



Sustainable
Medicines
Partnership

The Sustainable Medicines Partnership:

Practical solutions for sustainable medicines

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16th Sept 2026



YewMaker



4.5 trillion medicines are made every year
Billions are never used

- Huge environmental cost - 25% healthcare CO₂e in medicines.
- Huge financial cost - \$billions wasted every year.
- Two billion people do not have access to basic medicines.

We have to change

Change requires radical collaboration



A multi-stakeholder action collaborative of 48 organisations executing a programme to build, test & scale sustainable medicines solutions.



Pillars of Sustainable Medicines



SMP Programme

Five-year programme (2021-2026) to deliver science-based, scalable solutions through integrated Projects

Our Projects:

- Target 6 pillars of sustainable medicines.
- Deliver **data-driven solutions**
- Deliver **sector-wide frameworks**
- Deliver **standards** and **metrics**
- Deliver **implementation toolkits**
- Catalyse **impact**

SPECIFIC	We build sustainable solutions through sector-wide collaborative action
SYSTEMIC	We build the data, frameworks, and standards required for policy change

Impact



Stop billions
of effective
medicines
being wasted



Stop millions
of tonnes of
CO₂e
emissions



Stop billions
of wasted
healthcare
expense



Increase
equitable
access to
medicines



Increase
equitable
access to
knowledge



SMP Outputs

30 Outputs

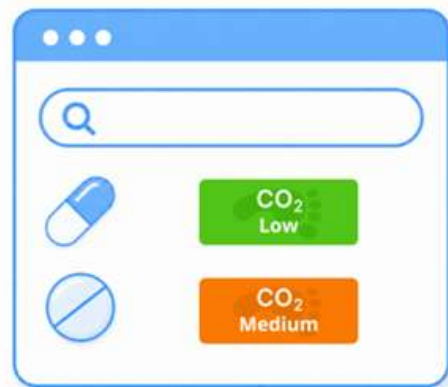
- Datasets
- Research
- Reports
- Frameworks
- Webinars

Key Output	Theme	Title	Description	Date	Type	Citation and link
YES	SMP mission	Sustainable Medicines - Good for people, planet, and business	Ebook describing the scale and causes of wasted medicines, and how the Sustainable Medicines Partnership is transforming theory to action, to deliver change.	05/09/2023	Report	Rahman, N. (2023). Sustainable Medicines - Good for people, planet, and business. Open Access Govt. https://doi.org/10.5281/zenodo.19049452
YES	Medicine carbon footprints	MCF Classifier: Estimating, standardizing, and stratifying medicine carbon footprints, at scale	Peer-reviewed publication describing the methods underlying MCF Classifier, which integrates empirical and modelled data to generate per dose small molecule medicine carbon footprint values.	16/09/2024	Journal Article	Taylor, H., Mahamdallie, S., Sawyer, M., & Rahman, N. (2024). MCF Classifier: Estimating, standardizing, and stratifying medicine carbon footprints, at scale. British Journal of Clinical Pharmacology, 90(11), 2713–2723. https://doi.org/10.1111/bcp.16229
YES	Medicine carbon footprints	Medicine Carbon Footprint (MCF) Dataset - Active Pharmaceutical Ingredients	Dataset of carbon footprint values for Active Pharmaceutical Ingredients, calculated using MCF Classifier - updated yearly.	29/05/2026	Dataset	Taylor, H., & Rahman, N. (2026). Medicine Carbon Footprint (MCF) Dataset - Active Pharmaceutical Ingredients [Data set]. YewMaker. https://doi.org/10.5281/zenodo.20340727

All SMP outputs are freely and durably accessible through the SMP Repository



Estimating, standardising
and stratifying medicine
carbon footprints,
at scale





The **M**edicine **C**arbon **F**ootprint Formulary gives standardised per dose carbon footprint ratings for thousands of medicines. Watch the [Quick Start video](#) to learn more.

