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Topical treatment samples: plastic, recycling and sustainability

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Dear Editor,

The use of plastic in healthcare, including dermatology, is ubiquitous and increasing.[1] Production of plastic accounts for 8% of the oil produced globally, and incorrect disposal contributes to the debris seen on up to 80% of shorelines.[1] Disposable gloves, syringes and surgical instruments are among the culprits, but more specific to dermatology is the plastic packaging of emollients.

Samples of emollients and other nonprescription topical preparations are used in most dermatology departments. They give patients the ability to try different products to find something that works for them, and can be invaluable, particularly in eczema clinics.

We reviewed all the samples available in our department, specifically looking for information on whether the packaging could be recycled. We contacted the relevant companies, enquiring as to whether the product packaging could be recycled and if they had any plans or projects on sustainability.

We found 28 different samples available manufactured by 8 different companies. The packaging ranged from bottles, with and without pumps, sachets, tubs and tubes. Some of the samples had additional packaging in the form of a cardboard box in which the actual product container was packaged. Information on recycling was available on none (0 of 28; 0%) of the sample containers.

We received six responses from the eight companies we contacted, giving a response rate of 75%. For the 28 samples within our department, we were told that 5 (18%) could be recycled, while another 5 (18%) could not be recycled, with reasons ranging from mixed materials in pump heads to use of combined plastics and aluminium in sachets. There was no clear information or no response regarding the remaining 18 (64%) of the 28 sample containers.

Reasons listed for using plastic packaging included the longevity of the product, maintaining sterility and prevention of contaminants. Companies informed us that products made from polyethylene terephthalate (PET) or high-density polyethylene were usually recyclable, depending on local availability. However, there is more information emerging that opaque PET, which makes up the majority of sample containers, is significantly less likely to be recycled compared with clear PET packaging.[2]

This survey highlights barriers in recycling of topical emollient sample containers. There is a lack of transparency on whether packaging can be recycled, with none of the samples available within our department having this information. Furthermore, it is clear that the use of pumps with mixed materials renders the packaging nonrecyclable. Even when containers are supposedly recyclable, there is concerning information that opaque plastic is recycled much less frequently than its clear counterpart.

Environmental sustainability is a key goal for the National Health Service, and as doctors, we need to be at the forefront of this effort. Patients should have access to sample emollients with recyclable containers, and recycling information should be clearly displayed. Some of the companies surveyed are making efforts to make their packaging recyclable, changes that are urgently needed As dermatologists, we need to be fully informed about the packaging of the samples, meaning we can provide these to patients judiciously and ask them to recycle where possible.

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On-pack recycling label in cosmeceutical products in dermatology

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Dear Editor,

The sheer scale of packaging materials used in dermatological cosmeceutical products in the UK and

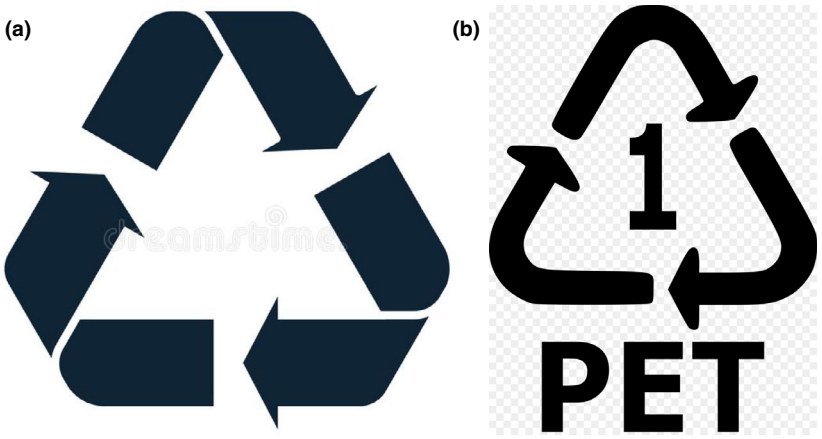

Figure 1 (a) Mobius loop logo; (b) Mobius loop with plastic resin code 1 for polyethylene terephthalate.

internationally has not yet been systemically examined. As responsible global citizens, we should reduce, reuse and recycle the everyday materials we use, in order to help us live a more sustainable lifestyle. The universally recognized Mobius loop logo (Fig. 1a) denotes a material is capable of being recycled. Materials made from plastic resin capable of being recycled can be identified by a number within the Mobius loop (Fig. 1b), which specifies the type of plastic resin used; e.g. PET is polyethylene terephthalate. When recycling, always check with the local area's waste and recycling service provider to determine if a packaging material will be accepted for local recycling, as the capability of these service providers may differ significantly. There are many other widely recognized symbols related to recycling or sustainability. These include symbols denoting if a material is compostable; if the wood-based packaging material is sourced from independently certified well-managed forests; and if the packaging manufacturer has made financial contributions towards the recovery and recycling of the packaging, and in relation to certain materials such as glass and metal. The presence of on-pack recycling logos can facilitate both children and adults to rapidly recognize a packaging material's capability of being recycled.

The purpose of this study was to explore a selection of dermatological cosmeceutical products, both full size and sample size, to determine whether they display the Mobius loop symbol.

