Re-Hale
Inhaler recycling

Re-Hale Report and Recommendations Guide

Chiesi
Job code: UK-CHI-2500035 | April 2025

NHS
Kent and Medway

This work is part of a collaborative working project between NHS Kent and Medway Integrated Care Board and Chiesi Limited. For further information, please see the project executive summary which can be found on the Chiesi website: https://www.chiesi.uk.com/collaboration

Introduction

Re-Hale
Inhaler recycling

This Report and Recommendations Guide provides information for NHS organisations to help with the design and implementation of a local or regional inhaler recycling scheme.
The information provided is based on ***Re-Hale***, a Collaborative Working Project between NHS Kent and Medway ICB and Chiesi Ltd, which ran from November 2023 until October 2024 in East Kent.

Intended Audience

This report is aimed at anyone interested in understanding more about the implementation of inhaler recycling within an NHS system.

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Inhalers provide important medication to people living with respiratory conditions and are essential to patients who are prescribed them. Continued steps are in place to help reduce the impact of inhalers on the environment.

The NHS continues on its journey to reduce its carbon footprint, with the aim of becoming Net Zero by 2040.[1] Inhalers account for 3-4% of the NHS's carbon dioxide (CO_2) emissions and fall within the indirect scope 3 category.[1] Every year, approximately 73 million inhalers are used in the UK so proper disposal is essential.[2] The majority of inhalers are disposed of through the municipal waste collection process. Many of the inhalers contain plastic, aluminium and chemical propellants that are known greenhouse gases. Disposal through the municipal waste streams can lead to the devices being transferred to landfill sites, the propellant leaking into the atmosphere and the other materials being unrecoverable.

"The NHS continues on its journey to reduce its carbon footprint, with the aim of becoming Net Zero by 2040."[1]

There are different types of inhaler devices including pressurised metered dose inhalers (pMDI), dry powder inhalers (DPI), and soft mist inhalers (SMI). The composition of inhaler devices can vary across the three main types. In general, DPIs are plastic units, and the medicine is delivered in the form of a dry powder, whilst pMDIs use a propellant to deliver a fixed volume of liquid solution or suspension to the patient in the form of an aerosol.[3] These propellants are hydrofluoroalkane gases (HFAs) and they help to deliver the medicine to the patient's lungs. The most common propellant currently used in UK inhalers is HFA-134a, with a smaller proportion using HFA-227ea.[3] The HFAs are known greenhouse gases which have a high global warming potential (GWP).[4] The two most common pMDI propellants, HFA-134a and HFA-227ea, have a 1,430 times and 3,220 times greater GWP than carbon dioxide, respectively.[5] The pharmaceutical sector has acknowledged the need to develop inhalers that will be sustainable for the future and a number of companies have publicly announced proposals to develop inhalers with low-carbon propellants.[6,7,8]

Across a respiratory pathway there are multiple opportunities to reduce CO_2 emissions. Organisations such as the Primary Care Respiratory Society (PCRS) have provided an interactive tool which aims to help clinicians work with patients to identify a 'greener' approach to delivering high quality, patient-centred respiratory care.[9] The decision about what is the most appropriate inhaler should always be made with the patient, and the goal should always be to deliver optimal care for each individual, ensuring the right device is prescribed. It is widely accepted that exacerbations of respiratory conditions carry an increased carbon footprint.[10]

In its tool, PCRS also cites inhaler recycling as a way to reduce CO_2 emissions.[9] When inhalers are discarded, some may be out of date, no longer wanted, or seem empty to the patient, i.e., the dose counter is at zero. Most pMDIs are manufactured with a small amount of extra propellant known as the 'overage.'[11] When disposed of through domestic waste, the propellant contained in pMDIs can be released into the atmosphere where it can remain for up to 270 years.[3,12] In 2018, the UK Parliament Environmental Audit Committee (EAC) recommended that either medical companies or the NHS should establish a pharmacy recycling system to ensure that inhaler propellants are recycled rather than ending up in landfill where the propellant can be released into the atmosphere.[12]

1.1 How inhaler recycling can help the NHS meet its Net Zero targets

One area of focus in the NHS's Long Term Plan (2019) to reduce its carbon footprint is minimising the use of short-acting bronchodilator inhalers and switching from pMDIs to DPIs, where clinically appropriate.[13] This is due to the fact that DPIs do not contain fluorinated gases.[13]

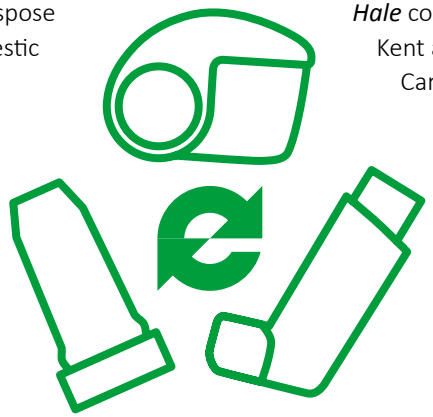
In the meantime, prescribers and patients can play a part in helping to reduce the carbon impact of inhalers when their devices are no longer needed or used. Disposing of inhalers in the most environmentally friendly way can help to reduce CO_2 emissions and support the NHS's ambitions to achieve Net Zero. The component parts of pMDIs can largely be recycled: any remaining propellant gases can be extracted and used in other industries such as refrigeration and air conditioning; the aluminium canisters can be smelted and repurposed; and some of the plastic can be recycled with the remainder

1.0 The need to recover and recycle inhalers

incinerated at a high temperature. However, DPIs are more complex devices and are currently not able to be recycled.

Currently, community pharmacies dispose of all medicines via incineration, through the NHS Unwanted Medicines Service.[14,15] However, evidence suggests that patients are most likely to dispose of their inhaler in their domestic waste.[16,17] There is still no nationally funded scheme in place to help recycle inhaler devices. The Taskforce for Lung Health position paper on Inhaler Recycling addresses these issues.[18]

The need to recover and recycle inhalers has been established (through projects such as ***Complete the Cycle*** and ***Take AIR***).[19,20] What is needed now, is to establish a method to recover and recycle inhalers that is scalable and cost-effective, and where the environmental impact can be quantified. This was the motivation behind the ***Re-Hale*** collaboration between NHS Kent and Medway Integrated Care Board and Chiesi Ltd.



