

SUSTAINABILITY OF PHARMACEUTICAL AND COSMECEUTICAL PRODUCTS WITHIN DERMATOLOGY

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ABSTRACT

The extent of packaging materials used in topical dermatological products and the sustainability of these are not well known. It is a known fact, however, that individual dermatology departments prescribe or recommend these dermatological products to patients. This study aims to evaluate current practice in terms of how many dermatological products distributed to patients are recyclable, by assessing whether the topical treatments available within a dermatology department display a Mobius loop or equivalent – thus indicating that a product and its packaging may be recycled. Our results show that a low proportion of the assessed items displays any indication of their recycling potential, therefore adding to unnecessary waste. Raising awareness, promoting sustainability from grassroots levels within dermatology departments and empowering patients to adopt recycling practices enable dermatology as a specialty to encourage pharmaceutical and cosmeceutical companies supplying these products to support ethical recycling values in all medical fields.

Keywords: dermatology recycling, pharmaceutical recycling dermatology, cosmeceutical recycling dermatology, dermatology sustainability

INTRODUCTION

The extent of packaging materials used in topical dermatological products and the sustainability of these are not well known. It is a known fact, however, that individual dermatology departments prescribe or recommend these dermatological products to patients. Most topical treatments prescribed can be full-size and contained within a product container. This container may be supplied with additional packaging boxes and leaflets. These products are also usually available in a smaller, ‘sample’ size, with the intention of being supplied to patients as a trial, prior to the prescription or purchase of a full-size product.

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These are also packaged within a smaller product container and can be packaged individually in boxes or with larger boxes. It is difficult to quantify the number of these products dispensed, but given their easy availability and presence across all dermatology departments, it is likely to be multiple in number. The supply of these products adds to the carbon footprint through their production, amount of packaging and recycling potential.

This study, performed in the form of a quality improvement project, aims to assess current practice in terms of how many dermatological products distributed to patients are recyclable. Raising awareness, promoting sustainability from grassroots levels within dermatology departments and empowering patients to adopt these recycling practices enable dermatology as a speciality to encourage pharmaceutical companies supplying these products to support ethical recycling values in all medical fields.

METHOD

The universal Mobius loop logo may appear on a product container or any packaging. Variants of this loop exist. However, in general, the presence of this symbol indicates that a material is capable of being recycled.

A manual review was performed within a single dermatology department of all the physically available date, full-size and sample-size products (inclusive of the product container, accompanying product boxes, sample containers and leaflets where present) for the presence or absence of a Mobius loop or alternative indication of its recycling potential.

The following definitions were used:

- Product Container = container immediately holding the pharmaceutical product.
- Product Box = any box enclosing the product container.
- Sample Container = any sample size product accompanied with a further box to hold.
- Product Leaflet = accompanying leaflets or instructions.

If there was no associated extra packaging seen, this was assigned as not applicable – ‘n/a’. ‘S’ denotes that the product was of sample size.

Products reviewed included emollients, soap substitutes, shampoo, topical steroid ointment/cream, topical antibiotic cream/ointment and other topical medicinal products available.

RESULTS

A total of 57 items were assessed and categorised into medicinal and non-medicinal items. Non-medicinal items (Table 1) were identified as emollients, soap substitutes shampoos and antiperspirants, of which there were a total of

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37 products (37/57; 65%). Of these 37 products, 11 (30%) were in a product container only, of which 7 (64%) displayed a Mobius loop or equivalent, and 16 (43%) products also had both accompanying product box and the product container, of which 7 (44%) had displayed a loop on the product container only, 1 (6%) displayed a Mobius loop on the product box only, 0 had displayed a loop on both box and container and 8 (50%) did not display a loop or equivalent on either product container or product box. Out of 37 products, 6 (16%) items came with a product container and a sample container but without a small individual product box, of which 2 (33%) displayed a Mobius loop on the product container only, no sample containers displayed a Mobius loop or equivalent and 4 (66%) did not contain a Mobius loop to indicate recycling potential at all. The remaining 4 (11%) of 37 products came with a product container, individual product box and also a sample container, of which 3 (75%) displayed the Mobius loop on all three of the product container, product box and sample container and 1 (25%) displayed the Mobius loop on the product box and sample container, but not on the product container. Of the 37 non-medicinal products, 11 were also accompanied by a product leaflet, of which 0 (0%) of these leaflets displayed a Mobius loop or equivalent. In total, 78 pieces of packaging/associated extras were present over 37 non-medicinal items, of which only 28 (36%) displayed a Mobius loop or equivalent to indicate recycling potential.