Selected medicine

MCF Rating

> Loratadine 10mg tablets

CO₂
Low

Similar medicines

> Fexofenadine 180mg tablets

CO₂
High

> Cetirizine 10mg tablets

CO₂
Low

> Promethazine hydrochloride 25mg tablets

CO₂
Medium

4000 medicine products

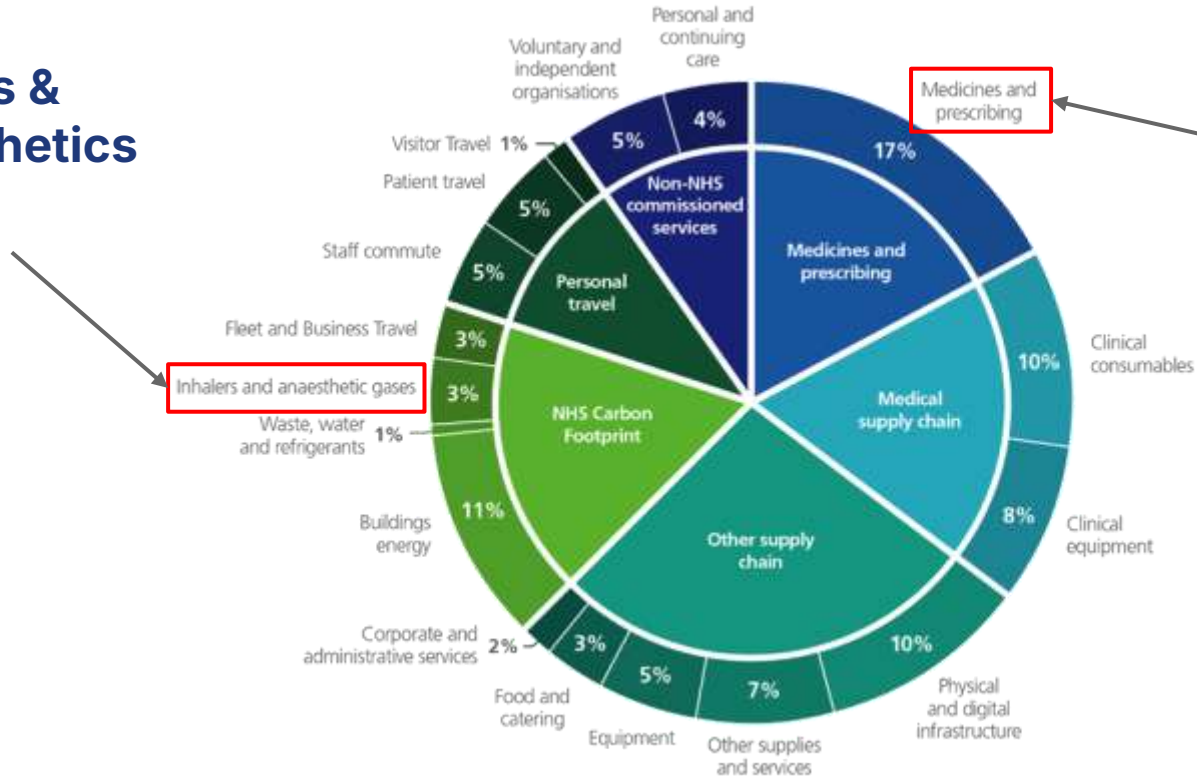


10,241 active users
43,733 page views

Since launch in March 2024

20% NHS carbon footprint is in medicines

Inhalers & Anaesthetics (3%)



The Rest (17%)

4.7 Million Tonnes CO₂e

2.46 million



MCF Classifier - the LCA sweetspot

Life cycle assessment (LCA) is the approach used to calculate carbon emissions.



Spend-based LCA is a **generalised** approach that **infers** emissions from spend. It is not specific enough for medicines and cannot meet upcoming requirements.



