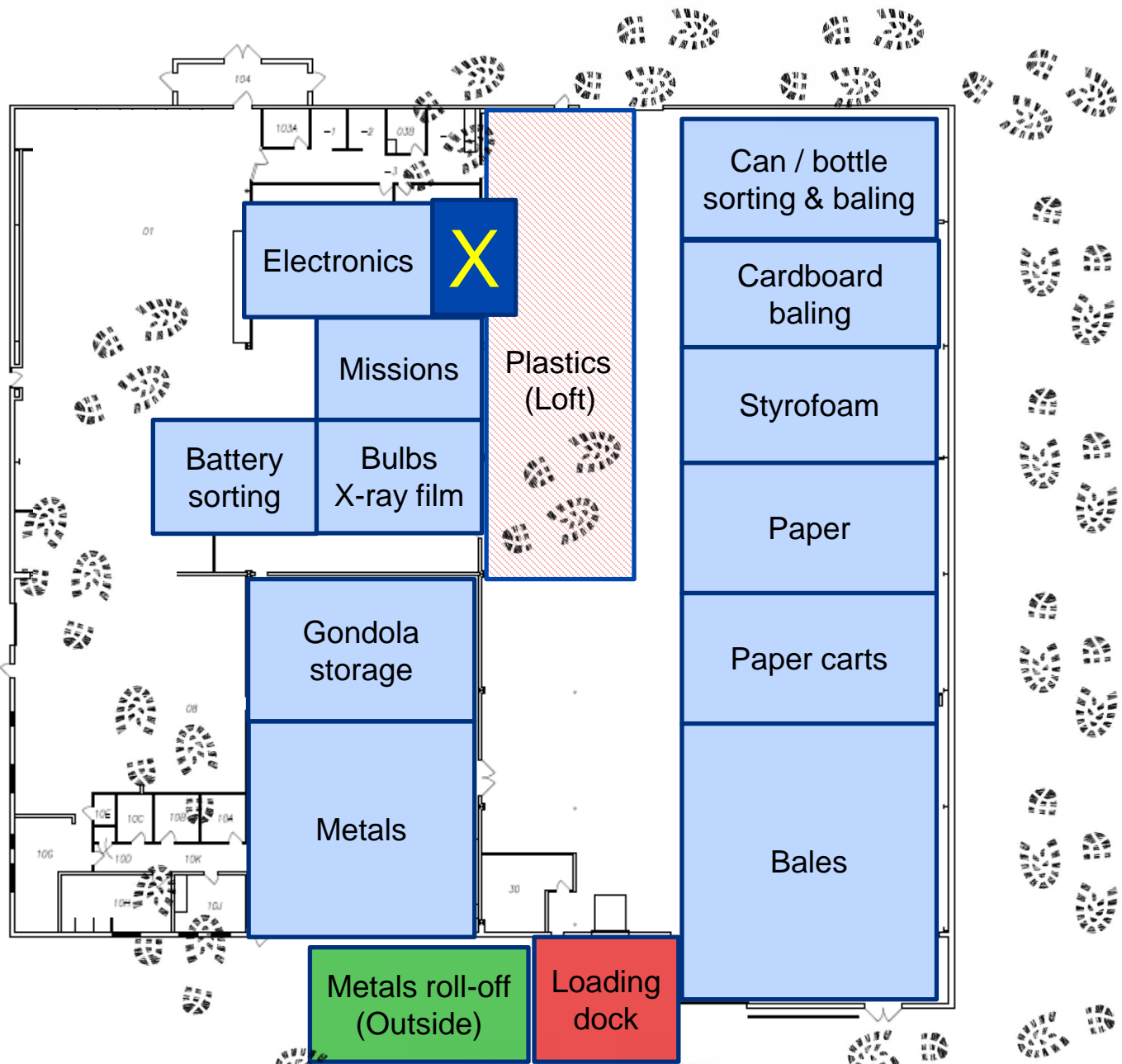
Mayo Clinic Values

Transport

- 50 plus dock stops per day
- 2 full-time night drivers
- 2 full-time day drivers
- 7 Recycling Processors
- Collection routes are for all recyclables
- Expanded polystyrene (EPS)



Recycling Center
26,328 Sq. Ft.