"What is needed now, is to establish a method to recover and recycle inhalers that is scalable and cost-effective, and where the environmental impact can be quantified."

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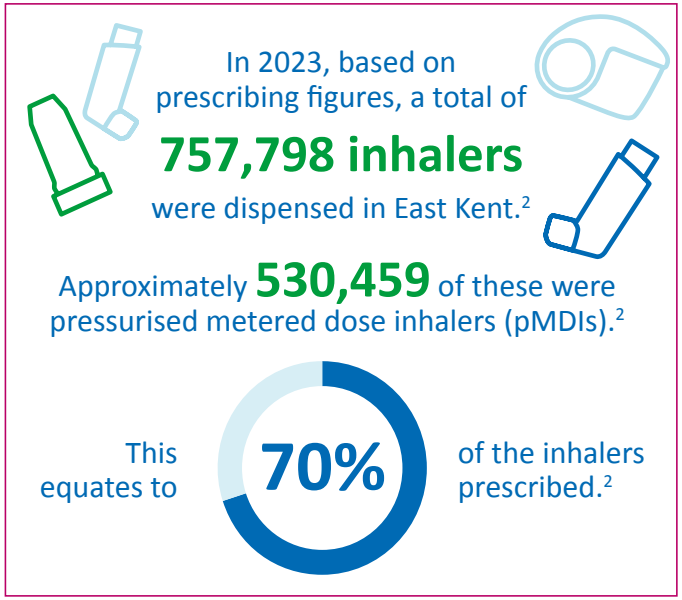
2.0 Kent and Medway ICB

2.1 Background

East Kent has a mixed demographic and a population of approximately 720,000 people.[1]



To address this, a collaboration was developed that brought together experience from the NHS at a local level and from a pharmaceutical company with experience of managing inhaler recycling schemes, to create a framework for inhaler recovery and recycling that could be shared and utilised across the NHS.

The pharmaceutical company, Chiesi Ltd, had extensive experience of developing an inhaler recycling scheme, having designed and implemented the award-winning project called *Take AIR*.[3]

In September 2023, a 12-month collaborative working project between Chiesi Ltd and Kent and Medway Integrated Care Board (ICB) was established to design and operationalise an inhaler recycling drop off scheme in East Kent, encouraging patients to dispose of their inhalers in community and NHS based locations. Key stakeholders within the project included community pharmacies, dispensing doctors and hospital trusts.[4]

2.2 Project objectives

The project had three objectives:

1. Inhaler return and recycling

- Divert inhalers from domestic waste to reduce the environmental impact of the propellant gas and enabling recovery and recycling of device components.
- Create a replicable inhaler recycling model that can be easily adopted by other NHS organisations.
- Ensure that patients have access to an inhaler recycling scheme that is easy to use and convenient to access.

2. Develop a replicable framework

- Create a framework involving collaboration across the healthcare system in East Kent, within identified acute trusts, primary care settings and community pharmacies.
- Develop a logistical infrastructure model to demonstrate a framework for others to replicate.
- Provide accessible locations for all inhalers, of any brand and any type of device, to be recovered and components recycled.
- Consolidate learnings from the project to ensure challenges and opportunities are highlighted for further adoption.

3. Calculate CO_2 savings

- Calculate the CO_2 emissions avoided during the timescale of the project, while recovering and recycling other materials from inhalers, where possible.

2.3 Methodology

2.3.1 Discovery

A scoping exercise was undertaken to review current processes and the logistical frameworks within Kent and Medway ICB. East Kent was selected as the location with multiple healthcare settings identified, which included dispensing GP practices, community pharmacies and acute hospital trusts. Settings were chosen to make the project accessible for patients to 'drop off' used and unwanted inhalers. At this stage it was known that there were no options within this area to recycle inhalers.

The 2023 prescribing figures were reviewed and the data indicated that a total of 757,798 inhalers were dispensed in East Kent.[2] The assumption at this stage was that the majority of inhalers were disposed of in household waste, landfill or incinerated via medicines waste in community pharmacy.

2.3.2 Logistical design

Considering learnings from previous inhaler recycling schemes such as *Take AIR,* the *Re-Hale* team wanted to build a model that utilised the existing medicines infrastructure and that could be scaled with minimal impact on the environment, utilising frameworks already in place.[3] A Project Charter was agreed to determine the roles and responsibilities of the project team (see Appendix 1).

2.0 Kent and Medway ICB

A UK based wholesaler (Alliance Healthcare in this project) that regularly delivers pharmaceutical supplies on a daily basis was identified as a touchpoint for community pharmacies, dispensing doctors and acute hospital trusts. A 'reverse logistics' model utilising existing journeys from the wholesaler was considered to be the simplest method to ensure no extra vehicle journeys took place within the project, therefore there was no additional carbon footprint from increased journeys. (Appendix 2 shows a visual representation of the wholesaler's role in the project).

At this stage, consideration was given to how inhalers would be stored and transported by the UK wholesaler. A purpose-built inhaler recycling bin was made for use in community pharmacies, dispensing doctor surgeries and hospital trusts.

The design took into consideration the space available within NHS and community pharmacy locations. These small recycling bins were designed to hold up to 170 inhaler devices of any brand and any type. They were created in a flat pack design for ease of transport and simplicity of assembly at the drop-off sites.

The UK wholesaler supported local stakeholders to sign up to the project via its online portal. If the pharmacy agreed to take part, a registration form and a Waste Transfer Note were completed (to comply with waste handling regulatory requirements).[5] A starter kit was then sent out to the pharmacy. The kit consisted of the small cardboard flat pack site bin, replacement green recycling bags (made from recycled plastic, which were used to line the cardboard bins and contained the inhalers that were returned for recycling)

