PRODUCTS WITH PURPOSE

A CLINICAL REVIEW FOR AN EVER-EVOLVING PHARMACY LANDSCAPE

NEW LOOK: EMBECTA™ PEN NEEDLES AND SYRINGES

Background:

Although embecta is a new name, they have been a trusted manufacturer of insulin syringes and pen needles for almost 100 years, previously as a division of Becton, Dickinson and Company (BD). As a pharmacist, you support people with diabetes in using these products through your day-to-day counselling, so you play an essential role in sharing information about the new embecta packaging for diabetes care products that will be replacing products labelled with the BD logo and look.

New Look, Same Products You Know and Trust:

Although the packages will look different, the embecta pen needles and insulin syringes retain the same quality that you have come to trust. Here is a reminder of some of the unique features:[1]

- The Nano PRO™ 4mm pen needles have a contoured base that helps compensate for excessive force at the injection site.[2*]
- The 4mm pen needles also have a 5-bevel tip. This type of tip is preferred over a 3-bevel tip and designed to improve comfort by reducing skin penetration force for the person with diabetes using injectable therapies.[3#,4]
- Nano PRO™ pen needles have an ultra-thin wall that increases the flow of insulin, giving the person with diabetes greater confidence that the complete dose was delivered.[5**]

For the **pen needles**, the new embecta packaging maintains the previous colour-coding:

- Green 4mm
- Purple 5mm
- Blue 8mm

The 4mm pen needles are labelled as Nano PRO™, and all other pen needles are labelled as Ultra-Fine™ (BD is no longer on the package).

For **insulin syringes**, note that the following products continue to be available:

- 6mm needles with 1mL, 1/2mL, and 3/10mL barrel sizes
- 8mm needles with 1mL, 1/2 mL and 3/10 mL barrel sizes

The packaging is colour-coded, with 6mm needles in orange and 8mm needles in blue. All packaging is labelled as Ultra-Fine™ (BD is no longer on the package).

Practice/counselling tips

Business as usual. This change in packaging does not affect the product quality or manufacturing, and people with diabetes are not required to get another prescription for the newly packaged products. Also, insurance coverage of the products will not change.

Be proactive and provide reassurance. When providing product with the new labelling to people with diabetes, reassure them that the pen needles or insulin syringes that they were using are the same and that only the packaging has changed. You can also refer them to the embecta consumer site for more information if necessary.

Take the opportunity to reinforce injection technique. It has been shown that people with diabetes use a wide range of techniques to inject insulin.[6] Structured injection training that reinforces proper injection technique has been shown to result in an average reduction in A1C of 1% after six months.[7##] When refilling needles or syringes for a person with diabetes, have a conversation about injection technique. Consider counselling on some approaches to improve proper injection technique which may reduce A1C, decrease pain, and prevent complications like lipohypertrophy. These can include:[4,7]

- Use a **new needle** for each injection. Remind the person with diabetes to check their needle supply before they refill prescriptions and when they are planning to travel, to ensure that they always have enough on hand to avoid the need to reuse needles. Reusing needles increases the risk of lipohypertrophy and pain.[5]
- **Rotate injection sites.** Consider developing a personal rotation pattern such as a tummy template to keep track of injection sites to avoid using the same site repeatedly.
- Use a **shorter needle**. Suggest a 4mm pen needle or an insulin syringe with a 6mm needle to help avoid inadvertent intramuscular injection.

Offer other tips and tools

- Share resources to reinforce best practices in injection technique, such as the FIT Recommendations for Best Practice in Injection Technique or the FITTER recommendations (Forum for Injection Technique and Therapy Expert Recom-mendations).
- Discuss when a skin lift may be beneficial when administering insulin, such as for people with a low body mass index (BMI), young children, or people who are pregnant.[4]
- For a person who is relatively new to insulin administration, or for those who have been injecting insulin for a long time, consider having them show you how they administer their insulin to confirm appropriate technique.[4]

Discuss safe disposal. Offer to provide a sharps disposal container and remind the person with diabetes to use it at home to help prevent needlestick injuries from used pen needles and insulin syringes.[4,9] If they administer insulin outside of the home or their workplace, offer to help them source mini portable sharps containers that they can carry with them.