Beverage Containers= consists of #1,#2 and #5 plastic, glass, tin cans and cartons. 2020 we sent 366,818lbs off to be recycled.



Styrofoam cooler unloading



EPS Foam Densifier



EPS Foam – 217,000 lbs last year



Blue Wrap – 67,000 lbs last year



Many trays and bottles are mixed in with the blue wrap from surgery



#1 PET mouse houses



Clear film plastic – 61,500 lbs in 2020





White trays from surgery.



Healthcare Plastics -221,400 lbs last year

Daily Collection

- Healthcare plastics generated in 1 day



Sorted into many categories



Plastic sorting table/shredder



Plastic grinder



Rigid PP Flake Storage



#6 and other ridged plastic





The green bag
– how all the
rigid plastic is
collected.

Examples of
the rigid plastic
recycled at
Mayo.

Sheets of
Surgical blue
wrap are
recycled into
trays to be
used in the
hospitals.

All the Plastic on this blue sheet
is shred and extruded into these
pavers.

Deck board samples
are also made from
Mayo's recycled
plastic.

Feedback to Generators

- Walk through lab /unit
 - Including supply and par stock areas



Feedback to Generators

- Start on the right path from the beginning
 - Meet briefly before start up
 - Gauge staff compliance
- Resources: Program posters, webpage, in-service, Recycling Center tours



Patient Care Plastics Recycling Program

The Mayo Rochester Recycling Program now recycles:

- ✓ Empty hospital water pitchers
 - ✓ Empty sterile water bottles & caps
 - ✓ Plastic syringe cases & caps
 - ✓ And, more...
- Recycling provides a labeled recycling container lined with a green bag for collection
 - Place items listed above in the recycling container
 - When green bag is $\frac{3}{4}$ full please pull it out, securely tie or zip tie, and place for Environmental Services pick up
 - Reline container with a new green bag
 - Green bags – MIC item # 304126



Contacts:

Glen Goodsell, Recycling
Coordinator: 4-1880
Angie Dalenberg, Recycling / Waste
Education Coordinator: 6-2521

Mayo's ongoing environmental management practices.

- Medical supplies and usable equipment are donated to the Rochester Medical Missions Group.
- Energy & water conservation practices are managed by Mayo's facilities management department. We have 3 power generating plants on site that generate most of our heating and cooling needs.
- Greener supply purchases and reusable products are managed by our Supply Chain Management department.
- Mayo's Sustainability person Amanda Holloway coordinates many programs to reduce waste and helps other groups establish programs to minimize waste.
- Medical equipment reprocessing – Medline Industries.
- Mayo's HTM Bio-Med equipment repairs and resales with 3rd party vendors.

