SUSQI PROJECT REPORT

Project Title: Bring your own blanket and bottle (BYOBB): A waste reduction initiative in outpatient hemodialysis units

Start date of Project: May 2, 2025
Date of Report: August 18, 2025

Team Members:

- Dr. Bhavneet Kahlon – Nephrologist (bhavneet.kahlon@ahs.ca)
- Arooj Nazir – Quality & Process Improvement Consultant (arooj.nazir@ahs.ca)
- Jelena Poprzen – Clinical Quality Improvement Consultant
- Monica Veness – Clinical Quality Improvement Consultant
- Claire Barber – Associate Vice Chair Planetary Health for the Department of Medicine
- Kiran Dhiman – Research Coordinator & Precision Health Student
- Anuk Ghimire - Nephrologist

Background:

Research shows that healthcare contributes significantly to environmental degradation, accounting for approximately 5% of the greenhouse gas (GHG) released annually in Canada (Or & Seppänen, 2024) (1). This includes both direct and indirect emissions from hospital energy use, as well as emissions associated with the production, transportation, and disposal of disposable medical supplies, pharmaceuticals, and equipment, which collectively represent the highest contributors to healthcare-related emissions (Rodríguez-Jiménez et al., 2023) (2). Simple behavioral interventions such as the reduction of single-use items and the adoption of reusables can have measurable impact (Keil et al., 2023) (3), as single use disposable items carry significant environmental impact due to manufacturing and subsequent disposal (McGain & McAlister, 2023) (4).

Outpatient hemodialysis (HD) units use significant amounts of single-use items, including disposable plastic supplies (cups, lids, straws & spoons), and energy and water usage due to laundering facility provided blankets. The BYOBB initiative was developed to address these issues by promoting sustainability and energy/water use reduction through patient participation. Patients are encouraged to bring their own reusable water bottles and personal blankets to dialysis sessions. This aligns with environmental priorities in healthcare and supports operational cost efficiency.

The initiative draws on learnings from two sustainability pilots. First, the Day Surgery "Bring Your Own Bag and Bottle" program at Peter Lougheed Centre (PLC), Calgary within Alberta Health Services (AHS), which reduced single-use plastics by promoting patients bringing their own

reusable water bottles and bags for personal belongings. Second, a water and waste reduction initiative at the Renal Unit of Royal Devon & Exeter National Health Service (NHS) Foundation Trust in the United Kingdom, highlighted in the Green Ward Competition 2018 (5). This initiative implemented multiple improvements, including encouraging patients to bring their own blankets.

Given that hemodialysis (HD) patients spend multiple hours per session, multiple times per week, they are ideal participants for a high-impact change.

The project will be launched at the Sunridge Hemodialysis Unit (NEHD), with the potential to expand to other hemodialysis clinics/sites. While there are several other dialysis units operating in Calgary, this unit was chosen for two important reasons. The first was that this unit does not include inpatients, who while admitted to hospital would have limited ability to bring their own bottles/blankets from home. Second, this clinic has a large patient volume which would lead to more uptake and potential success of the intervention.

Specific Aims:

This initiative aims to reduce the environmental impact and financial costs associated with the procurement, laundering, and waste management of clinic supplies, while promoting patient autonomy and sustainable healthcare practices. Specifically, it seeks to reduce the use of single-use plastic items (including cups, straws, lids, and spoons) and facility blanket laundering by 50% within 6 months ideally through patient participation in bringing reusable water bottles and personal blankets.

Methods:

IMPLEMENTATION Summary: (Changes made and timeframe)
The project progressed through several stages, beginning with initial opportunity identification and resource planning in early May. Between May 12 and June 5, the team conducted key stakeholder consultations.

STAKEHOLDERS ENGAGEMENT STRATEGY:
The team engaged the following key stakeholders:

Infection Prevention and Control (IPC): The initiative involves the introduction of patient-owned items (blankets and water bottles) into the clinical environment. IPC conducted a risk assessment and provided hygiene and compliance guidelines to mitigate infection-related concerns. This involvement was critical due to the impact on the patient environment and potential cross-contamination. In June, IPC provided a comprehensive risk mitigation plan, allowing the project to proceed with infection control precautions in place.

Contracting, Procurement and Supply Management (CPSM): Provided item-level cost and material data for disposable supplies such as plastic cups, lids, straws, and spoons. Their input was necessary for baseline cost analysis, financial projections, and supporting carbon footprinting calculations. CPSM was contacted in May to initiate data gathering for disposable items. Following the Gemba walk, detailed product information including photos and

materials was submitted to facilitate cost and sustainability calculations.