Points to ponder:

Supporting your patient

While your pharmacy inventory transitions to the new embecta packaging, you can continue to use pen needles with the previous BD packaging.[1]

When discussing this change with people with diabetes who use insulin, use this touchpoint as an opportunity to check in on their overall diabetes management or set up an appointment for a medication review. Prior to the visit encourage them to bring written records such as logbooks or share digital tools such as glucose meter apps or continuous glucose monitoring (CGM) data, so that you can review their glycemic metrics. If you identify out-of-range trends, such as hypoglycemia or hyperglycemia, work with the person with diabetes to identify and address possible contributing factors. Inform the person that improper injection technique can impact glucose levels and explain how to mitigate these excursions. Injection errors may include, but are not limited to:[2,4,8,9]

- **Injecting into lipohypertrophy** can reduce absorption of insulin, thus requiring more insulin to achieve the desired outcome.[8&] Discuss how to avoid lipohypertrophy (see Practice/counselling tips), how to look for them, and how to avoid injecting into them.
- **Using excessive force** for a subcutaneous injection of insulin can lead to increased discomfort and inadvertent intramuscular injection, which can increase the risk of hypoglycemia.[2*] The Nano PRO™ 4mm pen needle can help to reduce the risk of intramuscular injection with its contoured base.[2]

- **Ensure that the entire dose is injected.** Count to ten before removing the pen needle after the dose is delivered.[4,8]

Advise people with diabetes who use insulin to contact you or another healthcare provider if they experience unusual pain (or unusual lack of pain), leaking, bleeding, or bruising associated with insulin injections or if they feel that they need to apply more force than normal to administer their usual injections.[4] These issues can indicate a possible injection technique issue, such as a person injecting into a lipohypertrophy or using an insulin delivery device that is faulty.[4]

This education has been brought to you by support from **embecta**.

Footnotes:

* A preclinical in vivo study in Yorkshire swine assessed the effect of pen needle design and applied force on needle penetration depth. There was an appreciable lower risk of inadvertent IM injection between the contoured base design needle and posted-hub designs; ~2-5-fold decrease for thigh, abdomen, arm and ~2-8-fold decrease for buttock. There were 1188 injections administered with various clinically relevant injection forces using 20 µl of iodinated contrast delivered with Nano PRO™ vs. three 4mm posted-hub pen needles. IM injection risk was calculated through an in-silico probability model, using needle penetration depth and published average human tissue thickness measurements.

Eighty-six people with diabetes evaluated differences between 5-bevel and 3-bevel pen needle tips across pen needles of equal length and gauge. The 5-bevel needle would be considered more comfortable if the 95% lower bound for the percentage of insertions was greater than the 95% upper bound. After subjects were informed, the 5-bevel PN was selected more often than the 3-bevel PN for greater comfort (p = 0.01) in home use. When patients were blinded, no differences were found for ease of insertion (37.1%, 36.8%), comfort (37.1%, 37.6%).

** Two hundred and sixteen people with type 1 or type 2 diabetes who were using an insulin pen for ≥ 2 months, with at least 1 daily dose ≥ 10 U were evaluated. Patients who used 4- to 8-mm length pen needles with 31- to 32-G diameter were randomly assigned to use their current pen needle or the same/similar size extra thin wall pen needle at home for ~1 week and the other pen needle the second week. 150-mm visual analog scales and direct questions were used at the end of period 2. Patients preferred the extra thin walled pen needles (mean [95% CI]) by a mean of 31.9 mm (27.2-36.6), P < 0.001; extra thin walled needles required less thumb force, less time to inject the dose, and were rated as providing greater confidence in full dose delivery by 28.4 mm (23.7-33.2), 21.7 mm (17.0-26.4), and 24.4 mm (19.7-29.1), respectively; all, P < 0.001.

One hundred and sixteen people with type 1 or type 2 diabetes were randomized to one of three groups: Groups 1 and 2 received structured injection training and group 3 did not. Group 1 received 4-mm needles; groups 2 and 3 provided their own needles. Changes in insulin total daily dose, injection technique, needle reuse, and lipohypertrophy were assessed. At six months, mean (95% CI) reductions in A1C were significant in groups 1 and 2 (- 1.00% [10.9 mmol/mol (- 1.3 to - 0.6)] and - 1.00% [10.9 mmol/mol (- 1.4 to - 0.7)], respectively; P < 0.001 for both), but not in group 3 (- 0.02% [0.2 mmol/mol (- 1.2 to 1.6)]).

& A meta-analysis of 37 studies of people with type 1 or type 2 diabetes who were taking insulin or a GLP-1 receptor agonist. The analysis looked at four parameters: A1C, uncontrolled glycemia, unexplained hypoglycemia, and total daily insulin dose in people with and without lipohypertrophy. People with lipohypertrophy were more likely to experience unexplained hypoglycemia (pOR [95% CI]=6.98 [3.30–14.77]), overall hypoglycemia (pOR [95% CI]=6.65 [1.37–32.36]), and glycemic variability (pOR [95% CI]=5.24 [2.68–10.23]) compared to those without lipohypertrophy. People with lipohypertrophy also had higher A1C (mean difference [95% CI]=0.55 [0.23–0.87], and increased daily insulin consumption (mean difference [95% CI]=7.68 IU [5.31–10.06]).

References:

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