Thank You



Live Poll #2

1. How has COVID impacted your waste reduction program? (Check all that apply). (Multiple Choice) *





Healthy people
Healthy planet

Waste Prevention in Health Care

Sonja Janousek

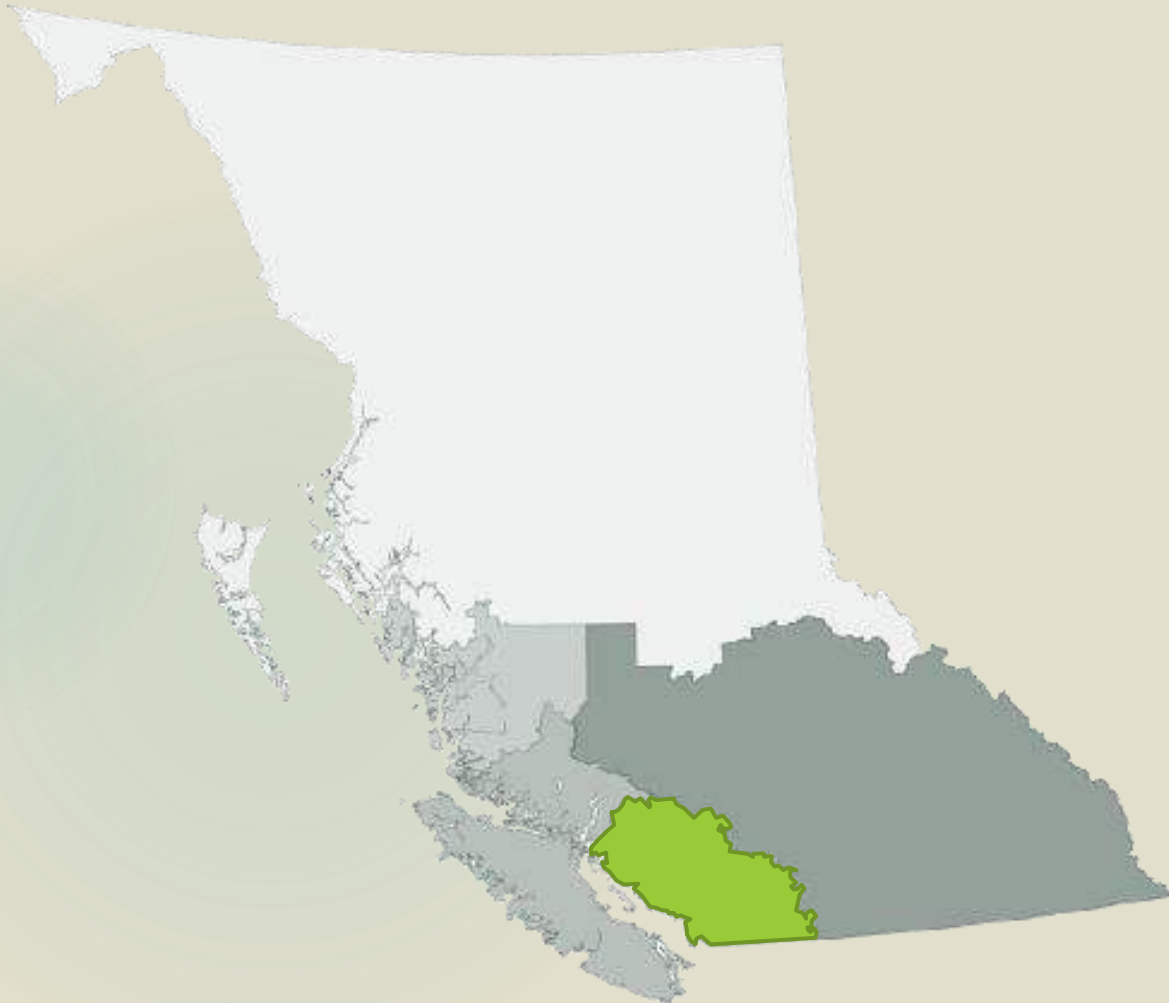
Environmental Sustainability Manager

Marianne Dawson

Sustainability Consultant

Fraser Health;
Providence Health Care;
Provincial Health Services Authority;
Vancouver Coastal Health

