



## CASE STUDY

# Circular Economy Initiative: repairing and reusing walking aids

### FOCUS AREA

Maximising reuse and extending the life of products is a key component of the Circular Economy and an underlying principle of the Scottish Government's Circular Economy Strategy - Making Things Last. This case study is focused on initiatives to maximise the reuse of walking aids within Scotland's NHS Health Boards and Joint Equipment Stores.

## BACKGROUND AND AIMS

This case study explores the opportunities and barriers associated with maximising the reuse of walking aids within Scotland's NHS Health Boards and Joint Equipment Stores. Maximising reuse and extending the life of products is a key component of a Circular Economy and an underlying principle of the Scottish Government's Circular Economy Strategy - Making Things Last. The research and analysis described in this case study was undertaken as part of a 2018/19 Product Innovations Study commissioned on behalf of NHS Scotland (NHSS) by Zero Waste Scotland (ZWS) and delivered by Sustainable Procurement Limited (SPL) and their subcontractors Enomia Research and Consulting, Ditto Sustainability and Sustainable Global Resources Limited.

## PROCUREMENT OF WALKING AIDS

The term walking aids is used to collectively refer to walking sticks, crutches and walking frames. Health Boards procure walking aids for use within acute units, and physiotherapy and occupational therapy departments. Walking aids that are issued to patients via local health & social care services are supplied to Joint (or Community) Equipment Stores (JES) and are procured by Health Boards and Local Authorities.

Walking aids are relatively low-cost items, ranging from £2.50 - £3.00 per unit for walking sticks, and £20 - £40 for walking frames. The Product Innovations Study highlighted that the total expenditure on walking aids by Health Boards via the NHSS framework was approximately £690,000 with a further £62,000 procured for Joint Equipment Stores.

The framework suppliers of walking aids are Simplymed (33% of spend during the study period), Sunrise Medical (30%) and Performance Health (21%) with the remaining 16% of spend with four other suppliers.



### WASTE

## BARRIERS & ACTIONS

Often manufactured in the Far East, walking aids are commonly supplied with a 12-month warranty period (or in a few cases a 2-year warranty). The relatively short-term warranty and low cost has led to the perception that walking aids are single use items and they are therefore often discarded after they have been used for a short period of time.

In 2018/19 Zero Waste Scotland on behalf of NHS Scotland commissioned SPL to undertake The Product Innovations Study, the aim of which was to explore the barriers and potential opportunities associated with implementing a more circular approach for the supply of walking aids. Supply models which are aligned with a circular economy minimise the environmental impact of products by extending their working life via repair and reuse, and often have the benefit of creating local jobs and reducing spend. The aim of The Product Innovations Study was to determine the current level of walking aid reuse, explore potential barriers and to quantify the environmental, social and economic opportunities associated with implementing comprehensive walking aid reuse projects with Scottish Health Boards.

Research for the 2018/19 Product Innovations Study identified that reuse does already take place internally within some Health Boards however this can be in an uncontrolled manner; and the norm is that walking aids remain in the community due to costs, time restraints and available resources for collection. That being said, there are emerging examples of Health Boards overcoming barriers and implementing successful walking aid reuse projects – an exemplar operated by NHS Greater Glasgow and Clyde is summarised at the end of this case study.

Engagement by SPL with manufacturers of walking aids highlighted that manufacturers are keen to support NHSS Boards to maximise the reuse of their products by developing more durable and longer lasting products. The products would likely have a higher initial purchase cost per item however the life of the walking aid would be extended meaning that fewer new purchases would be required.

In 2019/20 NHS Scotland set up a short life working group to undertake further research into walking aid reuse. The group highlighted the following considerations:

- **Staffing resources:** The collection, checking and preparation of the aids requires staff resources. Staff roles include: physios to undertake initial checks, clinical/departmental staff to recover and set aside the walking aids, porters to transport walking aids on site, staff to clean and repair the items, and logistics/transport teams to assist with collection and redistribution.
- **Infection control:** Walking aids will need to be thoroughly cleaned before they can be reused and distributed. An example checklist developed by Sunrise Medical was circulated between the short life working group members.
- **Cost effective logistics:** Where walking aids are used in the community, it may not always be cost effective to collect used aids from patients' homes. Health Boards may therefore need to partner with local authorities who can accept and bulk walking aids at their Household Waste and Recycling Centres. They may also ask patients to return walking aids to the Health Boards directly during follow-up appointments.
- **Communication:** Patients should be told what to do with their walking aid once they no longer need it. This is essential to maximise return rates.
- **Storage space:** Health Boards will need to find space to store walking aids prior to refurbishment and in advance of redistribution. Additional storage space located close to physiotherapy and occupational therapy wards will allow physios to undertake initial checks and segregate items that are suitable for reuse with those that are not and therefore should be sent for treatment/disposal. Space will also be required to undertake the refurbishment – this is likely to be at a single site within the Health Board (or a cluster of partnering Health Boards).

- **Spare parts:** The cost of spare parts needs to be budgeted for. The most common parts needing replacement are the ferrules (rubber feet) and pins.
- **Redistribution:** Maximising the reuse of walking aids may need support/leadership from procurement, otherwise staff may be likely to continue to purchase items. All Health Boards have a licence to use the warp-it platform which can be used to market reused items, and to track items, show their age and their time spend in use.



## ENVIRONMENTAL AND COST ANALYSIS OF A CIRCULAR SCENARIO

The Product Innovations Study incorporated an appraisal which compared the costs and environmental impacts of the baseline with a circular scenario. The baseline reflected the current situation i.e. the purchase of new aids with a low level of informal reuse. The circular scenario explored the potential opportunities of greater levels of walking aid reuse achieved via additional collections from the community (e.g. collection from homes alongside other items) and drop off at Local Authority Recycling Centres. In the Circular Scenario, communication is improved to enable patients to understand how they can return loaned walking aids.

### The scope of the environmental impact assessment included:

- Production of walking aids (raw materials & manufacturing)
- The impact of the activities associated with reuse (transport, cleaning, etc)
- End of life waste treatment/disposal

### The financial impact assessment included:

- Cost of purchasing new items
- The cost of the activities associated with reuse (fuel, staffing, spare parts, etc)
- Cost of waste management for items that are returned to Health Boards but cannot be reused (waste management costs for items that are not returned have been excluded as they are likely to sit with Local Authorities).

The assumptions and results from the analysis are summarised in Table 1 opposite.

Table 1 – Summary of baseline and circular scenario

ASSUMPTIONS*	BASELINE	CIRCULAR SCENARIO
Weight of Walking Aids used annually (kg)	242,768	242,768
% returned for reuse	33%	60%
Of those returned,		
% suitable for reuse	85%	
% recycled as scrap	15%	
% requiring spare parts	30%	
% refurbished aids displacing new items	100%	
Environmental assumptions (kg CO2e/tonne):		
Embodied carbon (manufacturing)	7,817	
Collection for reuse	878	
Refurbish, prepare for reuse	153	
Treatment/disposal:		
Recycling (50%)	-5719	
EfW (10%)	-1436	
Landfill (40%)	25	
Financial assumptions (£/tonne):		
Product purchase price	£3,097	
Collection cost	£1,063	
RESULTS	BASELINE	CIRCULAR SCENARIO
Environmental impacts (kg CO2e/yr):		
Manufacturing and collection/prepare for reuse	1,380,133	1,076,654
Treatment/disposal (not reused):		
Recycling (50%)	-465,084	-402,610
EfW (10%)	-23,354	-13,942
Landfill (40%)	1,627	971
<b>Total</b>	<b>893,322</b>	<b>661,073</b>
Financial impacts (£/yr):		
Product purchase (assumes 100% new)	£751,916	£751,916
Net financial impact of reuse (includes avoided cost, collection, refurb costs e.g. spare parts, recycling)	£-74,436	£-115,038
<b>Total</b>	<b>£677,480</b>	<b>£636,879</b>

\* Data used to inform the assumptions included: Scotland's Carbon Metric, information from walking aid reuse projects implemented by NHS Fife and by NHS Trusts in Wales, background information held by the consultants from previous projects (e.g. composition estimates).

\*\* A negative value denotes a carbon or cost saving.