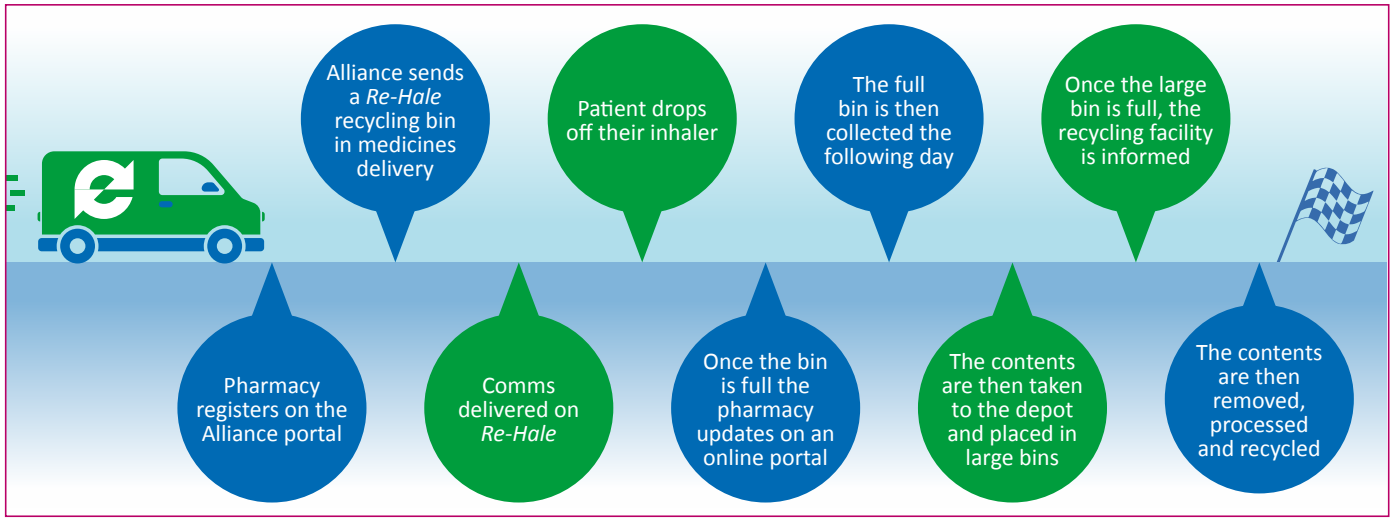


Image 1 – Visual overview of the process of collection within Re-Hale

oand paper envelopes with a transparent window (to contain the online portal bar code relating to the requested collection).

Sites were also able to request a collection via the online portal. The collection would be combined with the delivery of medicines to the site. All the inhalers (in the liner bags) from the small site bins were taken to the UK wholesaler depot where they were emptied into a large collection bin. The large collection bin (with a 600-litre capacity) was designed for the storage site and would hold approximately 8,000 inhalers. Once the large collection bin was full, a specialist waste management company (Grundon Waste Management in this project) was contacted by the wholesaler depot and arrangements were made for the waste management company to collect the large collection bin on a routine journey.

To ensure there was always a large collection bin available, two large collection bins were placed in the depot so that when one was full and awaiting collection, the second bin could be used. Image 1 highlights this process from start to finish.

What happened to the inhaler parts during the *Re-Hale* scheme?

Once the inhalers reached the waste management company they were sorted and separated into two waste streams, pMDIs and DPIs. The pMDIs were separated into their constituent parts and the aluminium canisters were crushed together to form solid blocks, which were then sent for recycling. During the crushing process, propellant gas was extracted to be cleaned and reused in refrigeration and air conditioning units. Any recyclable plastic was made into pellets

and recycled. Other remaining inhalers that could not be recycled were incinerated at high temperature and converted into energy through a process called energy-from-waste.[6]

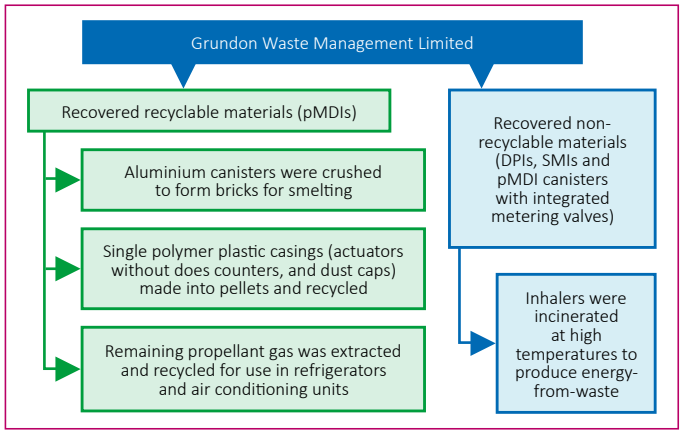


Image 2 – Visual overview of what happens to inhalers when they arrive at the waste management company

2.3.3 Stakeholder engagement

The following stakeholder groups were identified as essential for this project to be successful:

- Community pharmacies
- Dispensing GP practices
- Acute hospital trusts
- Specialist waste management company
- Medicines wholesaler

A specialist waste management company, with the technology to recycle inhalers and a medicines wholesaler, with experience in providing logistical support to recycling schemes, were identified and commissioned to provide the logistical and recycling support for the pilot.

Engagement with the Local Pharmaceutical Committee (who represent community pharmacies), ICB sustainability working groups, and GP practices, was also undertaken to help inform about the project, seek feedback and ask for support to ensure its success.

Across East Kent, 133 potential sites were identified and invited to join the project. Once sites had signed up they were added to a "live" map of all the participating sites, so that patients and the public across East Kent knew where they could take inhalers for recycling.

2.3.4 Communications campaign

Engaging with NHS organisations, stakeholder groups and the public was essential to ensure awareness, knowledge and encourage participation in the ***Re-Hale*** project. In addition to the 'live' map highlighting participating sites, an extensive communications campaign was launched to raise awareness of the project and increase engagement.

Engagement activities at the start and throughout the project included face-to-face meetings and webinars. A digital engagement campaign included the production of an animation to highlight the project, social media posts and a map to illustrate sites engaged in the project. Patient engagement was undertaken using the established GP communication and messaging system 'Accurx', with text messages sent with information about the project to patients receiving prescriptions for inhalers (any brand/any type).

2.3.5 Project process

The project went live once local level data had been reviewed; stakeholders had been made aware of the project and public awareness was also in place.

Local data for inhaler prescribing for 2023 was used to predict numbers for the coming year. A review of this data enabled an estimate of the CO_2 savings that could be achieved from the recycling of the predicted volume of inhalers recovered through the project.

Two large 600-litre collection bins were placed with the UK wholesaler's Croydon depot for the region, in preparation for the inhalers being collected from the participating sites.

Once the 600-litre bin had been filled at the Croydon site, the waste management company was alerted and collected the inhalers on their normal routes, so no extra journeys were necessary.