Our team works for B.C. health organizations in the Metro Vancouver area



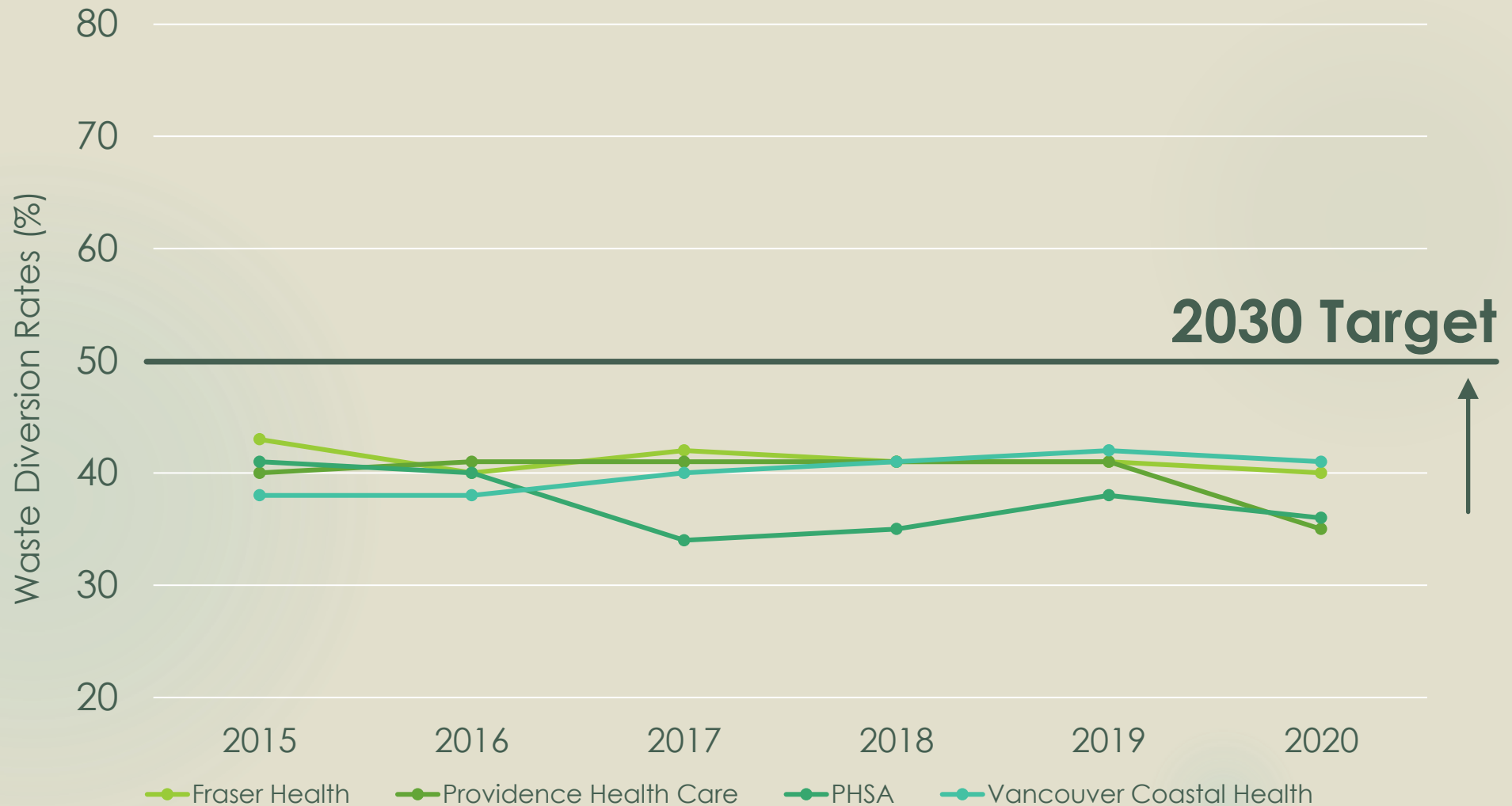
- ▶ **24** hospitals
- ▶ Long-term care
- ▶ Cancer centres

Plan for our time together

- ▶ Why is this important for health care?
- ▶ **Case Study 1:** Eliminating unused product components
- ▶ **Case Study 2:** Reformulating surgical packs
- ▶ Exciting things on the horizon

Why is waste prevention important?

Recycling rates have plateaued



Why is waste prevention important?

Waste in health care is tricky



Global recycling markets are shrinking



Provincial recycling industry limitations



Use of plastics in delivery of care

Case Study 1: Eliminating unused product components



PROBLEM

Gradient bags in sitz basin packages were not being used

JOURNEY

- A **Product Concern** was completed by Maternity RNs and Patient Safety Quality Lead to inform the manufacturers of product issues
- An in-depth investigation led to an agreement to offer the product without the gradient bag and tubing

RESULTS

- Manufacturer supported the team's concern and are now offering the sitz basin **without the gradient bag**
- Expected savings include: **287 kg** of plastic waste and **17.3%** cost

Case Study 2: Reformulating surgical packs



PROBLEM

Surgical packs are large sources of unnecessary waste

JOURNEY

- Our team shared sustainability considerations with the committee procuring **surgical packs**
- One key opportunity was to **remove the disposable gown** automatically included in the pack, as most of our sites already use reusable gowns

RESULTS SO FAR

- A **5% weighting** for environmental sustainability questions added
- **Collaboration** with the support services team procuring reusable gowns to create a larger gown strategy

Exciting things on the horizon

- ▶ Sustainability committee within our provincial Supply Chain team
- ▶ Increasing interest and sponsorship from our health authority executives
- ▶ B.C. government adding circular economy to their 2030 strategic roadmap to net zero emissions



Learn more on our website: bcgreencare.ca

Thank You!