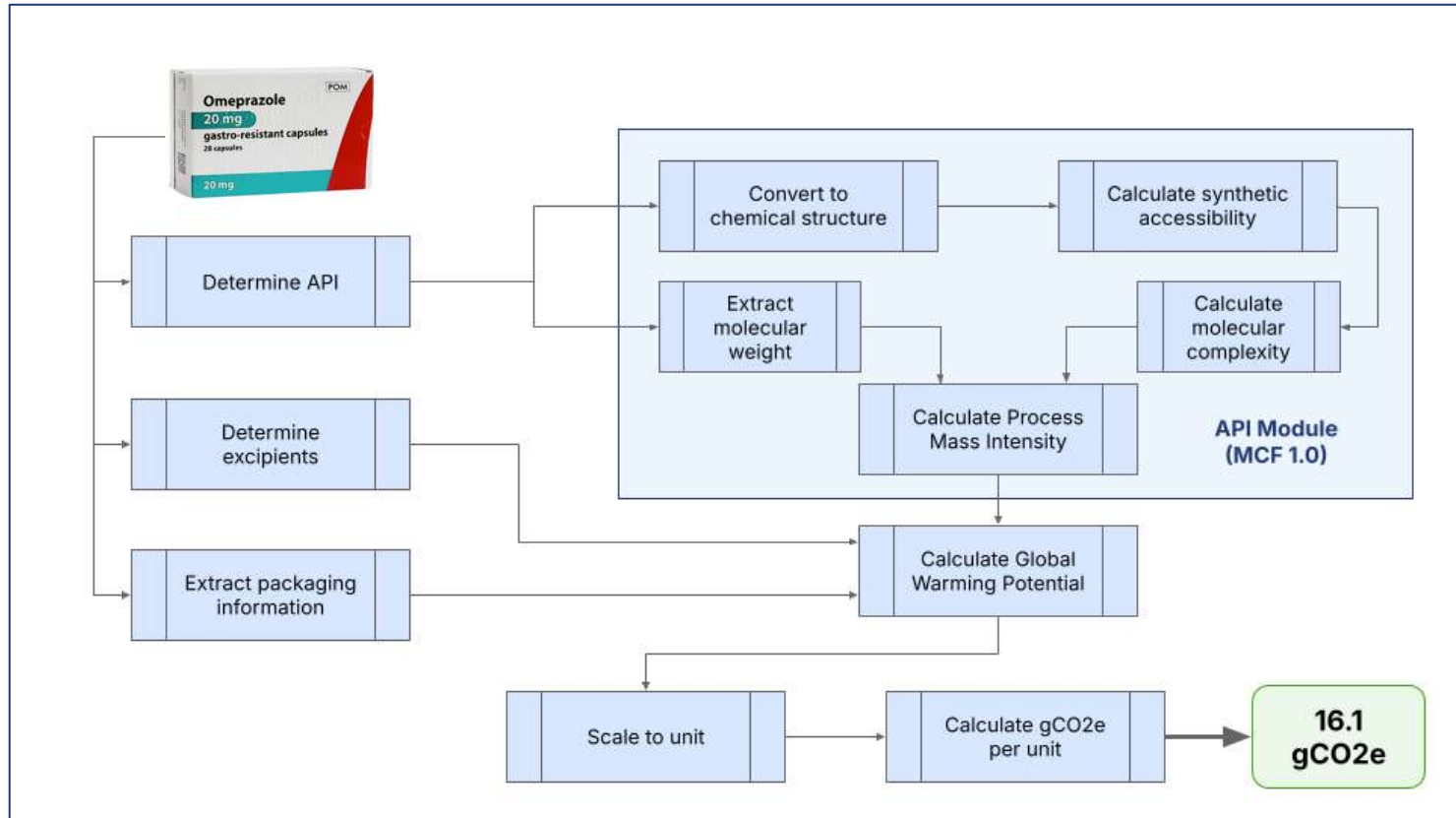
Manufacturer LCA is a **customised** approach that **measures** emissions for individual products. It is slow, expensive, and rarely comparable across products. Few are available.



MCF Classifier LCA is a **standardised** approach that **models** emissions using validated models and product specific attributes. It delivers specificity at scale.



MCF Method



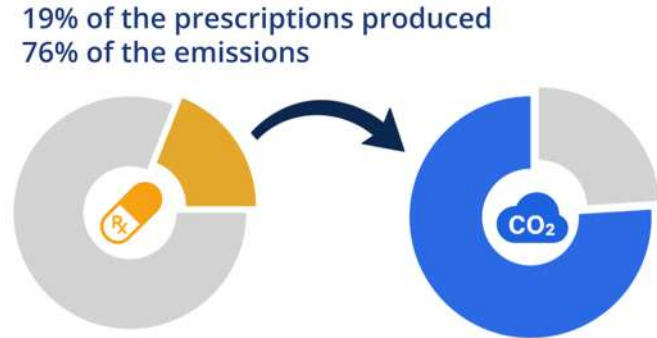
Emissions reporting

MCF Data can be used calculate the total carbon emissions for a specified product list over a specified time period providing:

- Fast, comprehensive, comparable product-level data across medicines.
- Scope 3 analyses based on emissions not spend-based proxies.
- Supplier and sustainability prioritisation by product emissions impact.

Case Study

- A leading pharmaceutical distributor uses MCF data to calculate the emissions from nearly **40 billion dispensed doses** to support their Scope 3 reporting.
- Much faster, cheaper, and more stable than spend-based method they were using.
- The results showed that **19% of prescriptions accounted for 76% of emissions**, providing a clear, data-driven prioritisation strategy for supplier engagement.



MCF Data is now available to all

Over 1500
downloads

 Sustainable Medicines Partnership

Published May 29, 2026 | Version v1

[Dataset](#) [Open](#)

Medicine Carbon Footprint (MCF) Dataset - Products

Taylor, Haroon ; Rahman, Nazneen¹ 

[Show affiliations](#)

Cradle-to-gate carbon footprint values for 34,796 medicine products, per dose.