Nutrition, Food, Linen & Environmental Services (NFLES): was engaged in mid-May to provide blanket laundering cost estimates and information regarding the blankets to support cost analysis.

Operations and Site Staff:
Involved in process mapping, validating current workflows, identifying intervention points, and facilitating manual data collection of baseline information used to project future savings.

- Operations and Site Staff: supported process mapping efforts, identified gaps in workflow understanding, and participated in the July 16 Gemba walk. Their feedback also helped shape the manual tracking tools and poster placement strategy (if needed).

- Centre for Sustainable healthcare (CSH): CSH was engaged to support the environmental sustainability evaluation of the project, specifically carbon footprinting

- The carbon footprinting meeting was held on May 28 with CSH analyst. After additional site-level data was collected through the Gemba walk, all required activity data and material details were emailed to the analyst for calculation.

STUDYING THE SYSTEM:
PROCESS MAPPING:
On May 26, process mapping was conducted to analyze clinic workflows. This revealed several gaps in understanding, particularly around:

- Blanket distribution procedures
- Usage of disposable supplies

To address these gaps, a Gemba walk was recommended to observe operations directly and gather more contextual insights. However, this next step required operational approval before it could proceed. This approval became the first barrier and delayed progress until July 3, when support was secured through continued engagement with operations leads and clear communication of the benefits for sustainability. The Gemba walk was then conducted on July 16, allowing site-specific observation, manual data collection, and staff engagement, which informed cost confirmation and next-stage implementation planning.

GEMBA WALK DETAILS:

- Gemba walk was carried out on July 16 at the Sunridge Hemodialysis Unit (NEHD). The unit operates six days a week with 15 stations, serving approximately 45 primarily older people daily, many of whom rely on public transit.
- Patients typically receive 2 warmed blankets per session, with about 90 used daily and laundered offsite.
- Around half of the patients request ice during treatment, using disposable cups, straws,

and spoons that are discarded after use and collected three times daily.

- Staff are supportive of initiatives like project awareness posters and BYOBB, though feasibility concerns remain due to patient barriers such as mobility and storage.
- Hemodialysis schedules are given weekly, and while no patients currently bring their own bottles, some do bring coffee.
- Process map, clinic layout and pictures were documented (Appendix A, B, and C).
- A manual tracking sheet for collecting baseline data about plastic cups, lids, straws and spoons and blankets was created.
- Manual collection process developed in consultation with the Operations staff.
- Conduct manual tracking and analyze manual tracking data and finalize product cost info (late July–early August).
- Complete carbon footprinting calculations with CSH (August).

BARRIERS ENCOUNTERED:
The first barrier, as noted above, was operational approval which was required before proceeding. This requirement delayed progress until approval was secured.

Another barrier occurred when CPSM did not provide cost estimates for disposable items while the report was being finalized. This limited the ability to complete cost validation as expected and required adjustments to the reporting process.

A potential barrier, identified through site staff feedback, is that personal blanket use is limited due to the lack of secure storage. In addition, some older patients who rely on transit may not be open to bringing their own blankets, which could create further challenges for implementation.

CONSIDERATIONS:
Many patients in this dialysis unit are elderly and use public transit, limiting their ability to carry personal items. Recognizing equity concerns, particularly for elderly patients or those relying on public transit, the clinic will continue to offer blankets and water/ice to ensure that care and comfort are not compromised. This initiative is entirely optional and aims to empower those who are able and willing to participate without affecting others.

Next Planned Steps: to be finalized in the fall following further consultation with the operations team and Leadership.

- Develop patient education materials, signage and patient facing communication (posters, staff messaging) that highlight the comfort and personalization benefits of the project, alongside sustainability goals.
- Staff education/orientation and plan phased roll-out.
- Monitor and evaluate uptake, with review.

RESOURCES REQUIRED:

- Staff Time: For data collection during sessions (blankets, cups, spoons, straws) using simple tracking tools.
- Tracking tools: Manual tracking check sheets for blanket and disposable items use

- Communication Materials: Education posters around the clinic, patient handouts, and reinforcement strategies to highlight both environmental and personalization benefits along with staff education to promote awareness and consistency.
- No direct financial investment was required from the unit. All cost data was gathered through existing stakeholders and consultations.

Measurement:

PATIENT OUTCOMES:

The initiative is not expected to change clinical outcomes directly. However, it may enhance patient care by promoting autonomy and patient engagement. Allowing patients to bring their own blankets and bottles may support personalized comfort during treatment sessions. Patients generally are more comfortable when care is tailored to their individual needs, delivered in well-maintained environment, and when their preferences for personal space are respected (Wensley et al., 2017) (6). This can be emphasized during implementation to encourage participation.

