PrescQIPP Community Interest Company

Hypodermic insulin devices for patients with type 2 diabetes

In addition to initiating patients on the appropriate and most cost-effective insulin, consideration must also be given to the choice of hypodermic device. Prescribing data show that 7% of the total cost of prescribing for diabetes was spent on hypodermic devices equivalent to approximately £55 million nationally (ePACT March 2015). This document provides guidance for reviewing and switching patients on to a more cost-effective insulin device whilst adhering to NICE recommendations. A variety of insulin delivery devices are available in the UK. These include syringes and vials, reusable pens with cartridges and prefilled disposable pens. Pens are used by around 80–90% of patients in Europe using insulin.[1] Patients requiring insulin should be offered advice on choosing a device (usually a reusable or disposable pen) that they and/or their carer find easy to use. Any manual or visual disability should be taken into account.[2] **The use of inhaled insulin will not be covered in this bulletin.**

Recommendations

- When considering the choice of device in an individual patient, consider the following:
  - Which insulin is going to be used – not all insulins are available for use with all devices (the choice of insulin may affect the choice of device, and vice versa).
  - What the patient finds simplest to use - syringe and vial, pre-filled pen or resusable pen.
  - Patient choice – the range of devices should be explained and shown to patients where possible. The patient should feel confident in using the device.
  - Dexterity – how easy is it for the patient to use the device and adequately measure/administer the correct dose.
  - Presence of any visual impairment – some devices have an audible click on securing the cartridge in place, dose selection and dose administration.
- Use the least costly vial, cartridge or disposable pen available that is suitable for the individual patient.
- Insulin injection should be made into the deep subcutaneous fat. To achieve this, needles of a length appropriate to the individual should be made available.
- There are two needle lengths available with syringes, 8mm and 12mm. Where possible, the shorter needle should be used to prevent accidental intramuscular injection as this can lead to more erratic absorption.[1]
- Where a pen device is the preferred method of administration, ensure the least costly pen device suitable for the individual patient and cartridge/vial is chosen. Autopen® 24 pen is currently the least costly reusable pen device.
- Use the least costly disposable needles that are the correct size for the individual patient and that are compatible with their insulin pen devices. There are several brands of needle available that currently cost less than £6 per 100 needles. Prescribe the most cost-effective choice compatible with the pen device the patient is using.
- Patients who have special visual or psychological needs should be provided with injection devices or needle-free systems that they can use independently for accurate dosing.
- Patients should be provided with suitable containers for the collection of used needles. Arrangements should be available for the suitable disposal of these containers.

Background

Around 6% of the UK population have diabetes mellitus.[3] Around 90% have type 2 diabetes[3] and many of these people will need insulin therapy for effective control of their diabetes. The different types of insulin, regimens and devices present various advantages and disadvantages that can affect adherence, quality of life and glycaemic control.[1]

Various factors affect the choice of device including the type of insulin used, simplicity of administration, patient choice, dexterity and visual impairment.[1]

Cost differences exist between the devices but choice should be based on the most cost-effective and suitable option for the patient.

National guidelines

NICE guidance on the management of type 2 diabetes states that a person who requires insulin should be offered education about using an injection device (usually a pen injector and cartridge or a disposable pen) that they and/or their carer find easy to use.[2] Appropriate local arrangements should also be in place for the disposal of sharps.

If a person has a manual or visual disability and requires insulin, a device or adaptation should be provided that takes into account individual needs and that the patient can use successfully.

Safety devices

The Health and Safety Executive (HSE) issued regulations - (Sharp Instruments in Healthcare) Regulations 2013[4] on the use of safer sharps which came into effect on 11 May 2013. The regulations have been introduced to implement a European Directive 2010/32/EU (the Sharps Directive).

Under the HSE Regulations 2013 employers must substitute traditional, unprotected medical sharps with a ‘safer sharp’ where it is reasonably practicable to do so. Safer sharps are medical sharps (including insulin syringes and needles) that incorporate features or mechanisms to prevent or minimise the risk of accidental injury. One of the requirements for employers under these regulations is to ‘Have effective arrangements for the safe use and disposal (including using 'safer sharps' where reasonably practicable, restricting the practice of recapping of needles and placing sharps bins close to the point of use)’. What this means in practice is that healthcare workers who are required to administer insulin (e.g. District Nurses) to patients especially outside the clinical setting with no direct access to sharps bins must use ‘safer sharps’. **Safer sharps are not required for use by patients who self-administer insulin.**

The safer sharps are quite often more expensive than other syringes and needles available for insulin. In order to minimize the inappropriate use of safer sharps, which tend to be more expensive than ordinary needles, it is recommended that CCGs agree a protocol for the implementation of the HSE Regulations in collaboration with community health services.