 Sustainable Medicines Partnership

Published May 29, 2026 | Version v1

[Dataset](#) [Open](#)

Medicine Carbon Footprint (MCF) Dataset - Active Pharmaceutical Ingredients

Taylor, Haroon¹ ; Rahman, Nazneen¹ 

[Show affiliations](#)

Carbon footprint values for 2,907 APIs in kgCO₂e/kgAPI.

Deloitte.



Every Dose Used

Reducing Wasted Medicines Playbook

**DOWNLOAD
TODAY**

Triple-win opportunities

Patients

- Wasted medicines reduce the opportunities for the right patient to receive the right medicine at the right time.
- Medicines nearing their expiry date are often not sold and are destroyed, reducing patient availability.

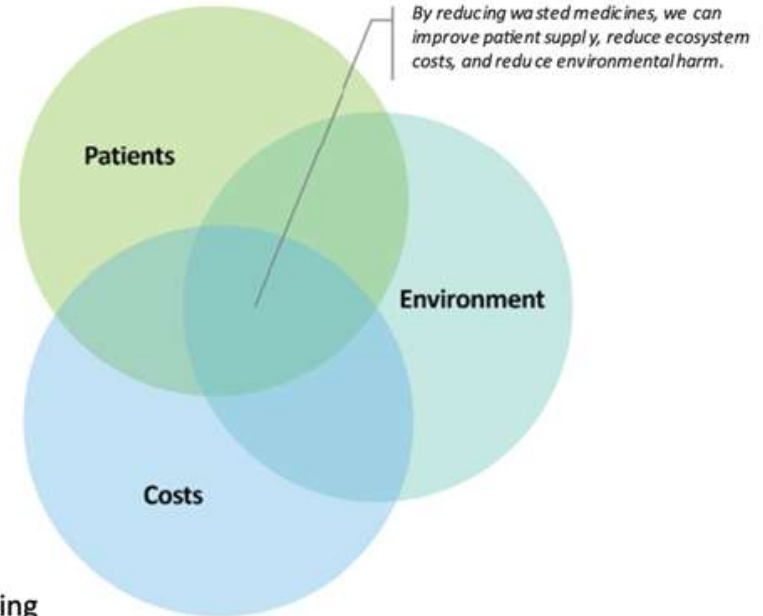
Costs

- Wasted medicines carry the costs associated with producing more than used.
- Inventory costs of storing excess medicines could be reduced if fewer medicines were wasted.
- Costs associated with the safe disposal of unused medicines could also be reduced if fewer medicines were wasted.