Data were captured on the numbers of participating sites and the numbers of bins returned. This enabled a targeted supportive approach to be put in place to provide extra engagement at sites signed up but who had not returned bins as part of the project.

Data on the number of inhalers recovered, together with modelling to calculate the CO_2 emissions avoided during the timescale of the project, were analysed.

2.4 Project impacts and outcomes

2.4.1 Number of sites engaged

Formal engagement with sites took place between 1st -30th November 2023 and 62/133 (47%) sites were signed up to participate. By the end of April 2024, an additional 16 sites had signed up, taking the total to 78/133 (59%). The sites engaged received no payment to participate in the project.

Site	Total participating	Total (East Kent footprint)	Percentage (%)
Community pharmacies	62	115	54%
Dispensing GP practices	12	14	86%
Acute trusts	3	3	100%
Ministry of Defence pharmacy	1	1	100%

2.4.2 Engagement campaign

Several social media posts were designed and published on Instagram, X (formerly known as Twitter) and Facebook in the first few months.

The Kent and Medway ICB created a dedicated web page giving details of the scheme, including:

- an animation
- a Google interactive map showing participating pharmacies

Over the period of the project (November 2023 – October 2024):

There were 6,000 impressions made between Facebook and Instagram, with 1,000 impressions made on X.

The map was reviewed 23,577 times, making it the most widely accessed digital resource used during the project. There was a total of 20,550 Accurx text messages sent directly to patients who had been issued with an inhaler in the last 12 months.

2.4.3 Inhalers collected

Inhalers collected by	Number of bins collected from sites (total)	Total inhalers collected (estimate – based on 170 per bin)	Estimate of CO_2 saved from sites (tonnes of CO_2)
Community pharmacies	194 Small site bins	32,980	139
Dispensing GP practices	32 Small site bins	5,440	23
Acute trusts	19 Small site bins	3,230	14

The total number of small collection bins collected between November 23 – October 24 entering the waste handling process was 245.

2.4.4 CO_2 calculation

Following an audit, it was estimated that each small site bin contained approximately 170 inhalers (this figure is the average number from a sample count of several small bins by the medicines wholesaler).

Using NHS data for East Kent, the percentage split of inhalers prescribed for the whole of 2023 was calculated.[2]

The CO_2 emissions avoided for the duration of the project was calculated using the CO_2 emissions estimation model developed for the Chiesi *Take AIR* scheme.[7] The model relied on a number of assumptions to be made due to limitations of gaining accurate numbers for the inhalers disposed of through the project:

- Average CO_2 saving for each inhaler type (as per model above)
- Average percentage split of inhaler type per sample (as defined by local prescribing data)

Based on 2023 prescribing data, the following assumptions of inhalers collected for recycling were:

Inhaler type	Percentage (rounded to nearest whole number)
pMDI	70%
DPI	26%
SMI (soft mist inhalers)	4%

2.0 Kent and Medway ICB

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Return rate of inhalers

From the date the pilot was "live" (November 2023) until close (31st October 2024) the return rate was calculated by:
the number of inhalers returned (calculated by number of small bins returned x 170 inhalers per bin) divided by number of inhalers dispensed in East Kent over the same period (2023 figure average per month, calculated from prescribing data). Based on 2023 prescribing figures, 757,798 inhalers were prescribed in the year (12 months).

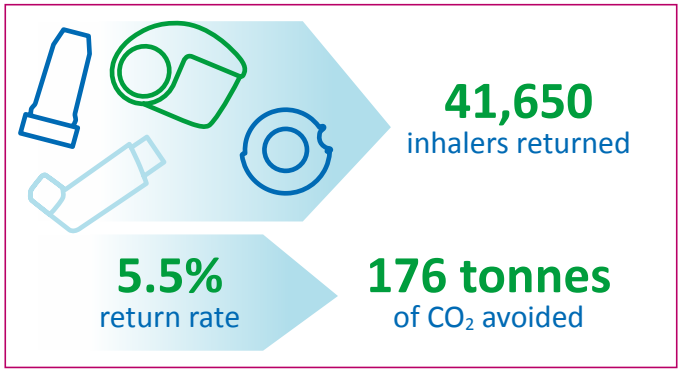
Re-Hale went live in November 2023 and ended in October 2024 (12 months)

41,650 (inhalers returned via *Re-Hale*) x 100 = **5.5%**
inhalers returned
757,798 (inhalers prescribed in a 12-month period)

CO_2 saved in East Kent during the *Re-Hale* pilot (data on file)

41,650 inhalers returned
70% of inhalers prescribed are pMDIs (29,155)
1,000 pMDIs recycled in East Kent = 6.04 tonnes of CO_2 avoided

29,155 / **1000** pMDIs X 6.04 = **176 tonnes of CO_2** avoided over the time period



CO_2 equivalents (from EMS Mastery 2022)[8]

One tonne of CO_2 is equivalent to:

using 5171kwh of electricity, which could power a mid-terraced house for 1 year 10 months, or a detached house for 15 months based on UK average electricity consumption
500 2kg fire extinguishers
161,290 litre bottles of carbonated drink
Capturing 1 tonne of CO_2 would require approximately 50 trees to be grown for one year.

Feedback and improvements

During the project it was important to communicate with sites and understand how improvements could be made.

In addition to being contacted initially by the project team, sites also received an email congratulating them when a new small site bin was collected for recycling, to keep them engaged in the process.

Bespoke communications were also made available when needed. For example, GP dispensing practices generally had lower collection rates due to lower patient footfall. These sites were provided with more posters to try to improve collection rates.

Other stakeholders who expressed an interest such as community respiratory clinics and voluntary respiratory groups also received posters.

Sites that had not recently (or ever) requested a bin collection were contacted by telephone every three months.

Feedback from these calls was gathered and used to improve recycling rates and analyse non-engagement. This process was helpful and enabled re-iteration of the process to sites that had full bins but had forgotten to request a collection.

Note on national calculation: CO_2 savings at a national level.

Each area of the country will have a different variety and number of pMDIs prescribed, so 1,000 pMDIs will give a different figure for tonnes of CO_2 avoided. Nationally, 41,650 pMDIs would give the figure below:

41,650 inhalers returned in total
70% of inhalers prescribed are pMDIs (29,155)
1,000 pMDIs recycled nationally = 5.04 tonnes of CO_2 avoided
29,155 / **1000** pMDIs X 5.04 = 147 tonnes of CO_2 avoided over the time period

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Quotes from sites:

"We are really pleased with the project and the patient feedback has been very positive. Slow collections due to the volume of the practice but extremely happy with how things are going."