To assess the impact on patient comfort and engagement, a post-implementation approach for collecting feedback will be explored in collaboration with Operations. Through these discussions, it will be decided how best to engage patients, for example, by conducting a survey. Such a survey would assess:

- Comfort and satisfaction with bringing personal items
- Perceived convenience and feasibility
- Overall support for sustainable practices in the clinic

Results from this survey can help evaluate the acceptability and effectiveness of the initiative from the patient perspective and inform future scale-up efforts.

ENVIRONMENTAL SUSTAINABILITY:

This section covers the environmental impact of single-use supplies (cups, straws, lids, and spoons) and facility blanket laundering. For this, calculations focus on carbon footprint of single-use cups for now. Impacts from patient owned blanket and bottles are excluded as are upstream manufacturing emissions for those personal items.

Carbon Footprinting:

Carbon footprinting measures the total climate impact of a product, process, or organization by calculating greenhouse gas emissions (in CO_2e). It covers both direct and indirect emissions from seven greenhouse gases, using global warming potential to standardize results. It helps identify environmental impact, guide emission reduction strategies, and support sustainable decision-making (Kalogianni et al., 2023) (7).

A carbon footprinting planning meeting was held with the Centre for Sustainable Healthcare (CSH) analyst on May 28, during which the bottom-up (activity-based) and top-down (cost-based) approaches were discussed. Following the Gemba walk on July 16, site-specific activity data (e.g., blanket usage, single-use products consumption) and detailed material specifications were shared with CSH to enable precise environmental impact analysis.

BLANKETS:
The GHG emissions associated with the hospital-provided blankets were excluded, as it was assumed they would have a similar carbon footprint to blankets patients would bring from home. Likewise, emissions from patients washing their own blankets at home were excluded, under the assumption that blankets would be added to existing laundry loads and would not require an additional wash.

Avoided laundering emissions at the hospital facility were estimated using a bottom-up, process-based approach. It was assumed that blankets are usually transported to and from a laundering facility located 0.2 km from the hospital. Transport emissions were estimated using the 2025 U.S. EPS emission factor (GHG Emission Factors Hub, 2025) (8) for a "medium heavy-duty truck." Emissions from energy, water, and detergent use during laundering were based on raw data on hospital laundry utilities (Rizan et al., 2022) (9). Due to the lack of Alberta-specific data, it was assumed that laundering resource use in the UK was comparable to that in Alberta. The UK-based utility data were converted into GHG emissions using 2025 Canadian emission factors (Emission factors and reference values, 2025) (10) (11), allowing for adjustment to the local context.

CUPS:
The GHG emissions associated with each of the three single-use cups were estimated using a bottom-up, process-based approach. Based on data from a previous CSH project, it was assumed that each cup consisted of 94% paperboard and 6% general polyethylene. Each cup was weighed, and the mass was apportioned according to its material composition. Material emission factors were obtained from the ICE database and the Department for Energy Security and Net Zero (DESNZ) 2025 database.

For transport emissions, manufacturing information indicated that two of the cups were produced in China, transported by sea freight to the Port of Vancouver, and then delivered to the hospital by road, although one of these cups was routed via Milton. The third cup was assumed to be manufactured in Darlington (USA) and transported to the hospital entirely by road. Road transport emissions were estimated using the 2025 U.S. EPA (GHG Emission Factors Hub, 2025) (8) emission factor for a "medium heavy-duty truck, and the emission factor for a container ship was taken from the UK DESNZ 2025 database.

Total CO2e savings have been translated into the equivalent of kilometres driven using an emission factor of 0.259 kgCO2e/km for an average passenger vehicle calculated from the 2024 Canadian vehicles database, Natural Resource Canada. (16)

ECONOMIC SUSTAINABILITY:

Blanket laundering costs were obtained from Linen Services (NFLES). This cost includes laundering, delivery, and handling, and is averaged provincially as part of Alberta Health Services' central linen contract.

Replacement costs for blankets are not tracked at the unit level, as blanket inventory and lifecycle management are managed centrally under the provincial linen agreement. Therefore, potential savings from reduced wear-and-tear or fewer replacement cycles were not directly measurable.

To understand potential financial implications, baseline usage data were collected over a two-week period (July 21–August 2, 2025).

Plastic cups, straws, lids, and spoons pricing and product specifications were requested from Contracting, Procurement & Supply Management (CPSM). As cost information from CPSM was not

available during the reporting period, market pricing from multiple suppliers (Amazon (n.d) (12), Uline (n.d) (13), FoodServiceDirect (n.d) (14), Uline (n.d) (15)) was used to estimate unit costs for disposable cups and spoons. Blanket laundering costs were obtained from NFLES and include laundering, delivery, and handling.