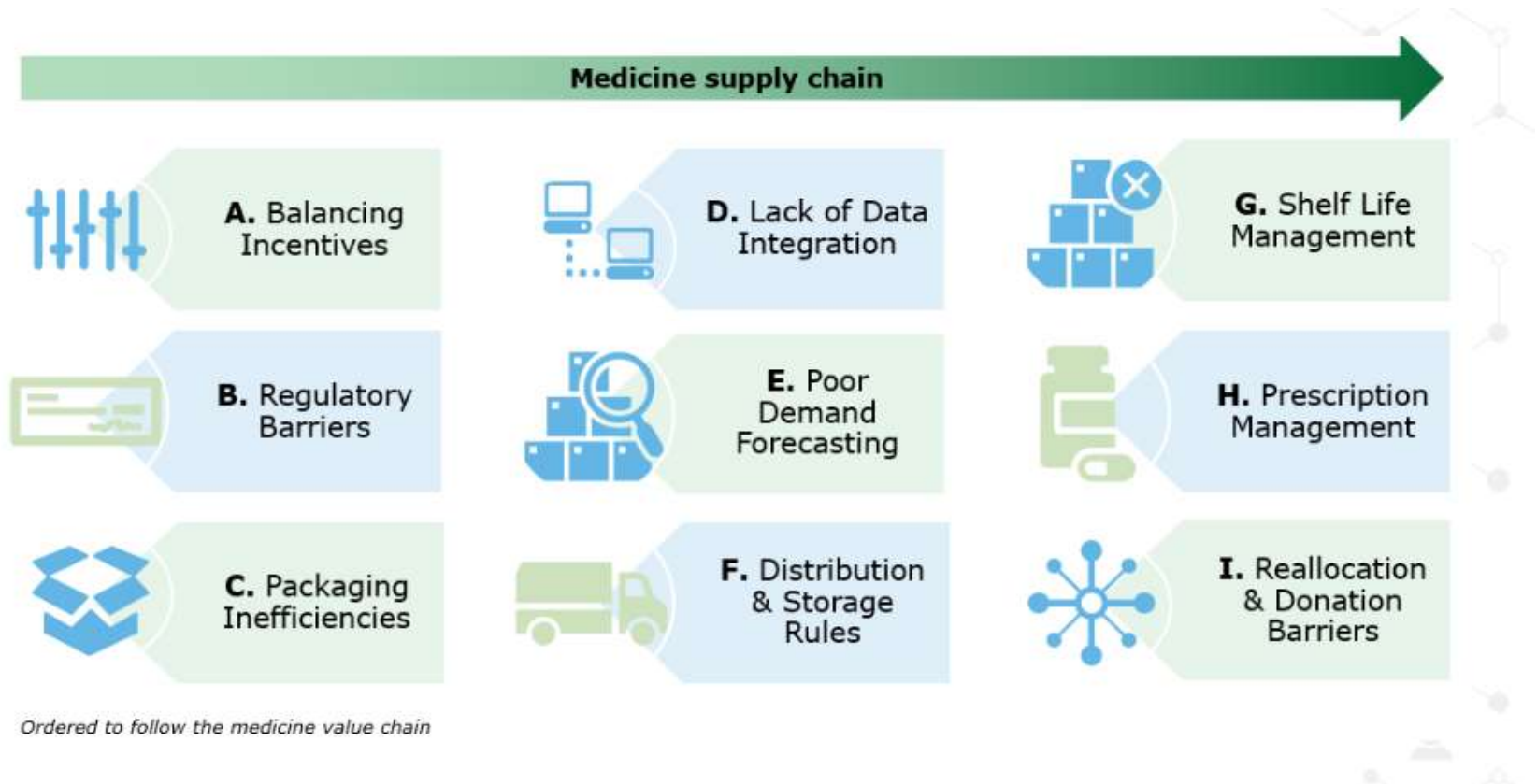
Environment

- Wasted medicines create emissions associated with the production, distribution, and disposal of those products.
- Wasted medicines also result in extra paper and plastic packaging waste, damaging to the environment.

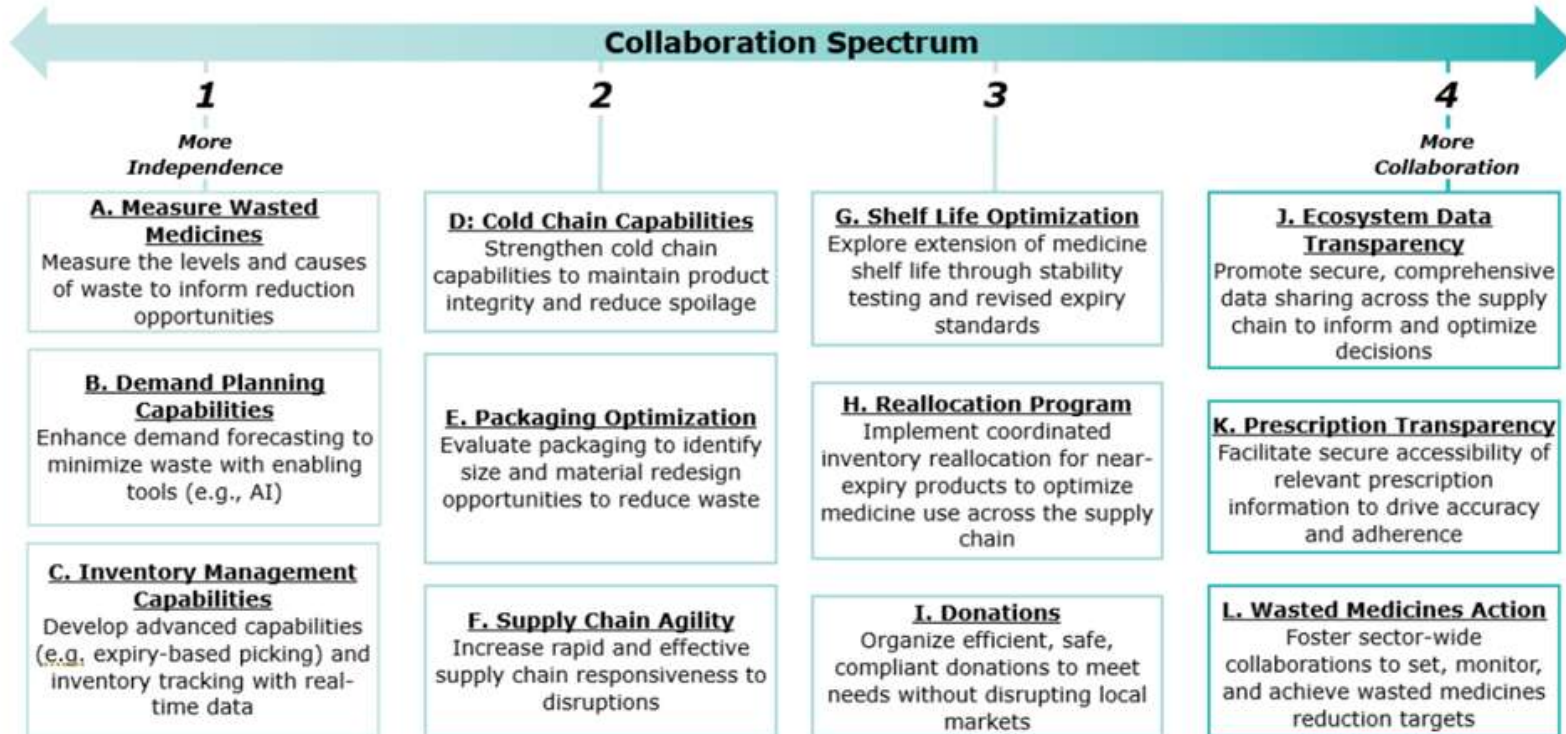
Figure 2:



Drivers of wasted medicines

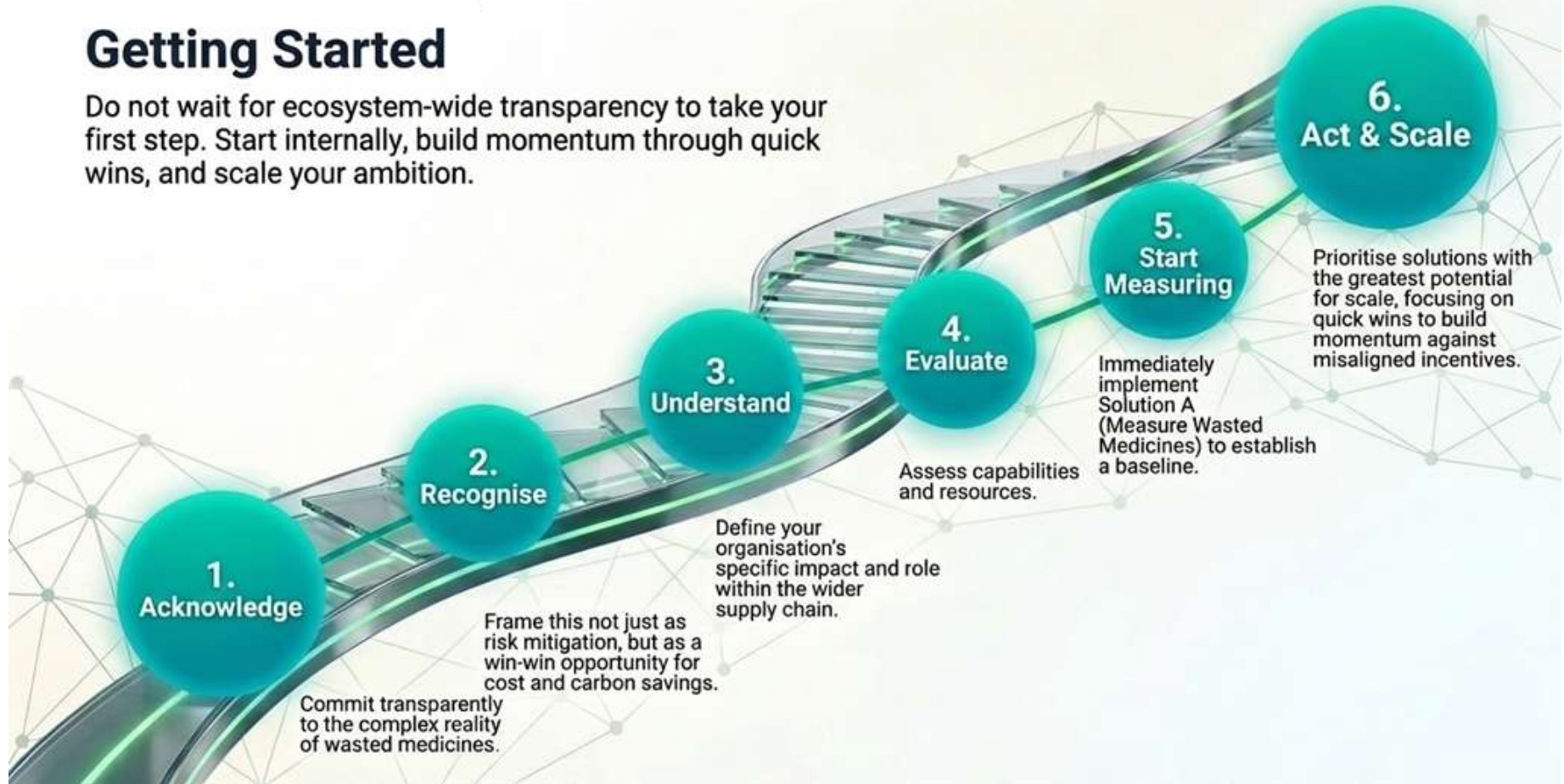


Solutions



Getting Started

Do not wait for ecosystem-wide transparency to take your first step. Start internally, build momentum through quick wins, and scale your ambition.