"We are finding the project easy to run and the patients are starting to engage more as most are now aware."

"Paydens were very keen to get involved and support this new recycling scheme. It has been welcomed by both our staff and patients. It's simple to implement and easy for our pharmacy teams to remind customers to return old inhalers when collecting their new prescription."

Several sites reported they were happy with the simple nature of the project and have had positive feedback from their patients.

Quotes from patients:

"This is something that should have been done a long time ago."

"Being able to use the *Re-Hale* project in my local Pharmacy in the village makes it so convenient for me to recycle mine and my children's used inhalers. I can just simply drop them off knowing I'm doing my bit to help the environment!"

2.4.5 Further information on *Re-Hale* awards, conferences and publications

Sustainability awards
- NHS Sustainability Hero of the Year Winner, 2023
- Sustainability Partnership of the Year Finalist, 2024

Clinical Pharmacy Congress Awards – Unsung Hero Winner, May 2024 (CPC AWARDS 2024 WINNERS - Clinical Pharmacy Congress)

Environmental Sustainability Award- Pharmacy Professionals Conference, May 2024

European Association of Hospital Pharmacists, Bordeaux, March 2024 – poster presented

Clinical Pharmacy Congress, London, May 2024 – poster presented and presentation given

MIMS article from interview, June 2024

Pharmaceutical Journal, July 2024

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3.0 Guidance and local implementation

Re-Hale
Inhaler recycling

It is worth highlighting that before any project commences, clear objectives, outcomes and measures need to be considered. We would suggest as a minimum that a project charter be completed to ensure clarity (Appendix 1). For *Re-Hale* we undertook a project initiation document (PID) to enable us to fully discover, design and then implement the project.

3.1 Recommendations for local spread and scale

In order to replicate a similar methodology across a particular geography, the following is suggested:

3.1.2 Stakeholder mapping

It is essential to understand those who may have a role in supporting the project and the best location for a project to be implemented. There are a variety of stakeholder mapping tools available, and some can be seen on NHS England's NHS Impact web pages: https://www.england.nhs.uk/nhsimpact/.

The first questions considered for this work were the three "I"s

1. Who is **influential**?
2. Who will be **impacted** by the work?
3. Who is/will be **involved** in the work?

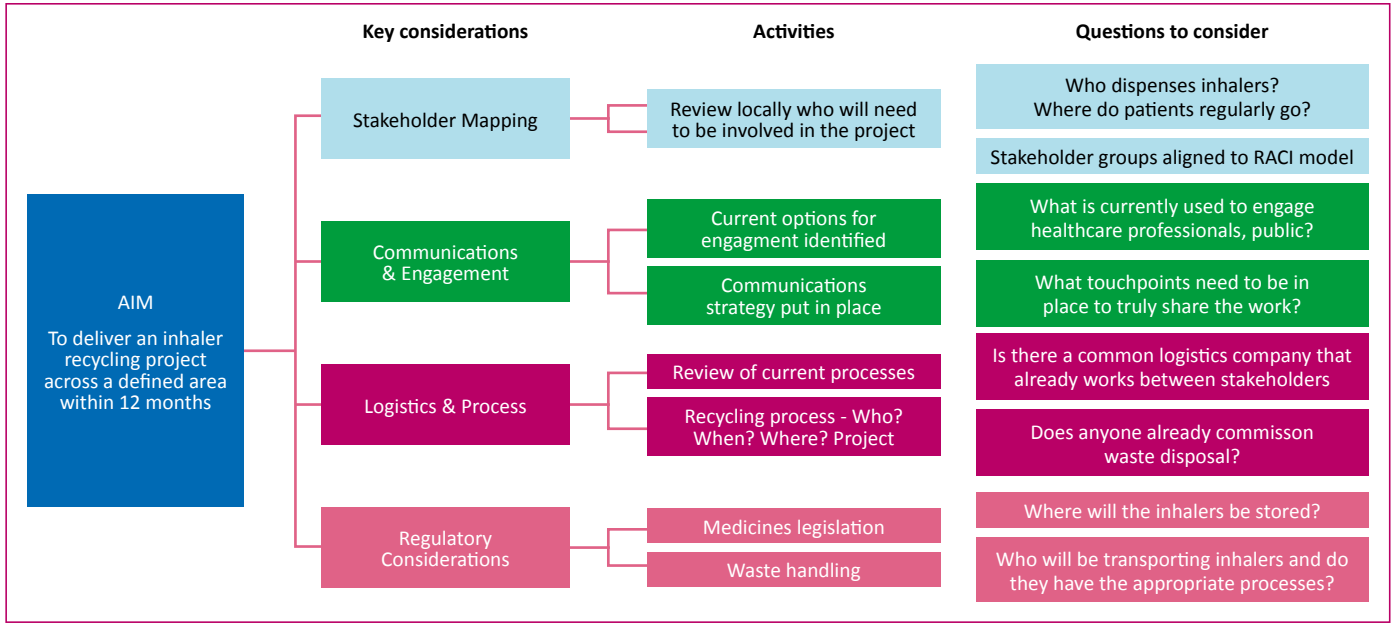
Once this is known the next stage would be to consider mapping stakeholders according to who, as part of the project, would be responsible, accountable, consulted, and informed (RACI).[1]

This can then enable a clear understanding of stakeholders' perspectives and inputs into the project.

These are the stakeholders involved in the *Re-Hale* project*:

- Community pharmacies
- Dispensing GP practices
- Acute hospital trusts
- Specialist waste management company
- Medicines wholesalers

*However, there may be other stakeholders, within the locality where you are considering implementing a recycling project, who require consultation.



The diagram above highlights the key drivers for implementing an inhaler recycling project locally and activities to consider. It has been produced by the Chiesi Ltd & Kent and Medway ICB project team as a visual support for local consideration.

3.1.3. Communication and engagement

Engagement

Once stakeholders are identified, the next task is to understand the stakeholder group/type, level of their impact, influence and current commitment to the project. This will help an engagement plan to be put in place.