Medicinal items (Table 2) were identified as topical steroids, topical antibiotics or topical antifungals and any other topical product not defined within the context of non-medicinal, of which there were a total of 20

Table 1. Non-medicinal items

Product	Product Container	Product Box	Samples Container	Product Leaflet
Cera Ve foaming cleanser 20ml (s)	Present	n/a	n/a	n/a
Cera Ve Moisturising Cream 5ml (s)	Present	Present	Present	n/a
Cera Ve SA Smoothing Cream 5ml (s)	Present	Present	Present	n/a
Cetraben Cream 30g	Present	n/a	n/a	n/a
Cetraben Ointment 500g	Present	n/a	n/a	n/a
DermaX Therapeutic Shampoo 25ml (s)	Not Present	Not Present	n/a	n/a
DermaX Therapeutic Shampoo 250ml	Present	Not Present	n/a	Not Present
Dermol 600 Bath Emollient 50ml	Present	Not Present	n/a	Not Present

(Continued)

Table 1. (Continued)

Product	Product Container	Product Box	Samples Container	Product Leaflet
Dermol 600 Bath Emollient 500ml	Present	Not Present	n/a	Not Present
Dermol Cream 30g	Not Present	Not Present	n/a	Not Present
Doublebase Dayleve Gel 100g	Not Present	Not Present	n/a	Not Present
Doublebase Emollient Wash Gel (s) 25g	Not Present	Not Present	n/a	Not Present
Doublebase Emollient Bath Additive 50ml (s)	Present	Not Present	n/a	Not Present
Doublebase Gel 25g (s)	Not Present	Not Present	n/a	Not Present
Doublebase Gel 1kg	Present	Not Present	n/a	Not Present
Driclor Antiperspirant 20ml (s)	Present	Present	n/a	Not Present
Epaderm cream 25g (s)	Present	n/a	n/a	n/a
Epaderm Ointment 25g (s)	Present	n/a	n/a	n/a
Epimax Ointment 25g (s)	Present	n/a	n/a	n/a
Hydromol Ointment 50g (s)	Not Present	Not Present	n/a	n/a
Hydromol Cream	Not Present	Not Present	n/a	Not Present
LRP Anthelios Pigment Correct 3ml (s)	Not Present	n/a	n/a	n/a
LRP Anthelios Oil Correct (s) 3ml	Not Present	n/a	n/a	n/a
LRP Cicaplast Baume B5 3ml (s)	Not Present	Present	Present	n/a
LRP Lipikar Baume AP+M (s) 14g	Present	Present	Present	n/a
QV Gentle Wash 15g (s)	Present	n/a	Not Present	n/a
QV Intensive ointment 10g (s)	Not Present	n/a	Not Present	n/a
QV Skin Lotion 15ml (s)	Present	n/a	Not Present	n/a
QV Cream 15g (s)	Not Present	n/a	Not Present	n/a
Sunsense sensitive 10g (s)	Not Present	n/a	Not Present	n/a
Sun Sense daily face 10g (s)	Not Present	n/a	Not Present	n/a
Tena Wash Cream 1000ml	Present	n/a	n/a	n/a
Yellow Soft Paraffin BP 15g (Ecolab)	Not Present	n/a	n/a	n/a
Pure Touch Yellow Soft Paraffin 15g (Creightons)	Not Present	n/a	n/a	n/a
Zerodouble Gel 20g (s)	Not Present	Not Present	n/a	n/a
Zerocream Emollient 30g (s)	Not Present	Present	n/a	n/a
ZeroAQS Emollient Cream 50g (s)	Not Present	Not Present	n/a	n/a

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Table 2. Medicinal items

Product	Product Container	Product Box	Samples Container	Product Leaflet
Bactroban 2% Cream 15g (GSK)	Not Present	Not Present	n/a	Not Present
Betnovate Cream 30g (GSK)	Not Present	Not Present	n/a	Not Present
Betamethasone Valerate 0.1% w/w ointment (Manx Pharma)	Not Present	Not Present	n/a	Not Present
Clobavate 0.05% w/w ointment 100g (Teva)	Not Present	Not Present	n/a	Not Present
ClobaDerm Ointment 100g (Accord)	Not Present	Not Present	n/a	Not Present
Dermovate Cream 100g (GSK)	Not Present	Not Present	n/a	Not Present
Eumovate Cream 100g (GSK)	Not Present	Not Present	n/a	Not Present
Eumovate Ointment 100g (GSK)	Not Present	Not Present	n/a	Not Present
Elocon 0.1% w/w Ointment 100g (MSD)	Not Present	Not Present	n/a	Not Present
Fucidin H cream 30g (Leo)	Not Present	Not Present	n/a	Not Present
Hydrocortisone Cream 1% w/w 15g (Co-pharma)	Not Present	Not Present	n/a	Not Present
Hydrocortisone Ointment 1% w/w 15g (Co-pharma)	Not Present	Not Present	n/a	Not Present
Hydrocortisone 2.5% Cream 15g (Essential Generics)	Not Present	Not Present	n/a	Not Present
Metvix 160mg/g Cream 2g (Galderma)	Not Present	Not Present	n/a	Not Present
Mometasone Furoate 0.1% w/w Cream 30g (Glenmark)	Not Present	Not Present	n/a	Not Present
Mometasone Furoate 0.1% w/w Ointment 100g (Glenmark)	Not Present	Not Present	n/a	Not Present
Mupirocin 20mg/g ointment 15g (Intrapharm)	Not Present	Not Present	n/a	Not Present
Terbinafine Hydrochloride 1% Cream 15g (Sovereign Medical)	Not Present	Not Present	n/a	Not Present
Trimovate Cream 30g (Ennogen)	Not Present	Not Present	n/a	Not Present
Xemacort 20mg/g+1mg/g cream 30g (Mylan)	Not Present	Not Present	n/a	Not Present