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Margie Wood RN, CNOR

Operating Room Nurse & Chair
of Sustainability Team

Littleton Adventist Hospital
Littleton, CO



Volunteers help us reuse some of our Blue Wrap while helping the homeless in Denver



Reusable Caskets have replaced much of our Blue Wrap



Gently used batteries saved & given away to visitors, staff, & Santa Shop



Battery Education Booth at Earth Day Celebration



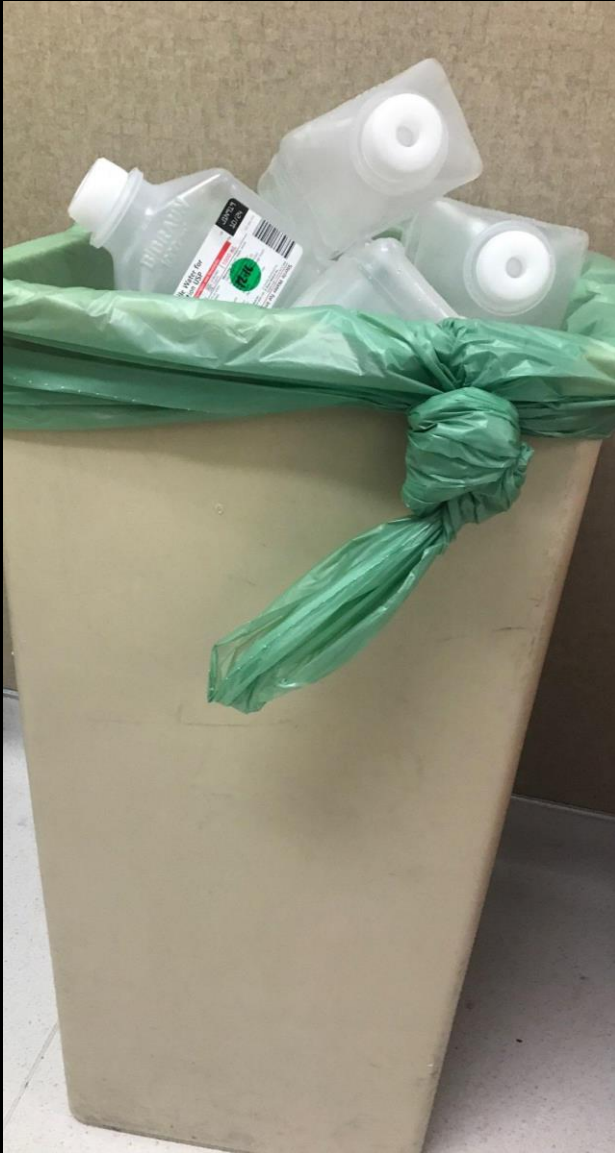
Unneeded & Expired items & equipment donated to Project C.U.R.E.



Recipient of the **LAH Wal*e Sustainability Award**

More Sustainable Activities in the OR

- * Expired IV Fluids and items saved for nursing schools
- * Betadine saved for Animal Rescues and Vets
- * Disposable instruments sterilized and passed out at Earth Day Celebration
- * Cardstock from daily autoclave checks used for notecards



Empty water & NS bottles
taken to Recycling Dumpster by
OR staff volunteers

Used single-use items sent
for reprocessing & reuse:
ie. surgical tourniquets,
SCD sleeves, trocars, pulse
oximeters



Our Panel



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Online Resources

Program Resources

- Download presentation slides
- Recording
- Links to speaker resources
- Responses to Q&A

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Blog Series



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