Two of the authors (VT and CSL; primary school children in the UK and Singapore, respectively) carefully examined, with parental aid, 79 dermatological cosmeceutical products for the presence of the Mobius loop symbol on the packaging material. The UK sample consisted of 37 full-size and 26 sample-size dermatological cosmeceutical products, while the Singapore sample consisted of 16 full-size cosmeceutical products, with none being sample size. The data collected included the name of the cosmeceutical product, batch/lot number, expiry date and whether the packaging displayed the Mobius loop symbol (Table S1). A third author (SM) randomly sampled and independently validated 32% of the dataset (25 of 79 products).

The results (Table 1) showed that 47 of the 79 products (59%) had a Mobius loop on the container carrying the cosmeceutical product. Of the 79 products, 36 (46%) had an outer cardboard box packaging in addition to the container actually carrying the cosmeceutical product, and of these 36 boxed products, 12 (33%) displayed a Mobius loop recycling symbol on the box and 9 (25%)

Table 1 Results from the study of cosmeceutical product packaging.

	Product		
Product	Full size	Sample size	All
Total, *n*	53	26	79
With cardboard box in addition to container, *n/N* (%)	25/53 (47)	11/26 (42)	36/79 (46)
With cardboard box and Mobius loop on box, *n/N* (%)	6/25 (24)	6/11 (55)	12/36 (33)
With cardboard box but no Mobius loop on box, *n/N* (%)	15/25 (60)	5/11 (45)	20/36 (56)
With cardboard box, but box not examined, *n/N* (%)	4/25 (16)	0/11 (0)	4/36 (11)
With Mobius loop on container, *n/N* (%)	41/53 (77)	6/26 (23)	47/79 (59)
With Mobius loop on both the container and cardboard box, *n/N* (%)	6/25 (24)	3/11 (27)	9/36 (25)

displayed a Mobius loop recycling symbol on the cosmeceutical container in addition to the box.

Although our study findings showed that a significant proportion of both full-size and sample-size cosmeceutical products do not display the Mobius loop recycling symbol on their packaging material, it should be noted that the absence of an on-package Mobius loop symbol does not denote that the material is not capable of being recycled. Clear displaying of relevant recycling information or symbols on packages will encourage and reinforce positive recycling behaviours in children and adults alike, and prompt clinicians to consider the environmental impact of the products they may use and recommend.[1]

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1. Data from examination of product packaging.

Pityriasis rubra pilaris-like eruption following administration of the BNT163b2 (Pfizer–BioNTech) mRNA COVID-19 vaccine

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Since the approval of the novel mRNA vaccines for SARS-CoV-2, the dermatology community has sought to characterize the adverse cutaneous effects associated with administration of the vaccine. In the BNT162b2 (Pfizer–BioNTech) mRNA vaccine Phase III study, no participants reported cutaneous adverse events (AE) aside from injection-site reactions.[1] We report a case of pityriasis rubra pilaris (PRP)-like eruption following administration of the BNT163b2 COVID-19 vaccine.

An otherwise fit and well 51-year-old man presented with a widespread, scaly, erythematous rash following administration of the BNT163b2 COVID-19 vaccine. He had developed an erythematous scaly rash in his groin and over his knees 3 days following the first dose of the vaccine, and he had been treated by his general practitioner for psoriasis with Enstilar™ foam and emollients, which had achieved partial success. A few days following the second vaccine dose at 12 weeks, the patient noticed the rash worsening, with the plaques becoming more confluent and affecting 60% of his body surface area. Despite continued treatment with topical therapies, his skin continued to worsen and subsequently presented to the acute medical unit where he was found to be mildly hypotensive and tachycardic. He denied taking any medication preceding the skin eruption.

On physical examination, the patient was found to have a confluent, mildly scaly, erythematous skin eruption extending from his scalp to both arms and the proximal thighs with sparing of the periumbilical area (Fig. 1). There were scattered erythematous plaques over his lower legs. His nails were normal and clinically there was no evidence of palmoplantar hyperkeratosis. The differential diagnosis included a drug-induced psorasisform rash and PRP.

Histological examination of a skin biopsy showed prominent alternating orthokeratosis and parakeratosis in horizontal and vertical directions. The epidermis showed mild irregular acanthosis with broader rete ridges than expected in a psoriasiform reaction. There was mild and focal spongiosis with slight lymphocytic exocytosis. There was mild perivascular and perifollicular lymphocytic inflammation within the papillary dermis with neutrophils and occasional eosinophils seen focally (Fig. 2). Overall, the histological features were consistent with a diagnosis of PRP.

Blood tests showed raised level of C-reactive protein, but white cell and eosinophil counts were normal. Serological testing for blood-borne viruses and SARS-CoV-2 PCR was negative. Chest radiography results were normal and there was no suggestion of occult malignancy based on the history or physical examination.

A diagnosis of PRP-like eruption was made and the probable trigger thought to be the BNT163b2 COVID-19 vaccine. The patient was treated with acitretin 20 mg once daily and topical mometasone 0.1% ointment, resulting in improvement of his condition; at his most recent follow-up, 4 months after starting acitretin, he was still continuing with the treatment.

A recent registry of 414 patients who received either of the two mRNA COVID-19 vaccines described cutaneous reactions, including local injection-site reactions, urticarial and morbilliform eruptions, but PRP-like eruptions have yet to be described.[2] As seen in our case, worsening or recurrence was seen in up to 43% of patients following administration of the second dose.[2]