These baseline data provide the foundation for projecting potential savings from reduced single-use and blanket utilization following implementation of the initiative. At this stage, no additional investment costs have been incurred or are anticipated.

SOCIAL SUSTAINABILITY:

Encouraging patients to bring their own blankets and reusable bottles fosters a sense of autonomy and comfort. Patients may feel more in control of their environment and care experience, which can enhance engagement and satisfaction.

While the initiative aims to reduce operational burden (e.g., managing linens and distributing cups), staff involvement in manual tracking and patient education introduces temporary increases in workload during the data collection and implementation phase.

Based on observations during the Gemba walk, staff noted that a good amount of time is spent fulfilling repetitive supply requests:

- *"Some patients can ask for 4–6 cups of water/ice over one dialysis session"*
- *"Each time a patient requests a blanket, staff walks all the way to the warmer from the station to retrieve it."*

These tasks take time away from other clinical responsibilities and contribute to physical fatigue, especially during high-volume shifts. Long-term, this initiative could reduce this time and motion burden by minimizing the volume of supplies that need to be retrieved and replaced per patient.

The project has the potential to foster patient engagement with green initiatives. This can promote a sense of autonomy and participation in environmental health, which may positively influence patient experience and satisfaction, and potentially broader lifestyle behaviours supportive of population wellness.

However, many patients attending the dialysis clinic are elderly or have mobility limitations and rely on public transit. This presents a potential barrier to participation, as bringing additional items like blankets or bottles may be physically burdensome. The site will continue offering clinic-provided blankets and water to ensure equitable access and inclusion.

No formal qualitative or quantitative data (e.g., patient surveys, staff satisfaction) has yet been collected to evaluate social outcomes. However, based on observations during the Gemba walk and informal staff conversations, initial feedback has been generally positive. Site staff expressed support for the idea, though some concerns were raised about feasibility and patient participation. These concerns will be addressed during the implementation planning phase. A formal post-implementation evaluation, including a patient survey and staff feedback, can be planned to assess satisfaction, participation barriers, and overall experience.

Results:

BASELINE USAGE DATA:

To understand the impact, two weeks of baseline data were collected on the use of single-use disposables (cups, straws, spoons) and warmed blankets in the HD unit. It should be noted that the blankets are warmed in the warmer. The energy consumption and associated economic and environmental impacts of warming blankets were not included in the calculations presented in this report. This factor should be considered in future assessments for a more comprehensive analysis.

This baseline data was collected by the site staff after Gemba walk, using tracking sheets provided. This data provides a comparator to assess change after implementation of the initiative and is valuable for projecting potential future savings.

Obtained baseline data has been used to project environmental and economic savings of the initiative considering the aim of the project 50% of sessions having patients bringing their own cups and blankets.

Table 1 Baseline usage data of single use items and blankets (21-Jul-2025 to 2-Aug-2025)

ITEM	Week 1	Week 2	Total	Average per patient treatment
Blankets	460	431	891	1.74
Cups	106	94	200	0.39
Spoons	61	54	115	0.22
Straws	0	0	0	0
Patient treatments recorded	254	257	511	-

PATIENT OUTCOMES:

The project is not expected to directly alter clinical health outcomes. However, the impact on patient experience may be assessed following implementation, pending confirmation from the operations team. One potential method of evaluation is a patient survey, as identified in the measurement section. If implemented, the survey results will be analysed to understand any changes in patient experience or satisfaction related to the proposed changes.

ENVIRONMENTAL SUSTAINABILITY:

The CSH analyst helped us calculate and estimate the greenhouse gas (GHG) emissions associated with the laundering of reusable blankets and single-use items used in the clinic.

BLANKETS:

Utilizing an average weight of a blanket 0.76kg and using the method identified above, the greenhouse gas emissions from laundering one blanket is 0.3401 $kgCO_2e$.

Based on clinic baseline data, an estimated 1929 blankets are laundered monthly, resulting in 656.059 $kgCO_2e$ of emissions per month and 7,872.72 $kgCO_2e$ annually. If blanket usage is reduced by 50%, projected emissions would decrease to 328.029 $kgCO_2e$ per month and 3,936.36 $kgCO_2e$ annually, yielding a total annual savings of 3,936.36 $kgCO_2e$.

CUPS:
Three types of single-use cups were considered: green plastic, coffee cup design, and bistro design based on observations during the Gemba walk, which revealed that the unit uses all three kinds.

