Letter

Sustainability in dermatology: Practical interventions across the care pathway

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To the Editor

In the article "Dermatologist Prescriptions for Biologics Contribute to Thousands of Tons of Plastic Waste," Nouafo and colleagues[1] quantify the plastic burden from dermatology-prescribed biologic autoinjectors at approximately 8050 tons annually, a valuable contribution to an under-measured problem. In context, however, United States healthcare generates over 1.7 million tons of plastic waste each year; autoinjectors and their packaging therefore represent only a modest share of the sector's overall plastic waste.[2] Addressing this issue in isolation risks overlooking higher-yield opportunities within routine dermatologic care.

Dermatologic surgery illustrates the scale of other waste streams. A United Kingdom multicenter evaluation of 547 procedures found 0.52 kg of non-sharps waste per case, with a mean recycling rate of just 16%, highlighting a substantial opportunity for upstream waste reduction and improved recycling protocols.[3] In outpatient settings, a quality improvement program auditing skin biopsy trays at 4 sites identified more than 2 wasted supplies on 100% of trays, with a mean of 10.1 items per tray before intervention.[4] Standardizing tray configurations and staff education subsequently reduced waste to 1.6 items per tray.[4] These examples highlight that procedural changes, rather than manufacturing considerations alone, can deliver immediate and meaningful reductions in plastic waste.

Beyond materials, a 2023 cross-sectional study of 2184 patients in Ireland demonstrated that same-day surgery for just 18% of patients reduced travel by 35 275 km, preventing 6.02 metric tons of CO_2 emissions.[5] While modest in numbers, this reduction occurred in 389 patients; extrapolated to the millions accessing dermatology services annually, the potential environmental benefit becomes considerable. Moreover, same-day surgery can shorten diagnostic timelines and improve patient convenience, demonstrating that sustainable practice changes can align closely with patient-centered care.

Nonetheless, stewardship of autoinjectors remains essential, with existing global initiatives offering lessons. The PenCycle initiative for insulin pens in the UK enables mail-back and pharmacy returns, collecting more than 200 000 pens early in its national rollout and diverting 2 tons of plastic waste in under a year, compared with an original target of 12 tons by the end of 2023.[6] With PenCycle, an estimated 1.37 g of plastic waste per pen is sent to landfill instead of 7–23 g per pen in the absence of such a program.[6,7] United States dermatology manufacturers could adapt similar schemes for biologic autoinjectors, particularly if supported by pharmacy partnerships and device redesigns optimized for disassembly and material recovery. A dermatology-specific commentary by O'Malley et al[7] has argued that lessons from PenCycle are directly applicable to biologic autoinjectors.

Nouafo and colleagues' work[1] is an important prompt for broader conversations: tackling autoinjector waste should be part of a wider dermatology sustainability strategy that also addresses the substantial, everyday waste generated by surgical procedures, outpatient care, and single-use supplies. Collaborative approaches that engage clinicians, manufacturers, and healthcare systems are likely to yield the most durable improvements in reducing dermatology's plastic footprint.

Potential conflicts of interest

The authors declare no conflicts of interest.

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References

1. Nouafo M, Rivin G, Fleischer AJ. Dermatologist prescriptions for biologics contribute to thousands of tons of plastic waste. *Dermatol Online J*. 2025;31:1. doi:10.5070/D331365375

2. Rizan C, Mortimer F, Stancliffe R, Bhutta MF. Plastics in healthcare: time for a re-evaluation. *J R Soc Med*. 2020;113:49-53. doi:10.1177/0141076819890554. PMID:32031491

3. Shearman H, Yap SM, Zhao A, et al. A UK-wide study to describe resource consumption and waste management practices in skin surgery including Mohs micrographic surgery. *Clin Exp Dermatol*. 2023;48:1024-1029. doi:10.1093/ced/llad184. PMID:37192414

4. Wolstencroft PW, Zacher NC, Scotellaro K, Centkowski S, Kwong BY. Development of a Framework for Addressing Skin Biopsy Tray Waste in Dermatology Clinics: A Quality Improvement Study. *JAMA Dermatol*. 2023;159:541-544. doi:10.1001/jamadermatol.2023.0511. PMID:36930161

5. Doyle C, McFeely O, Beatty P, et al. Same-day surgery promotes sustainability in dermatology. *Clin Exp Dermatol*. 2023;48:692-693. doi:10.1093/ced/llad048. PMID:36749367

6. Lipanovic D. Patients return 200,000 injection pens through recycling scheme. *Pharm J*. 2023;311:7976. doi:10.1211/PJ.2023.1.194308

7. O'Malley S, Feighery C. Biologic pen injector waste: lessons from the PenCycle scheme. *Clin Exp Dermatol*. 2024;49:510-511. doi:10.1093/ced/llad437. PMID:38057156