



Sustainable
Medicines
Partnership



YewMaker

Reducing Single-Use Plastics in Medicine Packaging



Roundtable Report
April 2022

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4.5 Trillion medicines made every year ¹

But:

- Billions of effective medicines discarded unused ^{2,3}
- Billions of medicines lost due to packaging or delivery failures ^{4,5}
- Huge environmental cost - 25% healthcare CO2e in medicines ²⁻⁷
- Huge financial cost - \$billions wasted every year ²⁻⁷
- Two billion people do not have access to basic medicines ⁸

Solutions require collective stewardship, commitment, and action.

Sustainable Medicines Partnership

A multi-stakeholder global partnership executing a programme to build, test & scale sustainable medicines frameworks and solutions.



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Concept	2020
Programme design	2021
Programme delivery	2022-2025
Solutions scaled	2026-2030

SMP Programme

Four year programme to deliver science-based, scalable solutions through integrated Projects.

SMP Projects:

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

SPECIFIC

We build sustainable solutions through sector-wide collaborative action

SYSTEMIC

We build the data, frameworks, and standards required for policy change

Pillars of Sustainable Medicines





SMP Roundtable

Reducing Single-Use Plastics in Medicine Packaging



1st December 2021

Roundtable structure

Sector-wide participation

58 participants across whole community

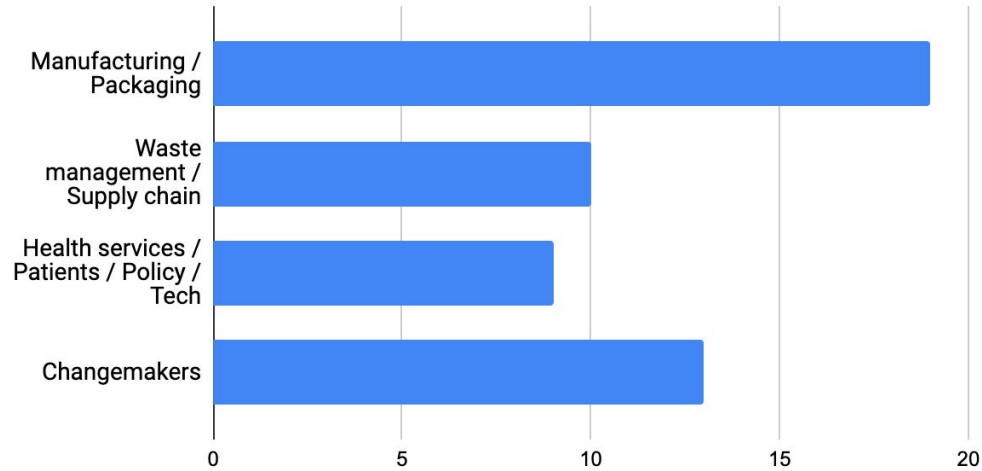
Innovation presentations

Cutting-edge content

Small & large group discussion

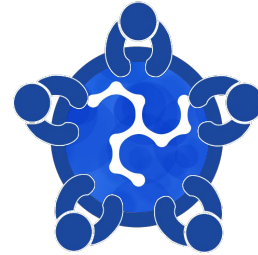
Structured so every voice heard

Roundtable participants



Roundtable Poll: individuals identified themselves as part of one or more of the SMP stakeholder groups.

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Background

Medicine packaging - current landscape

High-quality composite materials used to deliver specialised functions
Design and disposal tightly regulated

Complex materials



Medicine packaging uses multiple materials to fulfil specialised functions

Rarely recycled

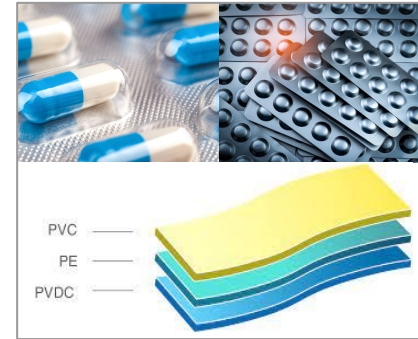


Most packaging incinerated or goes to landfill, wasting valuable materials

Challenge 1 - Complexity

Packaging for medicines are complex:

- Functions: protection from moisture, gases, light
- Materials: e.g. PVC*, PVdC*, PCTFE*, PP, OPA, COC, EVOH, PE, PET-G, A-PET, Alu
- Compositions: materials often combined
- Regulations: function, traceability, disposal, reuse



Hard-to-recycle* plastics often used to deliver functionality

Challenge 2 - Collection

Medicine packaging waste collection is difficult:

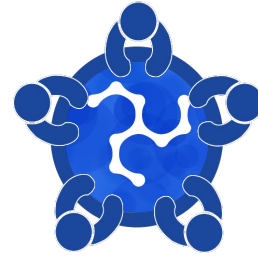
- Volumes: high and increasing
- Distribution: homes, hospitals, factories
- Contamination: with medicines
- Sorting: small size, composite materials
- Coordination: large-scale strategies vital, but rare



Global blister market ⁹

High-quality, high-volume, valuable materials are being wasted

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Innovations

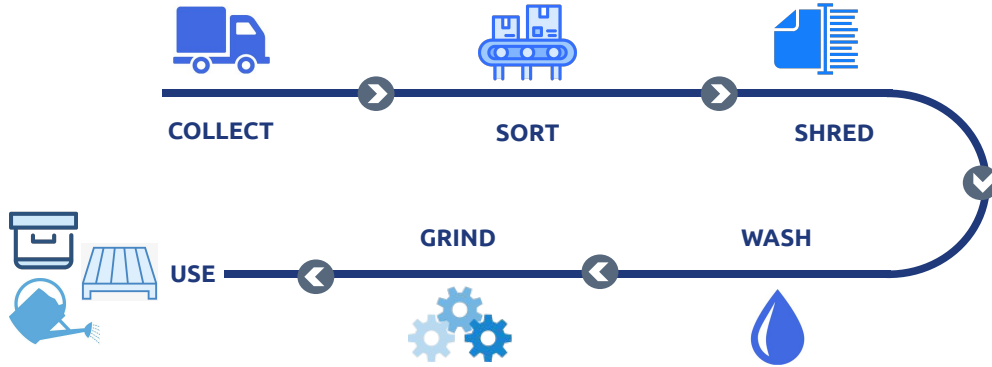
Innovations - Redesign



Redesign can decrease single-use and increase recycling options ¹⁰

Innovations - Mechanical recycling

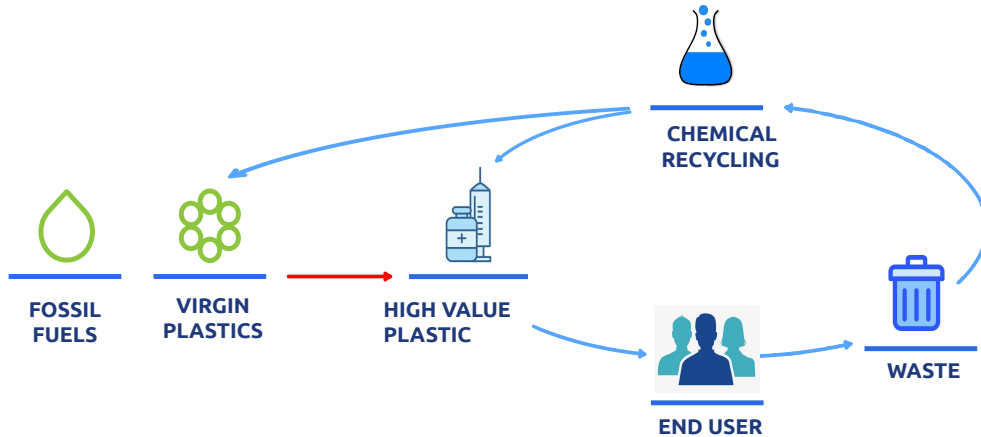
Mechanical recycling is the processing of plastic waste to secondary materials and products without altering the chemical structure ^{11,12}



Mechanical recycling is being used for some medicines plastics ¹³

Innovations - Chemical recycling

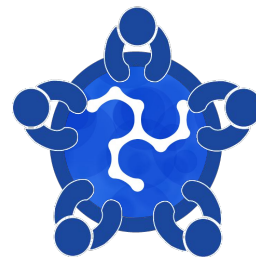
Chemical recycling is the conversion of plastic waste back to their molecular virgin-grade building blocks for reuse ^{12,14}



 Advanced recycling technology Making plastics circular	
CERTIFIED CIRCULAR POLYOLEFINS <small>FROM SABIC'S TRUCIRCLE™ PORTFOLIO OF CIRCULAR SOLUTIONS</small>	

Chemical recycling may provide circular solutions for medicines plastics ¹⁵

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Roundtable Takeaways

Top 3 takeaways

Function First

Functional requirements of medicine packaging should be the priority and not compromised.