Stakeholder	Type	Level of impact	Level of influence	Current commitment	Engagement Plan	Communication plan
Name	RACI	High Medium Low	High Medium Low	High Medium Low	i.e. invite to meeting, ask to join project group, keep informed	Email overview, add to communications mailing list

Communications

It is important to understand the current resources available to you and how best to reach the various stakeholders. We would suggest understanding this first before making any materials. Once understood, then consideration must be given to the method of engaging with the stakeholders. For *Re-Hale* we used a simple communications matrix to help us to understand what may work.

The table below demonstrates a simple communications plan with some examples.[2]

Message Objective	Communication Channel	Audience	Frequency
To update	In person event/meeting – PowerPoint	ICB	Every quarter
To engage sites to sign up	Digital letters Meetings Digital platform	Sites	Every 3 months

Working with stakeholders:

- To keep sites engaged, consider acknowledging/congratulating them when a small bin is collected.
- Monitor small bin collections from sites so support can be offered to those returning fewer/no bins.
- Consider a map providing the location of all recycling sites. This was one of the most used items created in the *Re-Hale* project.
- Review existing infrastructure to limit the need for extra transport. The medicines wholesaler was already well-established within the area and the waste management company operated within the East Kent footprint.
- If there is no local specialist waste management provision, consider exploring a postal return service.

What to consider:

- Ensure you understand how best to communicate with your stakeholders – how do they like to receive information and how frequently.
- Ensure regular and continued engagement with sites including telephone support and emails.
- Consider patient engagement – most successful methods from *Re-Hale* were the Accurx texts to patients, business cards in medicines collection bags and the interactive map detailing participating sites.

What to avoid:

- Assuming everyone understands the project aims and objectives.
- Assuming that sending one email means you have engaged all stakeholders.

3.1.4 Logistics and process

Inhaler recycling should be delivered as a core sustainability project so should be overseen by the core medicines sustainability working group or similar group serving the same function.

Commissioning the contracts should be done with a similar sustainability lens, ensuring there is no extra unnecessary waste or consumption. This should be overseen by a senior executive member of the organisation where the project resides.

3.0 Guidance and local implementation

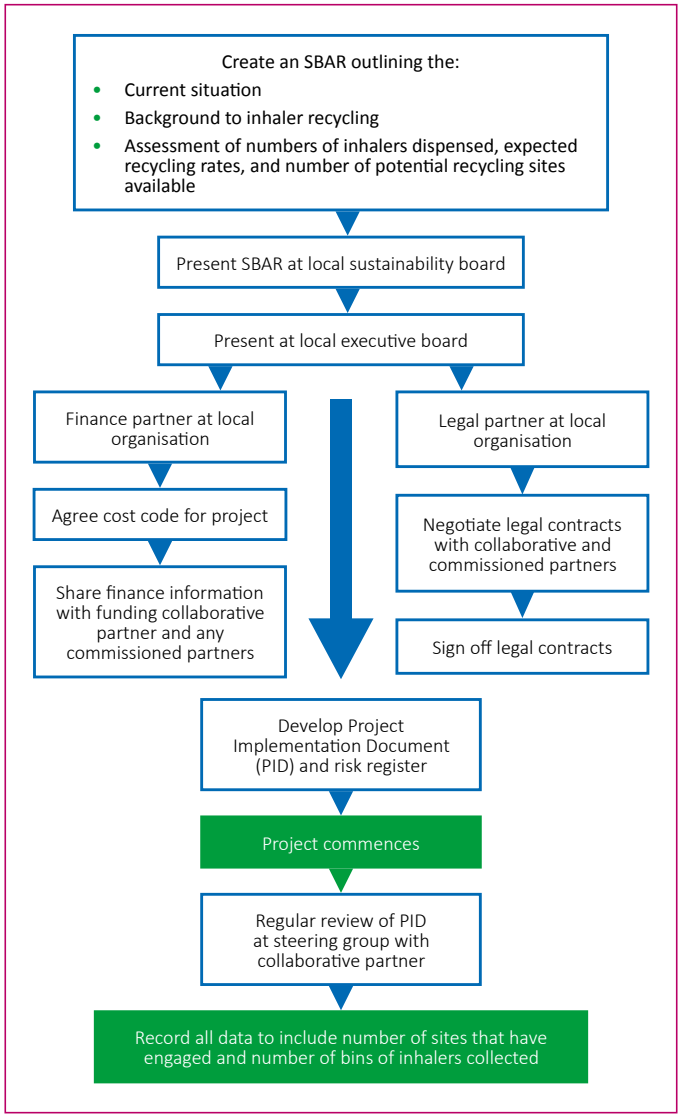
Internal Integrated Care Board Process

When running a large project within an ICB, the project should have a clear sign off procedure as well as executive support. The accountability for the project successes and risks lies within the organisation the project sits with, so regular meetings with those senior members accountable for the project is very important. This ensures that accountability is not lost and that there is transparency around the risks which might occur. This is most effective in virtual or face-to-face meetings as opposed to email updates which could be long and complicated.

The process used to gain the appropriate legal and contractual sign off for the pilot and to record data for assurance is detailed below.

Situation, Background, Assessment and Recommendation (SBAR) Framework

The diagram on the right shows the Kent and Medway ICB SBAR framework.



Hints and tips

Internal ICB process

- Ensure you understand the nature of the problem first.
- The A3 process can be used as a tool to create a project charter.[3]
- The SBAR framework as seen to the left can support a project.
- Dedicate roles, for example project management. Operational and steering group meetings with all collaborative partners at regular intervals helps to ensure the project milestones are met.

3.1.5 Regulatory considerations

Disposal of any waste is subject to legislation and regulated by the Environment Agency; disposal of medicines waste adds further complexity. The following sets of regulations required consideration for the ***Re-Hale*** inhaler recycling scheme:

a) Medicines Legislation
The Human Medicines Regulations 2012 provides the main legal framework for the prescribing, supply, storage, and administration of medicines. The Regulations classify medicines into three categories (Prescription-Only-Medicine (POM), pharmacy, and general sales list).[4] Inhalers fall within the POM classification and, as such, are required to be stored securely with controlled access.[4] This should also apply to the storage of unwanted POMs once a patient has 'discarded' the medicine.[5]

b) UK Waste Legislation

The nature and classification of the waste being handled will determine the requirements for anyone disposing of that waste. Whilst inhalers containing propellants are not classed as flammable waste (due to the low volumes of propellant), they are classed as clinical waste and therefore certain requirements for documenting the waste are necessary.[5,6,7,8] A waste transfer note was also required to be completed by all those signing up to ***Re-Hale***. A waste transfer note or a duty of care certificate is a legal document that details the transfer of waste from one party to another. Any organisation that produces any type of waste must comply with the waste duty of care requirements. This waste transfer note for ***Re-Hale*** was completed at the point of registration before the bins and starter pack were sent out and had to be completed by the participating site. No waste can be collected from another organisation without this note being completed. Any company collecting waste is legally and duty-bound to supply a waste transfer note or a duty of care certificate.

