

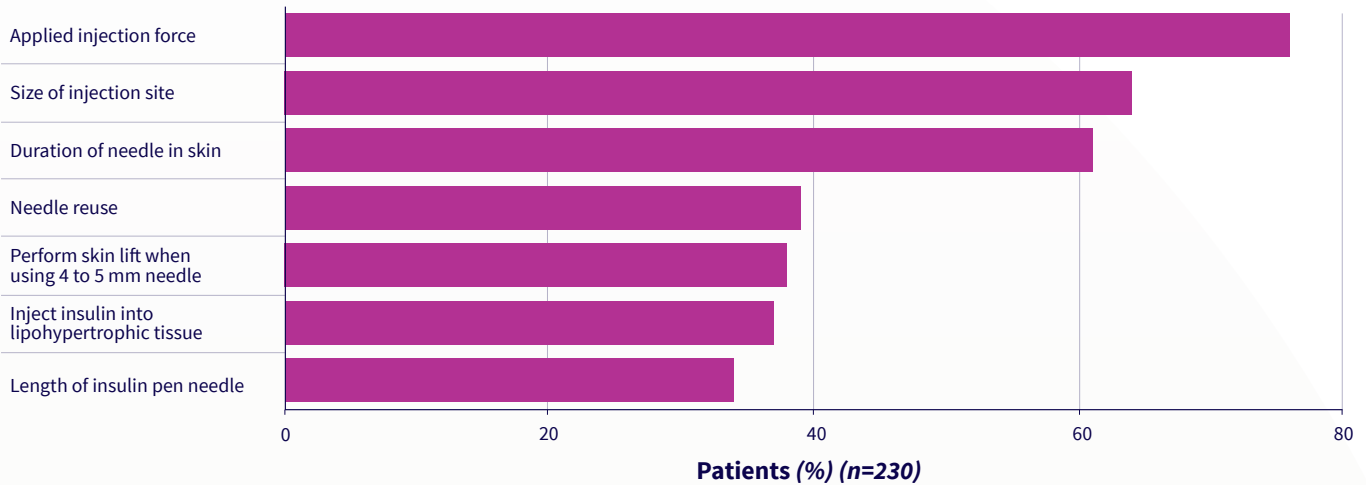
IN THIS CLINICAL STUDY,

All patients surveyed made at least one injection technique error,* indicating the need for ongoing training and education on proper injection technique

This observational study evaluated understanding of insulin injection technique across 7 areas using a patient-reported survey to determine the prevalence of injection technique errors and to understand the attitudes and behaviours of physicians towards insulin injection technique.

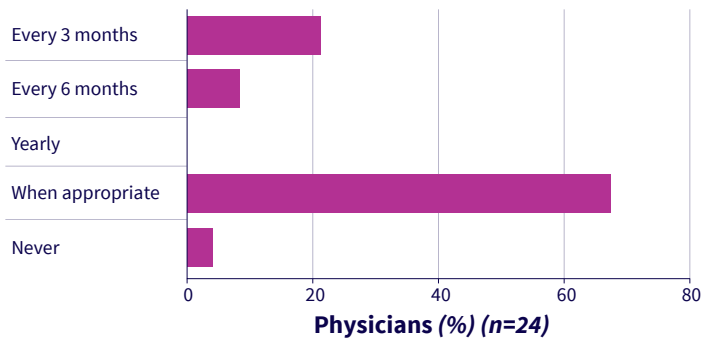
The 3 most common injection errors were made by over 60% of patients

PERCENTAGE OF SPECIFIC INJECTION ERRORS IN PATIENTS



Physicians' responses showed an opportunity for greater education and training

FREQUENCY OF PHYSICIAN ASSESSMENT OF PATIENT INSULIN DELIVERY



Physicians indicated that they most commonly assess patient insulin injection technique and location on a “when appropriate” basis.



Physicians reported that lack of time with their patients and limited personnel support were the primary barriers to educating their patients on proper insulin injection technique.

Patient education is an important unmet need for the treatment of patients with diabetes.

* Of the ones assessed.

Study design



METHODS:

- A noninterventive, cross-sectional, observational, behavioural study to investigate patient-reported insulin injection technique
- Separate surveys were developed and completed by physicians and patients in the clinic (*patients were not asked to indicate their comorbidities*)
- The responses were then entered into a validated online platform and database



STUDY MEASURES:

Injection technique parameters included:

- Size of the area of the injection site
- Length of the needle
- Duration of the needle in the skin
- Using a new needle for each injection
- Applied injection force
- Performance of skin lifts
- Injection of insulin into lipohypertrophic tissue

Injection technique assessments included:

- Using an area the size of a postcard to inject insulin
- Using a 4 mm needle
- Holding the needle in the skin for 10 seconds or more
- Using a fresh needle for each use

Patient-applied injection force should either have no or slight indentation to the skin

Patients using a 4 or 5 mm insulin pen needle should not perform a skin lift

If a patient experiences lipohypertrophy, they should not inject insulin into the lipohypertrophic tissue



STUDY POPULATION:

- **230 Canadian patients:** average age, 61.3 ± 13.6 years; average duration of diabetes, 16.6 ± 10.2 years; and average HbA1c, $7.8 \pm 1.2\%$
- **24 physicians,** including general practitioners and endocrinologists from across Canada; 83% had been in clinical practice longer than 15 years



INCLUSION CRITERIA:

- Healthcare practitioners were required to select nonpregnant patients aged 18 years or older with type 1 or type 2 diabetes injecting insulin using an insulin pen
- Primary care clinics that lack support from diabetes educators were targeted for patient and physician recruitment



STUDY LIMITATIONS AND DISCLOSURES:

- This study was a noninterventive, observational study and was not designed to capture patient outcomes
- Diabetes is commonly associated with numerous comorbidities, which may have impacted the number of errors being made by patients. The patient survey did not require the patients to disclose comorbidities
- Site rotation and pen needle priming are 2 additional insulin injection technique errors that were not captured
- BD (Becton, Dickinson and Company) provided funding for this study
- Authors of this paper have disclosed that they are employees of BD

embecta, formerly part of BD