Evidence base

A Drug and Therapeutics Bulletin review of insulins, regimens and devices in type 2 diabetes was published in December 2010.[1] The bulletin listed several considerations for choice of insulin devices in patients with type 2 diabetes and advantages and disadvantages of the various delivery methods. These are outlined below:

Delivery method	Advantages	Disadvantages
Syringe and vial	• Low cost. • No needle changing required. • Intuitive dosing. • Requires less pressure to deliver a dose than pens. • Less risk of needlestick injury (if other person administering insulin).	• Less suitable for regimens where different insulins are used or injections outside the home. • Good dexterity and eyesight required.
Reusable pens	• Injection may be more comfortable than needle/syringes. • Accurate dosing. • Discreet. • Sturdier than pre-filled pens. • More environmentally friendly. • May have an audible 'click' when cartridge secured, dose selection and administration. • May have built in memory/electronic display showing time of last dose/ amount given.	• More steps to learn for reloading pen. • Good dexterity needed. • Patient may be advised to have a spare device in case of loss/damage. • Lifespan approx. three years. • Can be more expensive than vial/syringe. • Air bubbles may form if needle is not removed following each injection.
Pre-filled disposable pens	• Small, light, easy to operate, including for those with poor eyesight/dexterity. • Discreet. • Disposable. • Injection may be more comfortable than needle/syringes. • Accurate dosing. • Patients usually have a spare.	• Less environmentally friendly. • Can be more expensive than reusable pen or vial/syringe. • Air bubbles may form if needle is not removed following each injection.

Costs

There is a significant difference in costs of insulin delivery devices. The charts on the following pages outline the cost differences. Safety devices are significantly more expensive and should not be prescribed for patients self-administering insulin.

Chart 1: Cost comparison of single use insulin needles and syringes (for use with insulin vials)[5]