Regulatory considerations – hints and tips

- Ensure all partners are aware of these regulations too e.g. hospital trusts.

Working with industry/NHS

Pharmaceutical partners can provide knowledge and expertise to projects. The Association of the British Pharmaceutical Industry (ABPI) details a code of practice and sets out the requirements the industry must comply with, and supports companies' commitment to self-regulation and to operate in a professional, ethical and transparent manner.

The ABPI Code is in place to ensure the following key principles:

- Patients are at the heart to ensure patient safety.
- To ensure integrity and transparency.
- To ensure industry acts with respect.

It enables companies to operate in a manner which is:

- Responsible
- Professional
- Ethical
- Transparent

Clause 20 of the Code focusses on Collaborative Working and provides guidance around how this project should take place.[9] High standards must be maintained by all participants throughout a collaborative working project. For the ***Re-Hale*** project this meant that materials used were reviewed to ensure high standards were maintained.

Useful links and further information on working with industry

- ABPI, Joint Working – a toolkit for industry and the NHS[10]
- NHS Confederation and ABPI, Accelerating transformation: How to develop effective NHS-industry partnerships[11]

Working with industry – hints and tips

- When collaborating, the approvals process can take longer.
- Be aware of governance and associated timelines need for all parties and ensure they are adhered to.

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Appendix 1 – Project Brief Template

This is an example of a project brief template as found on NHS England and NHS Improvement Online library of Quality, Service Improvement and Redesign tools.

Available at: https://aqua.nhs.uk/wp-content/uploads/2023/07/qsir-define-your-project-charter.pdf. Last accessed January 2025

Figure 1: Project brief template

Prepared by	Date	Executive sponsor

Project information	
Project aim	
Rationale	(Provide reason for the project. Identify the problem to be addressed.)
Key area of focus	
Start date	Projected end date

Project objectives (SMART)
Statements of specific, measureable, achievable, relevant, timely outcomes

Project scope – IN	Project scope – OUT

Quality, Service Improvement and Redesign Tools: Define your project charter

Figure 1 continued

Benefit	Measure	Stakeholder
What is the benefit?	What is the measure?	Who benefits?

Milestone	Start out	Define and scope	Measure and understand	Design and plan	Pilot and implement	Sustain and share
Target completion date						

Project team	Role	Time committment

Additional resource requirements:
eg staff time, specialist/expert input, equipment and materials.

Additional information:

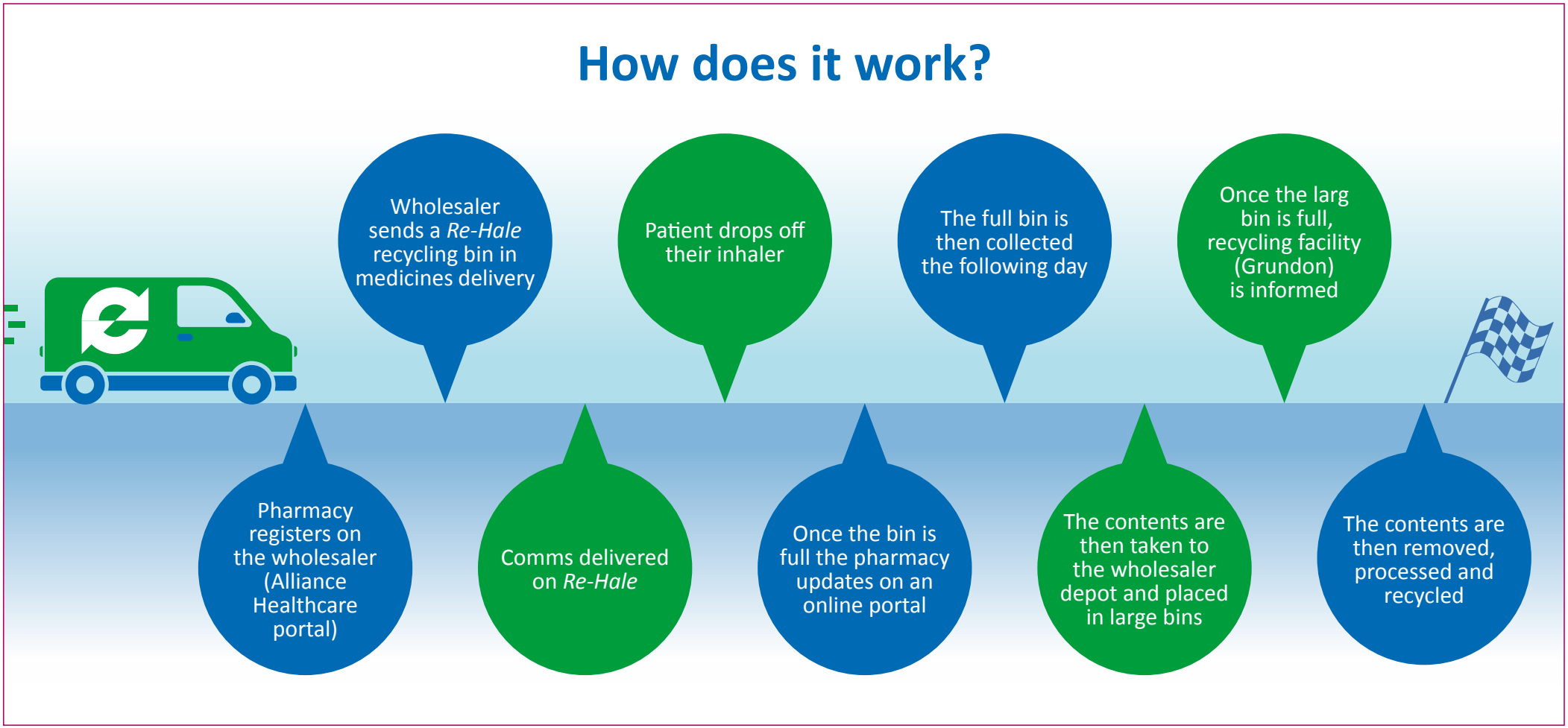
What next?
Seek agreement and sign-up to the project brief by the project team and primarily the project sponsor and the other stakeholders.