The average carbon footprint per single-use cup was calculated to be 0.014 $kgCO_2e$. Based on clinic data, an estimated 433 cups are used monthly, resulting in 6.062 $kgCO_2e$ of emissions per month and 72.744 $kgCO_2e$ annually.

If cup usage is reduced by 50%, projected emissions would decrease to 3.031 $kgCO_2e$ per month and 36.372 $kgCO_2e$ annually, yielding a total annual savings of 36.372 $kgCO_2e$.

Item	Annual Emissions (Baseline)	Annual Emissions (50% Reduction)	Annual Savings ($kgCO_2e$)
Blankets	7,872.72 $kgCO_2e$	3,936.36 $kgCO_2e$	3,936.36 $kgCO_2e$
Cups	72.744 $kgCO_2e$	36.372 $kgCO_2e$	36.372 $kgCO_2e$
Total	7,945.464 $kgCO_2e$	3,972.732 $kgCO_2e$	3,972.732 $kgCO_2e$

This means a total annual carbon emission savings of 3,972.73 $kgCO_2e$ if blanket and cup usage are both reduced by 50% as proposed. This reduction is equivalent to 15,339 km driven in a standard vehicle. Carbon emissions for straws and spoons were not included in this analysis.

ECONOMIC SUSTAINABILITY:

On average, the HD unit used 100 disposable cups, 57.5 disposable spoons, and 445.5 warmed blankets per week. Projected annually, this equates to approximately 23,148 blankets, 5,200 cups, and 2,988 spoons.

Using the baseline data and estimated costs, cumulative current annual cost for supplies used were estimated to approximately $30,000.

If patient participation reduces single-use item and blanket use by 50%, the HD unit could save an estimated $15,000 annually.

In addition to direct financial savings, reduced procurement lowers waste management costs, and staff workload for supply distribution associated with single-use product lifecycle and linen laundering. These cost efficiencies support long-term system sustainability goals.

SOCIAL SUSTAINABILITY:

Although no formal qualitative or quantitative survey data have yet been collected, insights were gained through the Gemba walk and informal conversations with staff and patients. Staff noted practical aspects of the current workflow, such as needing to walk from the station to the blanket warmer when a patient requests a blanket. While not explicitly raised as a major concern, this process could increase time and motion demands, especially during busy periods.

A potential challenge is that many patients are elderly or rely on public transit, which can make carrying personal blankets or bottles burdensome. To ensure equity, the unit will continue to provide necessary supplies, so participation remains voluntary and does not disadvantage those unable to bring their own.

Pending operational approval, the team is considering a short patient and staff feedback survey post-implementation. This would help capture perceptions of feasibility, workload, and satisfaction, ensuring any concerns are addressed early in the project.

Discussion:

Initial operations and stakeholder meetings revealed uncovered gaps in understanding the clinical processes and how supplies are managed. Gemba walk was scheduled to assess the workflow and support process mapping helped. Several barriers were identified during this phase, including:

- Managing supplies at the site because of storage space limitations. The linens are also delivered every day.
- Patient requirements or preferences (ice preferred over water)
- Extra workload for staff due to data collection.

After consulting with IPC, they responded positively, and a plan to measure the project's environmental impact (carbon footprinting) has been made.

IPC and CPSM were engaged early to make sure that the project is in compliance with infection control measures and to gather the right purchasing and environmental data to measure impact. These partnerships helped strengthen the feasibility of the project.

A key lesson learned was the importance of securing operational support early in the project timeline. Delays in obtaining approvals, such as for the Gemba walk, were partly due to a short competition timeframe and competing operational priorities. Earlier alignment with operational leaders may have helped mitigate these delays.

This project has broad relevance for other HD sites, as other outpatient HD units across AHS typically follow similar workflows (patients attend multiple times per week, stay for several hours, and often receive warmed blankets and water/ice). This makes this project easy to adapt across locations with minimal changes and supports sustainability and patient-centered care. Next steps include completion of baseline data collection, operations engagement to discuss implementation plan.

Conclusions:

BYOBB is a promising, low-cost initiative that enhances sustainability, reduces operational cost, and engages patients in their care. With support from operations and IPC, and a clear plan for implementation and evaluation, this initiative is well-positioned for success and scalability.

Acknowledgement:

We gratefully acknowledge the support of the Operational team and the clinical staff at the HD unit, whose collaboration made this project possible. Their assistance with the Gemba walk, baseline data collection, and workflow insights was invaluable in shaping the initiative.