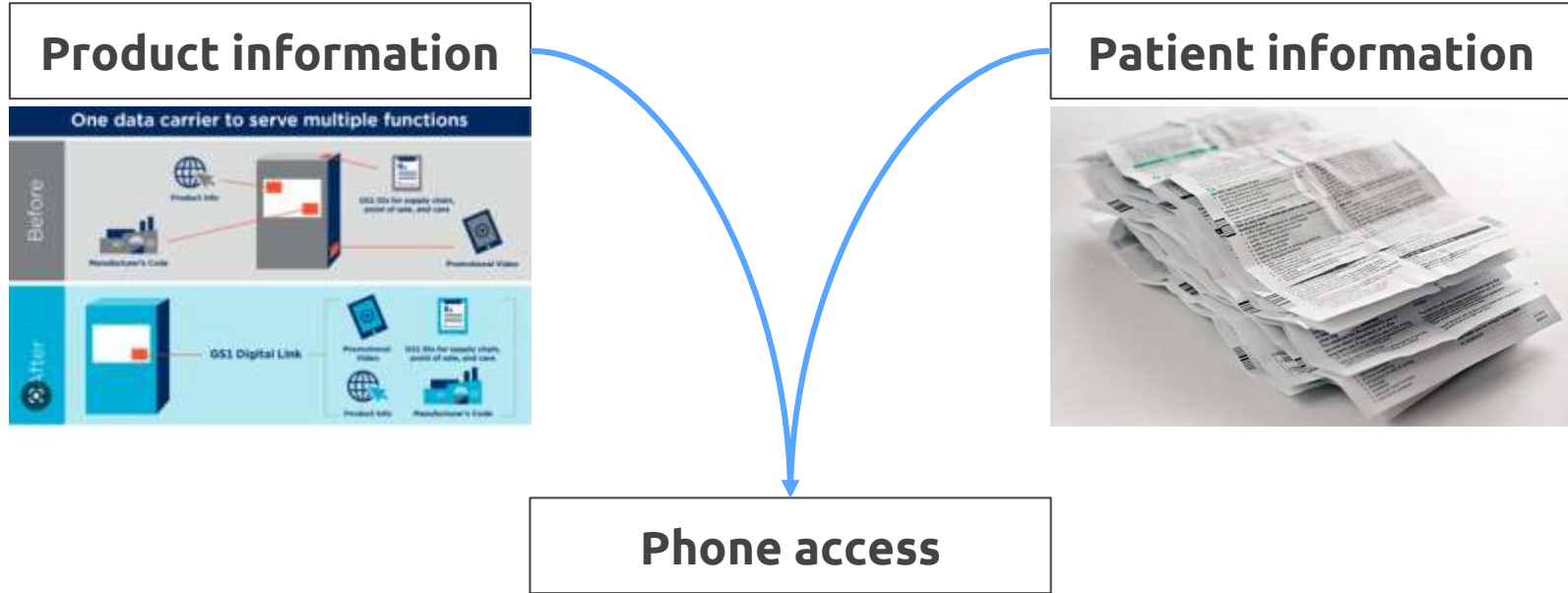
Digitally-inclusive information



Current systems of medicine information provision:

- Do not serve patient needs
- Squander planetary resources
- Cause medicine delays and wastage

We need accessible, integrated information



+





'Yewmakerol' pilot



THIS IS NOT A REAL MEDICINE

PACKAGE LEAFLET – INFORMATION FOR THE USER YEWMAKEROL 500MG TABLETS

Read all of this leaflet carefully before you start taking this medicine because it contains important information for you.

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor or pharmacist.
- Do not pass this medicine on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor or pharmacist. This includes any possible side effects not listed in this leaflet.

What is in this leaflet:

1. What yewmakerol is and what it is used for
2. What you need to know before you take yewmakerol
3. How to take yewmakerol
4. Possible side effects
5. How to store yewmakerol
6. Contents of the pack and other information

1. WHAT YEWMAKEROL IS AND WHAT IT IS USED FOR

The name of your medicine is Yewmakerol 500mg Tablets (called yewmakerol throughout this leaflet). This medicine contains yewmakerol. It belongs to a group of medicines called analgesics (painkillers) and is used to treat pain (including headache, toothache, back and period pain).