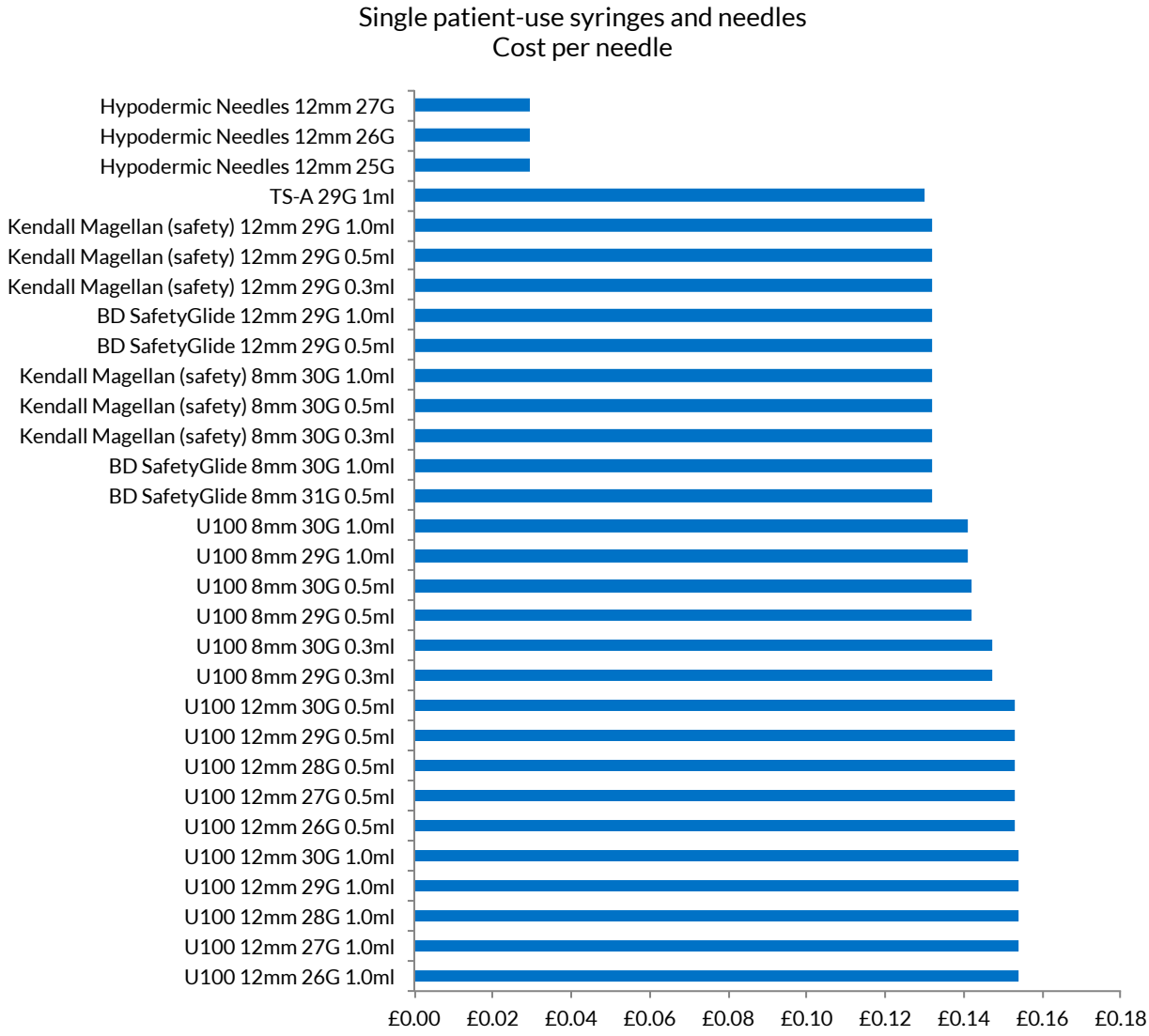


Chart 2: Cost differences between the reusable insulin cartridge pens[5]

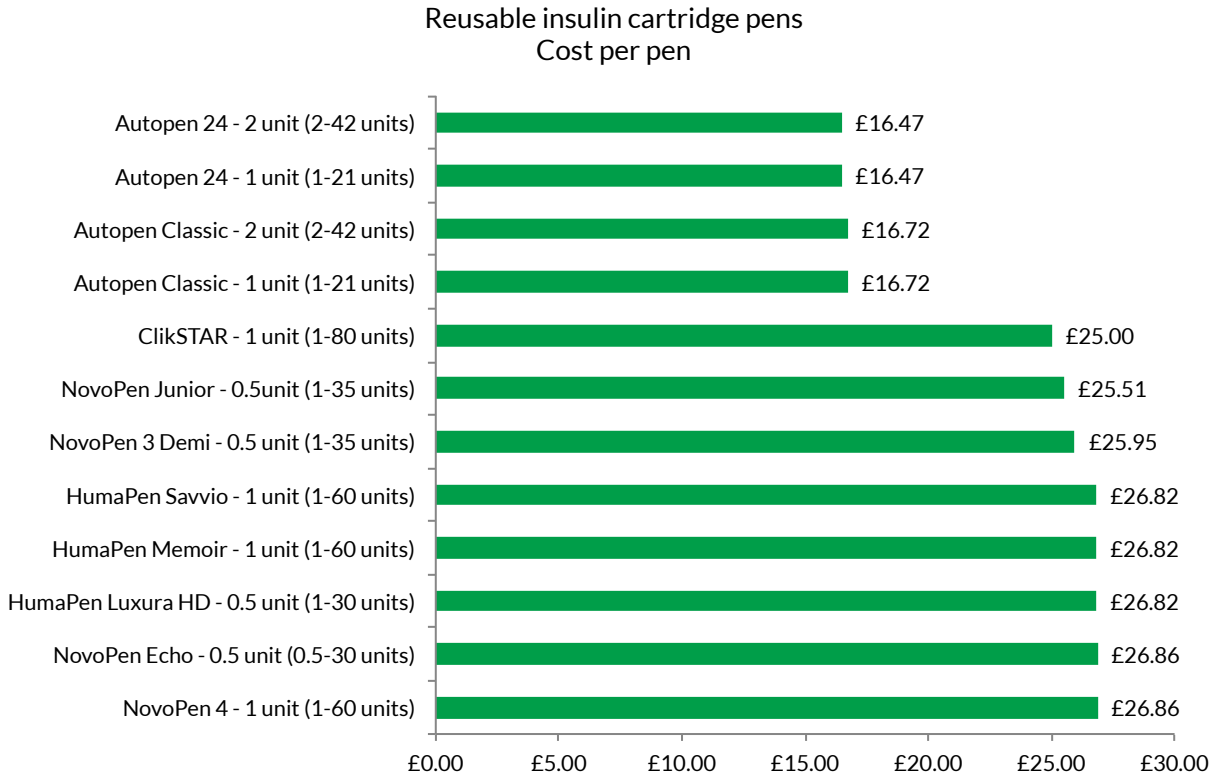
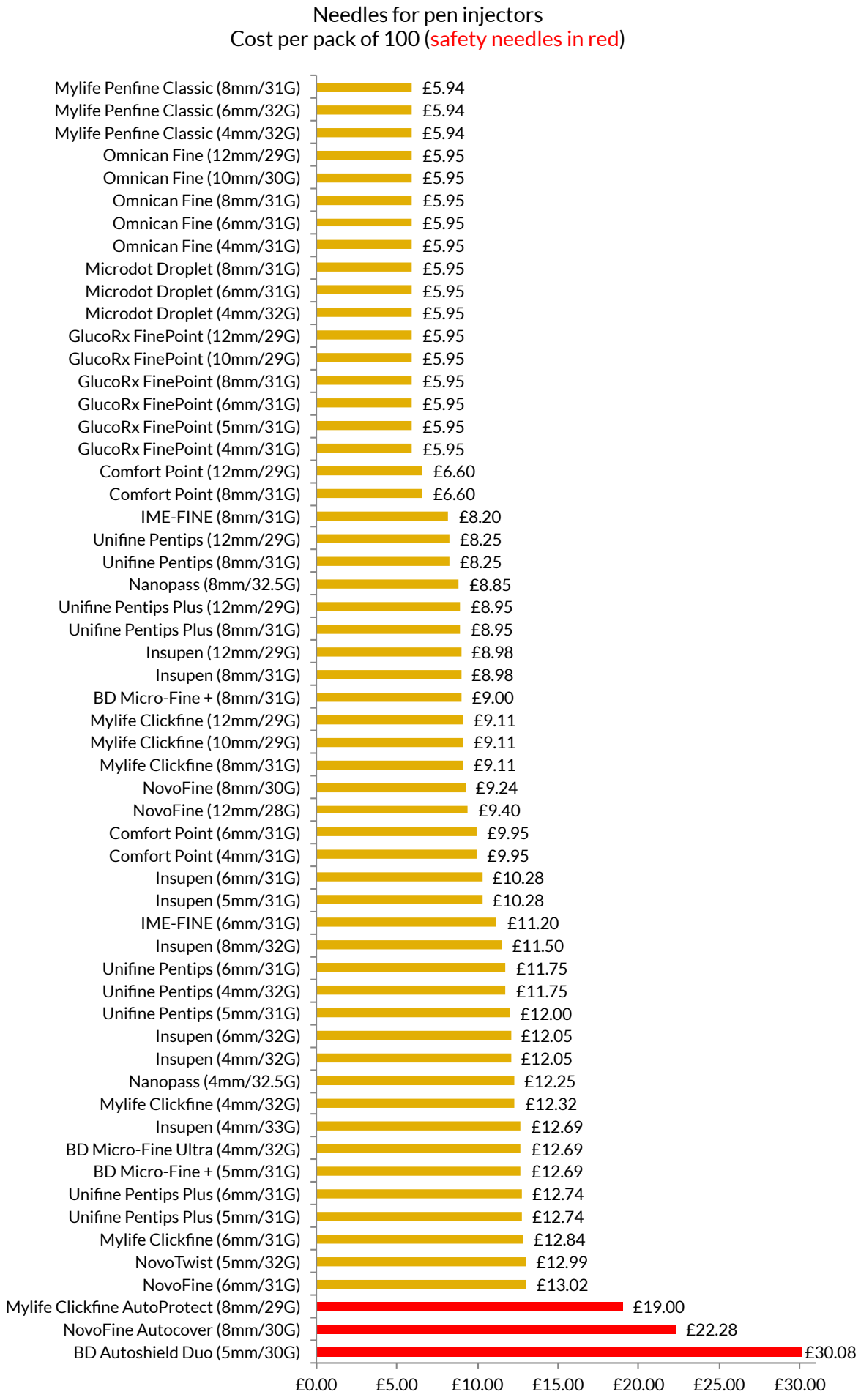