References and Resources

REFERENCE:

1. Or, Z., & Seppänen, A. V. (2024). The role of the health sector in tackling climate change: A narrative review. *Health Policy*, *143*, 105053. https://doi.org/10.1016/j.healthpol.2024.105053

2. Rodríguez-Jiménez, L., Romero-Martín, M., Spruell, T., Steley, Z., & Gómez-Salgado, J. (2023). The carbon footprint of healthcare settings: a systematic review. *Journal of advanced nursing*, *79*(8), 2830-2844. https://doi.org/10.1111/jan.15671

3. Keil, M., Viere, T., Helms, K., & Rogowski, W. (2023). The impact of switching from single-use to reusable healthcare products: a transparency checklist and systematic review of life-cycle assessments. *European journal of public health*, *33*(1), 56–63. https://doi.org/10.1093/eurpub/ckac174

4. McGain, F., & McAlister, S. (2023). Reusable versus single-use ICU equipment: what's the environmental footprint?. *Intensive Care Medicine*, *49*(12), 1523-1525. https://doi.org/10.1007/s00134-023-07256-9

5. Whittaker, B. (2024, May 13). Water and Waste Reduction on a Renal Unit | Sustainable Healthcare Networks Hub. https://networks.sustainablehealthcare.org.uk/resources/water-and-waste-reduction-renal-unit

6. Wensley, C., Botti, M., McKillop, A., & Merry, A. F. (2017). A framework of comfort for practice: An integrative review identifying the multiple influences on patients' experience of comfort in healthcare settings. International Journal for Quality in Health Care, 29(2), 151-162. https://doi.org/10.1093/intqhc/mzw158

7. Kalogianni, A., Bacou, C., Maier, C. B., & Aiken, L. H. (2023). Sustainable healthcare: A concept analysis. *Journal of Advanced Nursing, 79*(9), 2969–2981. https://doi.org/10.1111/jan.15671

8. U.S EPA emission factor. (n.d.). https://www.epa.gov/climateleadership/ghg-emission-factors-hub

9. Rizan, C., Lillywhite, R., Reed, M., & Bhutta, M. F. (2023). The carbon footprint of products used in five common surgical operations: identifying contributing products and

processes. *Journal of the Royal Society of Medicine*, *116*(6), 199-213. https://doi.org/10.1177/01410768231166135

10. 2025 Canadian emission factors. (n.d.). https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/federal-greenhouse-gas-offset-system/emission-factors-reference-values.html

11. UK Government Greenhouse Gas Conversion Factor https://www.epa.gov/climateleadership/ghg-emission-factors-hub

12. Amazon (n.d). Dixie to Go Cups, 12 Ounce, 176 Count: Amazon.ca: Health & Personal Care. https://www.amazon.ca/dp/B06XCLBWWR/ref=sspa_dk_detail_0?psc=1&pd_rd_i=B06XCLBWWR&pd_rd_w=DNMKX&content-id=amzn1.sym.516c2169-755e-413a-a38a-68230f4ab66f&pf_rd_p=516c2169-755e-413a-a38a-68230f4ab66f&pf_rd_r=DJ73BCQMCMXYSB2SDJWJ&pd_rd_wg=XXUF4&pd_rd_r=8cc19664-6b5a-476f-85e9-309b98afb6b3&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWw

13. Uline (n.d). PerfecTouch® Cups - 8 oz S-12962 - Uline. https://www.uline.ca/Product/Detail/S-12962/Cups/PerfecTouch-Cups-8-oz?pricode=YE436&gadtype=pla&id=S-12962&gad_source=4&gad_campaignid=21835651666&gclid=Cj0KCQjwwZDFBhCpARIsAB95qO2X52h87AGVm3wuwt-FU25hb7aVMatr-26UwlAx3G9ZgFFZZhq5Ld0aAu2uEALw_wcB

14. FoodServiceDirect (n.d). CUP PAPER HOT BEVERAGE IDEAL FEEL 12OZ. https://foodservicedirect.ca/cup-paper-hot-beverage-ideal-feel-12oz-346010.html?gad_source=4&gad_campaignid=22085243439&gclid=Cj0KCQjwwZDFBhCpARIsAB95qO2dwxH5-YNjg5tdcf5MopW3JkKsyUE_jG0Vp4t-MySeMK4QT1NLflAaAtKMEALw_wcB

15. Uline (n.d). Uline Plastic Spoons Bulk Pack - Heavyweight, White S-15785W - Uline. Uline Plastic Spoons Bulk Pack - Heavyweight, White S-15785W - Uline

16. Fuel consumption ratings search tool (nrcan-rncan.gc.ca)

Appendices

Appendix A: Process Map – Blanket and single-use disposables usage workflow.