Quality, Service Improvement and Redesign Tools: Define your project charter

Re-Hale
Inhaler recycling

Appendix 2 – *Re-Hale* Logistical flow

How does it work?



Appendix 3 – Template Invitation Letter to Healthcare Professionals

Helping patients to recycle inhalers with ease

Dear Healthcare Professional,

In the UK, a staggering 60 million inhalers are distributed annually, contributing to 3% of the NHS's carbon footprint.[1] Until now, there has been no efficient method for inhaler recycling within NHS XXX ICB. Patients have been encouraged to return them to pharmacies, but unfortunately, they are typically mixed with other medical waste and ultimately incinerated rather than recycled.

To address this issue, NHS XXX have developed a pilot programme aimed at demonstrating that inhalers can be recycled. XXX, a contracted service provider, will be providing logistical support. This pilot initiative will span XXX for a duration of XXX months. It will enable patients to drop off their used or unwanted inhalers at multiple convenient locations, including XXX Hospitals University Hospital Trust, participating community pharmacies, and dispensing GP practices.

So, what exactly is the scheme?

The scheme represents a sophisticated, logistical model specially designed to make it effortless for patients to recycle their inhalers at various recycling sites throughout the XXX region. The programme will include the recovery of inhalers, recycling the inhaler components and repurposing the gases through collaboration with a specialist waste management company.

How can you get involved?

To participate, simply go to the XXX page on the contracted service provider website to express your interest. Once you've completed the waste management notice, you will receive a welcome pack that includes the necessary recycling consumables.

Should you have any questions or require further information, please don't hesitate to reach out:

XXX

Thank you for your commitment to a greener, more sustainable future for healthcare.

Sincerely,
XXX

1. NHS England. Delivering high quality, low carbon respiratory care. Available at: https://www.england.nhs.uk/blog/delivering-high-quality-low-carbon-respiratory-care/. Last accessed January 2025

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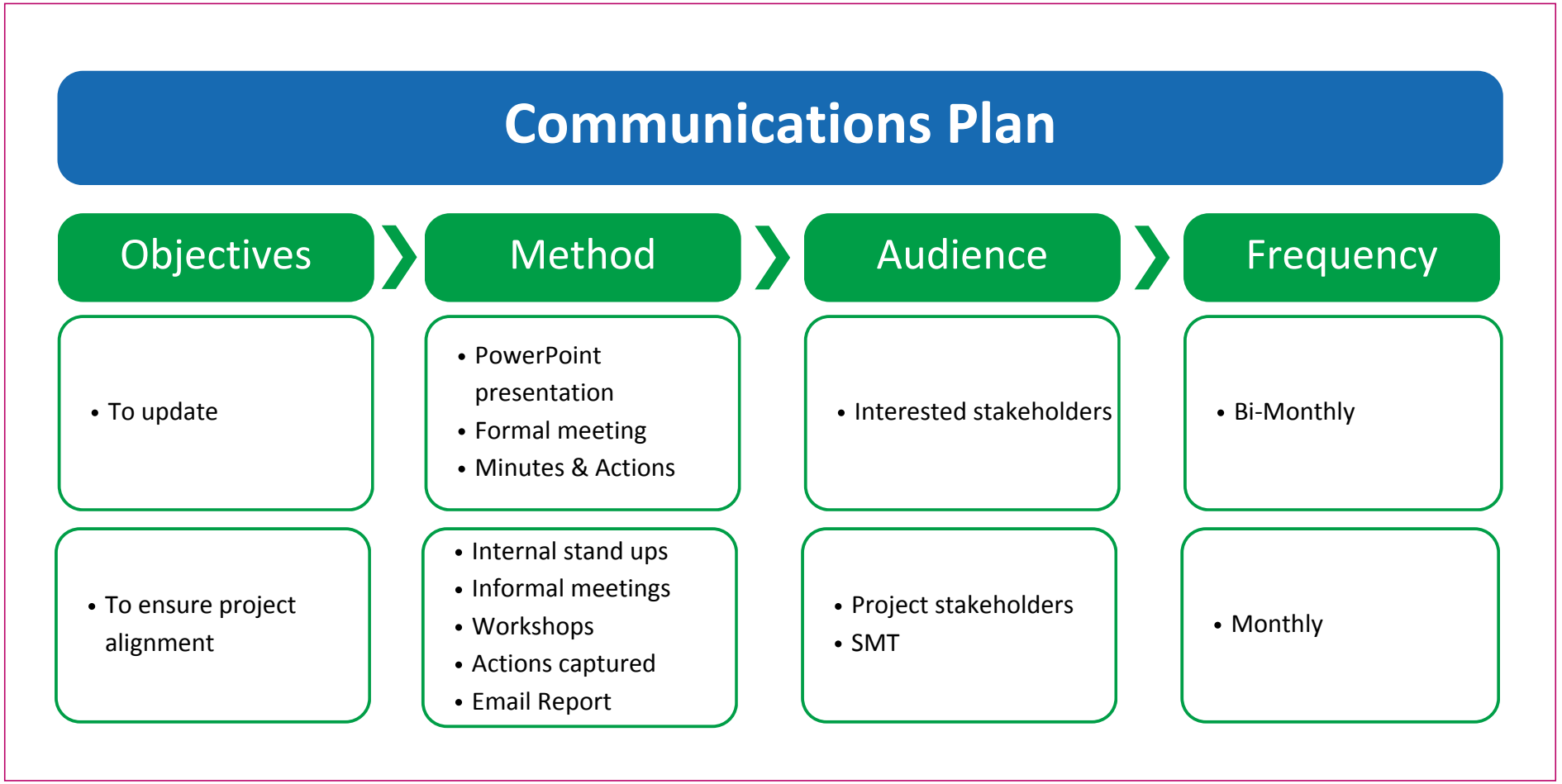
Appendix 4 –
Communications Plan – template example



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Inhaler recycling

For further information, please contact a member of the project team:

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