Chart 3: Cost differences between the needles for pen injectors[5]



Currently, all needles are compatible with all devices with the exception of the NovoTwist® needles. These are currently only compatible with the FlexTouch, FlexPen, NovoPen 4, NovoPen 5 and NovoPen Echo pens.

Savings available

Any changes in device should be tailored to the individual needs of the patient.

Switching to needles for pen injectors that cost less than £6 for 100 needles **could save approximately £11.9 million annually across England. This equates to £20,883 per 100,000 patients** (ePACT January 2105 - March 2015).

Summary

- Various devices are available for the administration of insulin. Pen devices are used by the majority of patients. Various factors affect the choice of device including the type of insulin used, simplicity of administration, patient choice, dexterity and visual impairment. Cost differences exist between the devices but choice should be based on the most cost-effective and suitable option for the patient.
- Patients should be provided with suitable containers for the collection of used needles. Arrangements should be available for the suitable disposal of these containers.

References

1. Which insulin, regimen and device in type 2 diabetes? Drug & Therapeutics Bulletin 2010; 48 (12): 134-8
2. NICE. Type 2 diabetes. The management of type 2 diabetes. NICE Clinical Guideline 87. Issued May 2009, Last modified July 2014. www.nice.org.uk
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5. NHS Business services Authority. NHS Electronic Drug Tariff. May 2015. Available via http://www.nhsbsa.nhs.uk/PrescriptionServices/4940.aspx

Additional PrescQIPP resources

Briefing

Available here: http://www.prescqipp.info/resources/viewcategory/359-insulin-needles

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Contact help@prescqipp.info with any queries or comments related to the content of this document.

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