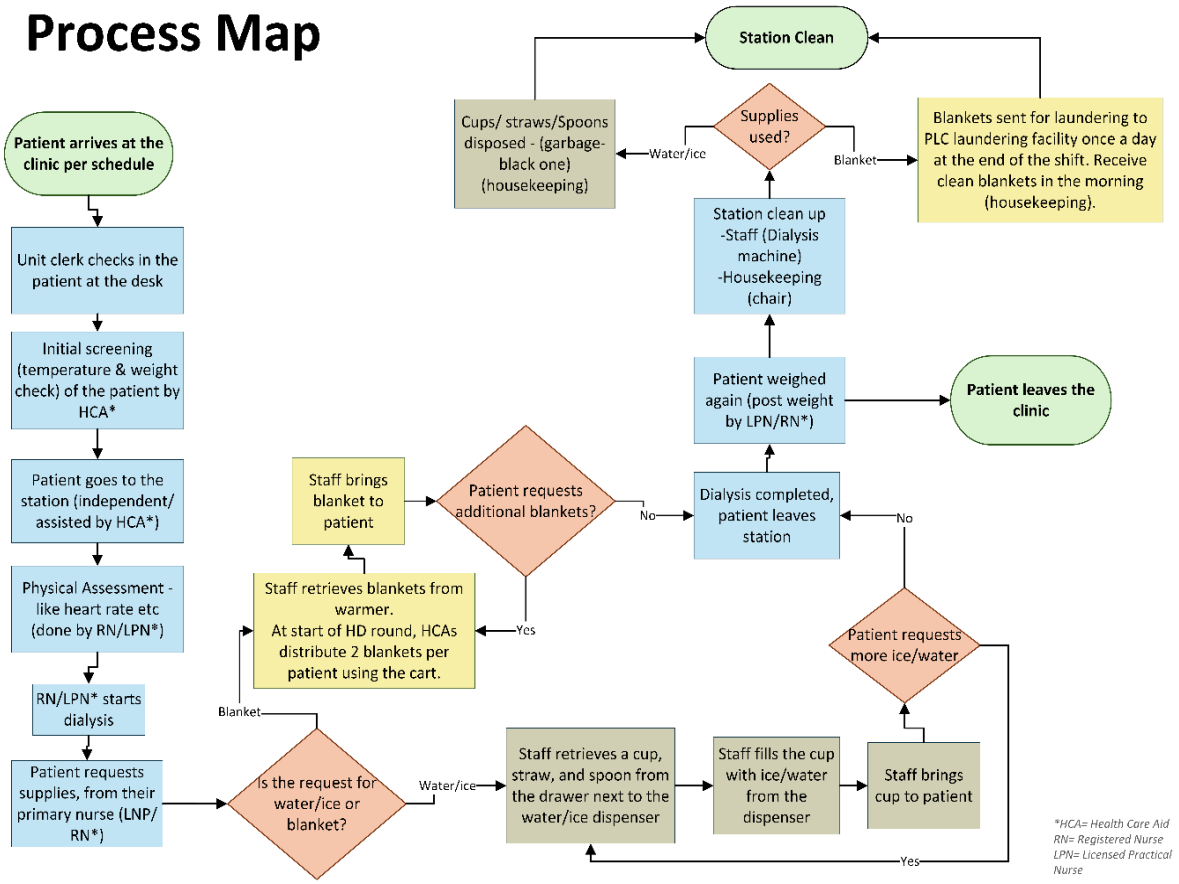
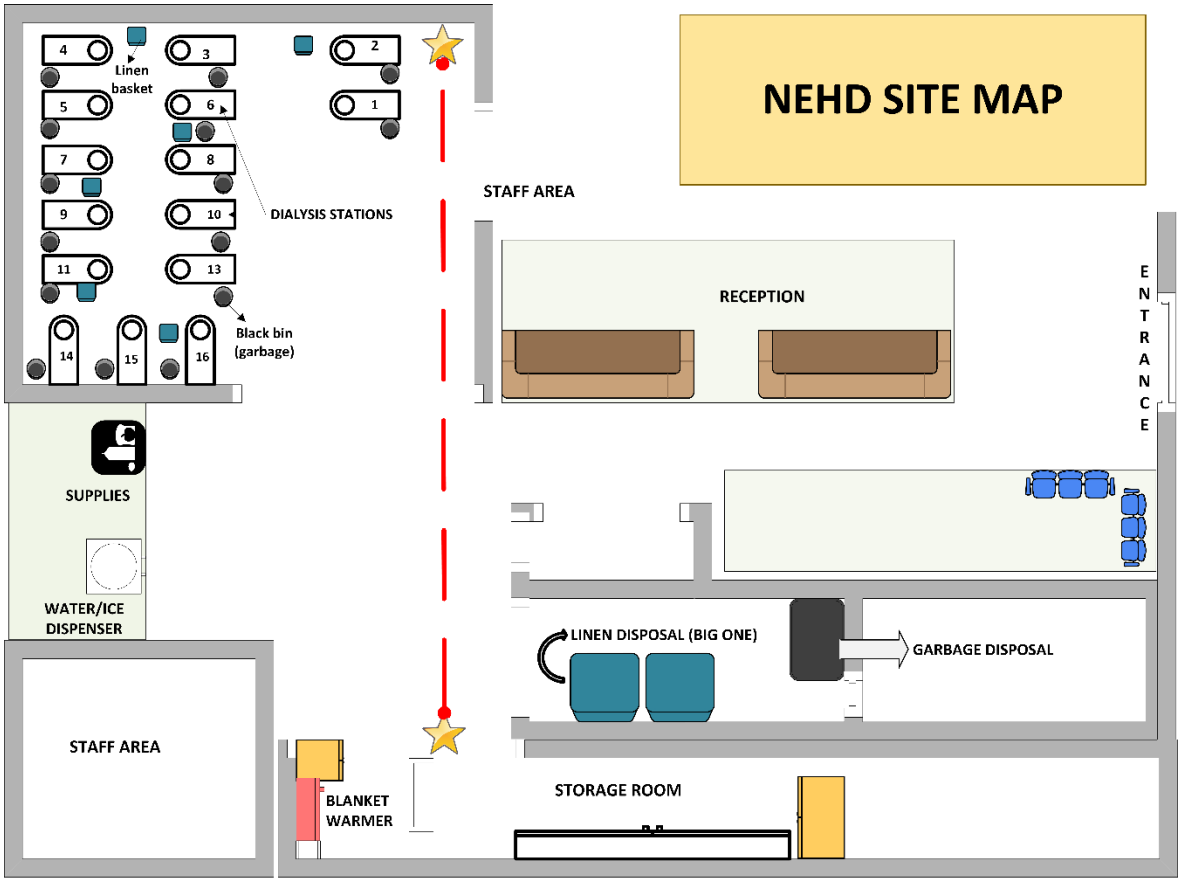