products (20/57; 35%). A total of 60 pieces of packaging/associated extras were present over 20 medicinal items. None of the products defined contained a Mobius loop or equivalent on any product container, product box or product leaflet.

DISCUSSION

The results conclude that a low proportion of the full-size and sample-size products available and being dispensed from the dermatology department displays a Mobius loop or any indication of the recycling potential of that item and associated packaging. During the manual review, it was noted that, in some products that did contain a loop or equivalent, the symbol was marked extremely small or relatively hidden, making it difficult to see or find. If it was assumed that the item and packaging were not recyclable, there is a risk that this would be thrown away and thus added to the landfill.

Another observation made was the amount of extra packaging, especially with sample-size products, some of which were enclosed in smaller individual product boxes as well as being contained in a further sample container box. It is questionable whether this extra packaging is necessary. Through the use of sample-size products, it is likely that the manufacture of smaller multiple pieces of plastic produces more waste than dispensing a single full-size product and increases carbon footprint. It is also unlikely that a smaller sample would be adequate for trial purposes, thus requiring the dispensation of a higher volume of smaller samples. This has been corroborated in a study of cosmeceutical sample-size products, where it was shown that the packaging consisted of a higher proportion of the product weight in comparison with a full-size product (Duff et al., 2023).

The contents of the medicinal products are considered to be clinical or pharmaceutical waste, and so it is not within the current scope to recycle their product containers, thus offering a potential explanation for the absence of a Mobius loop or equivalent. However, the product box and leaflets may have had recycling potential if this was clearly indicated. Unfortunately, there was no such indication in any of the assessed product packaging.

It is important to note that the absence of a recycling symbol does not mean that the item cannot be recycled. Certainly, in the case of the product leaflets and boxes which appear to be made of paper and cardboard, it can be assumed that these can be recycled. If assumed and included in the results, this may increase the overall rate of recycling potential of the products. However, in real terms, it is likely that the lack of this symbol would result in the packaging being discarded in general waste. Alternatively, if the information is missing, it may be possible to obtain this information by contacting the manufacturer; however, this would be a time-consuming process that most patients may not be able to do.

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There are limited studies in the literature assessing the recycling potential of topical dermatological products. Tso and colleagues concluded similar findings of a significant proportion of full-size and sample-size cosmeceutical products not displaying the Mobius loop recycling symbol (Tso et al., 2022).

LIMITATIONS

Only items present in the department were assessed as encountered in their respective storage areas; thus, some packaging may have been missed. Some items may have had their product boxes discarded for ease and space of storage, or accompanied by a leaflet which again may be discarded or lost if not contained with a product box. It is also possible that the products may have been plastic-wrapped or delivered in larger boxes which have not been accounted for in this study. It is also possible that the newer products manufactured since this study display the Mobius loop or equivalent on more packaging items.

CONCLUSION

The consciousness and practice of sustainability start at every level. Dermatologists, as the providers and prescribers of multiple medications, must be at the forefront of encouraging patients to recycle. Dermatologists, with their close working relationship and contact with pharmaceutical and cosmeceutical companies, are also in a prime position to feed back and thus ensure companies are more responsible in using readily recyclable products, marking this clearly and visibly on all their products and also encouraging them to cut down on unnecessary extra packaging and use more recycled or responsibly sourced materials in their primary packaging. This study adds to the existing literature, which serves to attest that it is the shared responsibility of patients, doctors and industry to promote the ethos of reduce, reuse and recycle.

CONFLICTS OF INTERESTS

The authors declare that they have no competing interests.

ETHICAL APPROVAL

Not applicable. This project was conducted as a quality improvement project.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

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