Circular Solutions

The high-quality materials should be recyclable and recycled. They should not be lost.

Data-driven Strategy

Sector-wide data on volumes and materials needed to develop practical, scalable strategies.

Function First

Medicine packaging must:

- Protect from degradation and tampering
- Maintain drug stability to ensure shelf life
- Enable tracking for delivery logistics and authenticity
- Allow easy access for patients
- Prevent easy access to children
- Be adaptable to individual medicine requirements



Patient safety and access should determine packaging design

Integrating sustainability considerations at all stages

Circular Solutions

Sector-wide, holistic approach to:

- **Reduce:** overprescribing, unused medicines, plastic content
- **Redesign:** plastic alternatives, more recyclable plastics
- **Rebuild:** recyclable packaging from recycled materials
- **Recover:** effective collection and sorting systems
- **Recycle:** deploy diverse methods - mechanical and chemical
- **Reuse:** certified pathways to use recycled constituents



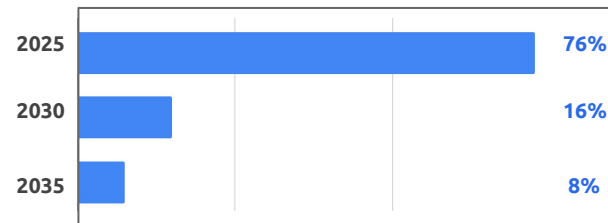
Holistic, circular approach needed to reduce single-use plastics

Integrating sector-wide needs, barriers, and opportunities

Data-driven Strategy

Medicines plastics strategy needs:

- **Data:** volumes and materials across whole sector
- **Benchmarks:** within sector and from other industries
- **Transparency:** for traceability and certification
- **Practical roadmaps:** to turn aspiration into action
- **Commercial viability:** at organisation and sector level
- **Incentivisation:** multi-stranded 'carrot-and-stick' options



Roundtable Poll: 76% believed we should have a medicines plastics strategy by 2025

Practical, scalable medicines plastics strategies are needed
Integrating data on volumes, materials & commercial considerations

Roundtable feedback

It was fascinating to hear all the different potential solutions to this issue and how we could tackle this from many different stances.

Interesting discussion, good to see there is a cross industry group of companies eager to collaborate.

How do we become more involved in the SMP?

It was good to meet other stakeholders. The breakout rooms seemed to be chosen according to expertise, which allowed more focussed conversation.

Good discussion, good content and a diverse group.

Very useful wide discussion that illustrated the level of collaboration needed to solve the issue.

The balance and representation from the whole supply chain was excellent.

100% of survey respondents found the Roundtable useful

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Next Steps

SMP Project - Circular packaging solutions

Benchmarking data

Collect and generate sector medicines plastics data to inform strategy.

Prototype solutions for hard-to-recycle plastics

Chemical recycling and reuse certification for blister packs.

Develop practical roadmaps

Certification and valorisation roadmaps, prototyping with manufacturing waste.

References

1. [Global Medicines Use in 2020](#)
2. [Expired Medication: societal, regulatory and ethical aspects of a wasted opportunity](#)
3. [Evaluation of the scale, causes and costs of waste medicines](#)
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6. [A carbon footprint assessment of the NHS](#)
7. [The role of material efficiency in environmental stewardship](#)
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9. [Global blister packaging market](#)
10. Redesign innovations - each image is a hyperlink to reference
11. [Recycling technologies](#)
12. [Mechanical recycling of packaging plastics](#)
13. Mechanical recycling innovations - each image is a hyperlink to reference
14. [Technologies for chemical recycling](#)
15. Chemical recycling innovations - each image is a hyperlink to reference

Contact us

If you would like to be involved email: info@yewmaker.com

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Thanks

We thank all participants for their energetic and
constructive engagement

We thank the following SMP Collaborators for their contributions to the Roundtable presentations