Figure 1 Process Map (NEHD)

Appendix B: Clinic Layout – Visualization showing the floor plan of the HD unit and Layout of the staff motion to retrieve blankets.



Disclaimer: diagram is based on direct onsite observation of the clinical site. The map may not reflect 100% precision of accurate paths and spatial relationships, due to observational limitations and potential human error.

Figure 2 NEHD CLINIC LAYOUT (The two stars connected by a red dotted line represent the distance between the blanket warmer and the end station. This visual is used to estimate staff walking steps (50 steps total), which can help assess time spent on movement if needed)

Appendix C: Photos.

Figure 3 BLANKET WARMER

Figure 4 LINEN DISPOSAL

Figure 5 LINEN AND GARBAGE DISPOSAL

Figure 6 GARBAGE DISPOSAL

Critical success factors

Please select one or two of the below factors that you believe were most essential to ensure the success of your project changes.

People	Process	Resources	Context
☒ **Patient involvement and/or appropriate information for patients - to raise awareness and understanding of intervention** ☒ **Staff engagement** ☒ **MDT / Cross-department communication** ☐ Skills and capability of staff ☐ Team/service agreement that there is a problem and changes are suitable to trial (Knowledge and understanding of the issue) ☒ **Support from senior organisational or system leaders**	☒**Clear guidance / evidence / policy to support the intervention.** ☐ Incentivisation of the strategy – e.g., QOF in general practice ☐ systematic and coordinated approach ☐ clear, measurable targets ☐ long-term strategy for sustaining and embedding change developed in planning phase ☐ integrating the intervention into the natural workflow, team functions, technology systems, and incentive structures of the team/service/organisation	☐ Dedicated time ☐ QI training / information resources and organisation process / support ☒ **Infrastructure capable of providing teams with information, data and equipment needed** ☐ Research / evidence of change successfully implemented elsewhere ☐ Financial investment	☐ aims aligned with wider service, organisational or system goals. ☐ Links to patient benefits / clinical outcomes ☐ Links to staff benefits ☒ **'Permission' given through the organisational context, capacity and positive change culture.**

This template is adapted from SQUIRE 2.0 reporting guidelines.

Template References

- SQUIRE | SQUIRE 2.0 Guidelines (squire-statement.org)
- Home | Sustainable Quality Improvement (susqi.org)