2. WHAT YOU NEED TO KNOW BEFORE TAKING YEWMAKEROL

Do not take yewmakerol and tell your doctor if:

- You are allergic to the active substance or any of the other ingredients in your medicine (listed in Section 6). Signs of an allergic reaction include a rash and breathing problems. There can also be swelling of the lips, arms, face, throat or tongue.

Children

Yewmakerol 500mg Tablets must not be given to children under 16 years of age.

Do not take yewmakerol (if any of the above apply to you. If you are not sure, talk to your doctor or pharmacist before taking yewmakerol).

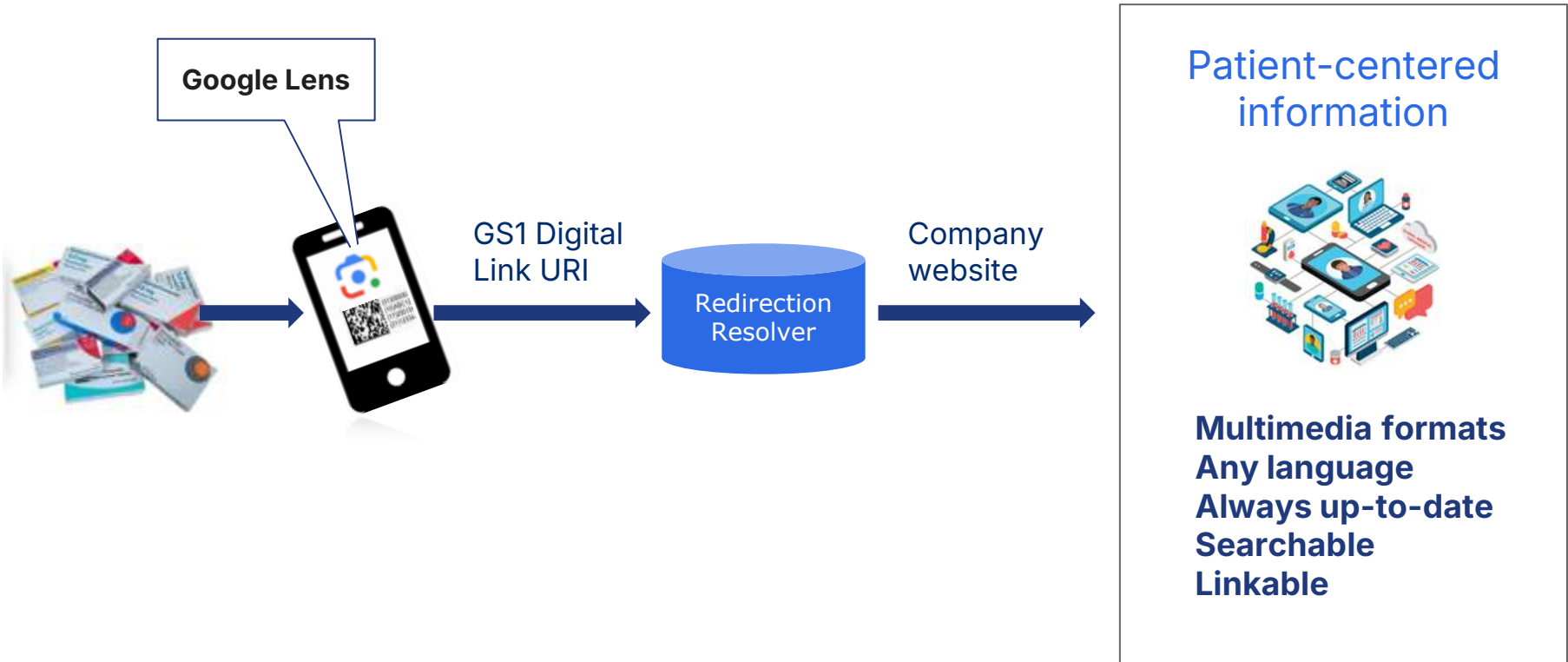
Warnings and precautions

Take special care and check with your doctor before taking yewmakerol if:

- You have severe kidney or liver problems
- You have a liver problem caused by alcohol



Scaling the solution



Impact SMP is catalysing



Stop billions
of effective
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Stop millions
of tonnes of
CO₂e
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Stop billions
of wasted
healthcare
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Increase
equitable
access to
medicines



Increase
equitable
access to
knowledge

SMP Repository



- Definitive SMP archive
- 30 resources
- Housed on Zenodo platform (CERN)
- DOI for every resource
- Durable and citable
- CC BY 4.0 licence (universal use)
- Fully detailed and linked in Overview

Everything is available from YewMaker website: <https://www.yewmaker.com/>