<sup>1</sup> Scottish Government. 2016. Making Things Last: a circular economy strategy for Scotland. <https://www.gov.scot/publications/making-things-last-circular-economy-strategy-scotland/>

<sup>2</sup> £690K spend between July '17 - June '18 (the most recent data available at the time of the study) via NHSS Framework NP507/17 Supply of Walking Aids

<sup>3</sup> Roma Medical (11%), Trulife (4%), Aidapt Bathrooms (<1%) and Drive Devilbiss (<1%)

<sup>4</sup> For example, Simplymed's 'Combi' range now offers products with a weight limit of 30 stone on crutches (as opposed to 25 stone) and comes with two-year warranty (as opposed to 12-months).

<sup>5</sup> <https://www.warp-it.co.uk/>

<sup>6</sup> <https://www.zerowastescotland.org.uk/our-work/carbon-metric-publications>

<sup>7</sup> Prior to December '19, walking aid cleaning and repair was undertaken by Haven, a supported business, at a cost of £2.50 per walking frame.

## OBSERVATIONS

The analysis demonstrates that a potential environmental saving of 26% can be achieved by increasing the reuse of walking aids (equivalent to 232,249 kg CO<sub>2</sub>e/yr). Outputs from the modelling indicate that the circular economy scenario results in a modest financial benefit in the order of 6% for walking aids when compared to the baseline scenario, which is due to the avoided cost of purchasing new walking aids. The short life working group will continue to explore options to implement walking aid reuse within Scottish Health Boards.

The exemplar below provides a detailed example of how NHS Greater Glasgow and Clyde have implemented a pilot walking aid reuse scheme.



## NHS GLASGOW & GREATER CLYDE WALKING AID REUSE EXEMPLAR

### INTRODUCTION

In December 2019, NHS Greater Glasgow & Clyde (NHS GGC) converted a former ward at the old Yorkhill hospital site (now known as the West Glasgow Ambulatory Care Hospital) and used the area to rehouse its reuse facility which had previously been based at Hillington. The Yorkhill site is utilised to clean, repair and store items from across Greater Glasgow and Clyde (including the nine acute hospital sites) so that they can be redistributed for reuse. The items which are stored at the site include office furniture, filing cabinets, scales, orthopaedic chairs and walking aids. NHS GGC has recently been through a period of estate rationalisation which follows the opening of the Queen Elizabeth University Hospital in 2015. Items from the facilities which closed have been transported for reuse at new facilities, and the recent set up at Hillington and more recently at the old Yorkhill continues these efforts. Unfortunately, due to Covid-19, the reuse project was scaled down after 3 months, albeit the intention is to resurrect it following the pandemic.

**The section below focusses specifically on walking aid reuse:**

### WALKING AID REUSE WITHIN GGC

The reuse project at Yorkhill is led by NHS GGC's procurement team. Used walking aids, predominantly from orthopaedic and physio departments, are visually inspected by the physio team using a checklist which was developed by manufacture Simplymed. The checks undertaken include inspecting - the checks focus the ferrules (rubber feet), springs, wheels, handles etc. Any walking aids that are not suitable for reuse are sent for recycling, whilst those that are suitable are collected in-house using the health board's vans and taken to Yorkhill.

When the walking aids arrive at Yorkhill they are logged on the Warp it reuse platform and given a unique ID number. They are then cleaned and repaired (e.g. ferrules replaced). This process has been approved by the NHS GGC's infection control team and takes up to 25 mins per item. At this stage, the walking aids are ready to be reused and are redistributed via physios who undertake a final basic visual inspection prior to use and record the ID of the walking aid which is prescribed to each patient.

In a 3-month period approximately 270 walking frames were cleaned and repaired. The avoided cost, when compared to purchasing new walking aids, was estimated to be £3,200; and the estimated avoided environmental impact was 1,679 kg CO<sub>2</sub>e.

During the project, the team noted that board-wide uptake of reused walking aids was lower than hoped for, and governance processes were implemented to try to ensure that the supply of reused aids was fully utilised before staff could purchase new stock (supplied via the National Distribution Centre).

NHS GGC intends to relaunch the walking aid reuse project in 2021. When the project is relaunched, NHS GGC intends to explore opportunities to collaborate with neighbouring health boards and potentially expand the reuse operation at Yorkhill. Procurement officers also intend to promote the reused walking aids to physios across NHS GGC with an aim to reduce the purchase of new products and to reinforce the governance processes previously implemented.

