

Macleod Diabetes & Endocrine Centre Royal Devon University Hospital

Sustainable diabetes care for individuals with insulin-treated diabetes

The NHS is the largest public sector contributor to the UK's carbon footprint, and 25% of all emissions directly or indirectly caused by the NHS are associated with medicines. This guideline outlines more environmentally sustainable options for insulin-treated diabetes. Around 60 tons of plastic are produced annually in England due to insulin pens, most of which is incinerated.

Reusable insulin pens

We suggest that reusable pens should be offered as first line (see how to switch for available pens and PIP codes on page 3). If this is not appropriate, e.g. due to dexterity or personal preference, then signpost patients to recycling schemes provided by the pharmaceutical companies (see below).

Advantages of reusable insulin pens:

- Can reduce pen-related plastic waste by 80-90% and carbon footprint by 40%.
- Insulin cartridges take up less space in the fridge.
- Negligible difference in cost, usually a small saving if pens are used for more than a year.
- Individuals using Novo Nordisk insulin can upgrade to a memory/smart pen.

Company specific information:

- Sanofi currently provide re-usable pens free of charge, but clinicians or patients need to request the pen directly from a Sanofi representative.
- Novo Nordisk and Lilly may provide training and discounts if contacted directly.

Recycling of disposable insulin pens

- Disposable insulin pens should **NOT** be recycled in domestic boxes/collections as they contain glass, metal, plastic. In addition, insulin is a biologically active pharmaceutical agent and under the Controlled Waste Regulation (2012) it must be incinerated.

Company	Recycling scheme
Novo Nordisk	Request recycling boxes via www.pen-cycle.co.uk/
Sanofi	National pilot opened April 2024 – request recycling envelopes via www.mysanofiinsulin.co.uk/repen
Lilly	Currently no plans to recycle their products

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Continuous glucose monitors (CGM)

Continuous glucose monitors can significantly improve diabetes control and quality of life, but also involve significantly more waste than fingerprick testing.

We consider Freestyle Libre 2 more sustainable than Dexcom One, as there is less waste (we calculate 0.9 vs 3.1 kg per year) and the sensors are manufactured in the UK.

Currently neither manufacture recycles their applicators, which must be incinerated as clinical waste as they contain a needle.

Freestyle Libre sensors can be recycled as electrical waste (like batteries) though this usually requires a trip to a recycling centre – this is not routinely available in kerbside recycling. We have not been able to clarify this for Dexcom One.

How to switch to re-usable insulin pens:

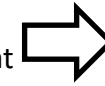
Step 1

Prescribe a reusable insulin pen (PIP code)



Step 2

Add brand-specific cartridge insulin to repeat prescription (PIP code)



Step 3

Signpost patients to online pen manuals

Novo Nordisk

- Novopen 6 BLUE™ (419-6697)
- Novopen 6 GREY™ (419-6689)
- Novopen Echo Plus BLUE™ (419-6663)
- Novopen Echo Plus RED™ (419-6671)

Novo Nordisk

- Fiasp penfill™ (403-9913)
- Insulatard penfill™ (240-0505)
- Levemir penfill™ (305-5472)
- Novomix 30 penfill™ (289-9551)
- Novorapid penfill™ (265-2782)
- Tresiba penfill™ (375-6491)

Novo Nordisk

www.connectedpen.co.uk/

Sanofi

- Allstar Reusable BLUE™ (405-0217)
- Allstar Reusable GOLD™ (405-0225)
- JuniorStar Reusable BLUE™ (387-0425)
- JuniorStar Reusable RED™ (387-0417)
- JuniorStar Reusable SILVER™ (387-0409)

Sanofi

- Admelog cartridge™ (407-9272)
- Apidra cartridge™ (318-4389)
- Lantus cartridge™ (289-3659)
- Trurapi cartridge™ (418-0386)

Sanofi

www.shorturl.at/wXW1w

Lilly

- Savvio Reusable BLUE™ (369-6549)
- Savvio Reusable GREY™ (369-6564)
- Savvio Reusable RED™ (369-6531)

Lilly

- Abasaglar cartridge™ (398-8193)
- Humalog cartridge™ (248-7486)
- Humalog Mix 25 cartridge™ (258-9604)
- Humalog Mix 50 cartridge™ (321-2685)
- Humulin I cartridge™ (221-0896)
- Humulin M3 cartridge™ (221-0904)
- Humulin S cartridge™ (221-0888)

Lilly

www.lillydiabetes.co.uk/patient/resources#device-manuals