Agenda:

- Insulin doses
- Needles
- Insulin Pen Devices
- Insulin storage
- Key information (Patient &HCP)
- Injection sites
- Hypoglycaemia
- Home blood glucose testing
- Sick day advice
- Traveling
- Sharps

Insulin pens workshop
Making the complex simple

Goal of workshop

Insulin starts – making the complex simple

Ensure participants are confident with:

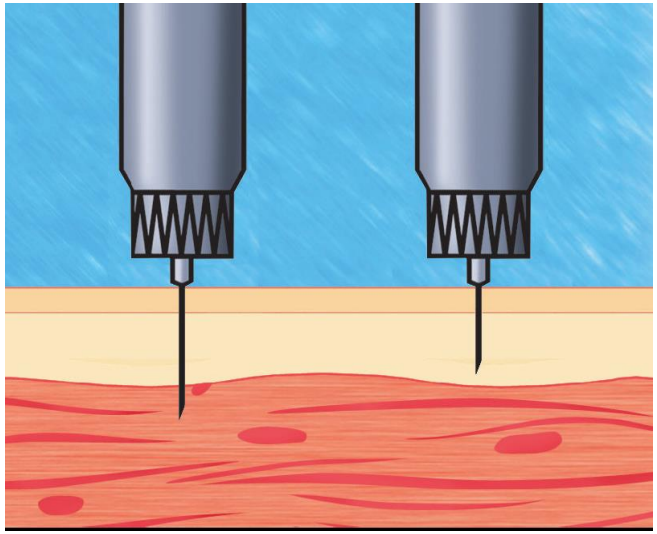
- Selecting and using devices
- Troubleshooting injection issues
- Knowing what key information to impart

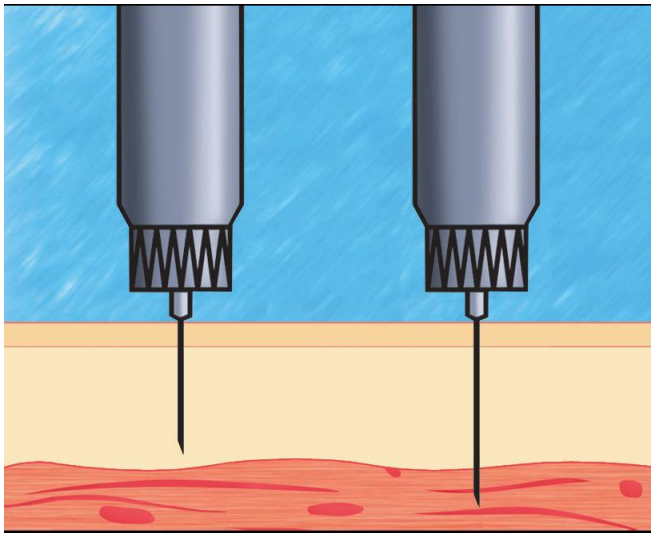
when starting someone on insulin

Insulin doses in T2D

- Requirements depend on insulin (body) resistance
- Duration of DM will affect remaining beta cell function
- Correct dose of insulin is when you achieve target blood sugars.

Pen needles

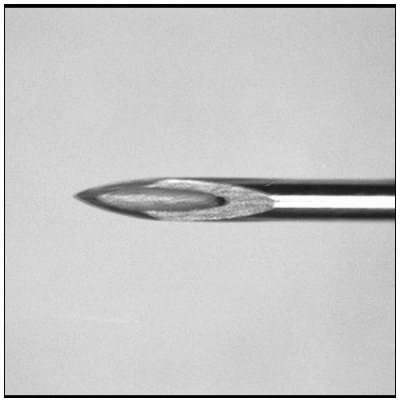


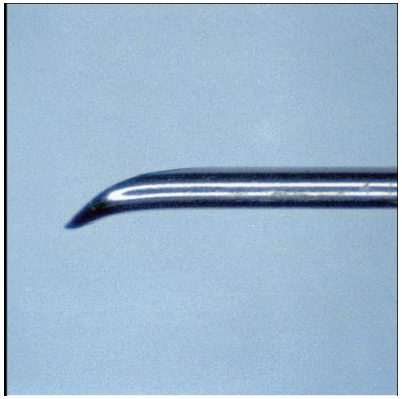


- 4-5 mm
  - Children
  - Most adults
  - No pinch technique

Pen needles

- Needles-100 needles for 3 months





After 2nd Use

- ☆ **First use: Lubricant removed**
- ☆ **Needle hooking second time**
- ☆ **After 6 uses~**
  - ☆ **fishing anyone?**

Some of the current injection devices

Prefilled insulin pens

Reusable devices for use with cartridges

Storage

- "Spare insulin" in fridge
  - Preferably kept in its original packaging
- "In use insulin" < 25° C for 28 days

Key information for patients to know

- Start low (Dose) and increase
- No maximum dose
- Different doses for different folk (Individual)
- Target BSL’s = Organ protection,BG vs HbA1c (UKPDS)
- Dose changes can be done by phone ,fax or e-mails

Insulin doses in T2D

When might changes need to be made?

- Hypos
- BGLs consistently > 15 mmol/L
- Illness
- Steroids/medications causing hyperglycaemia
- HbA1c not on target

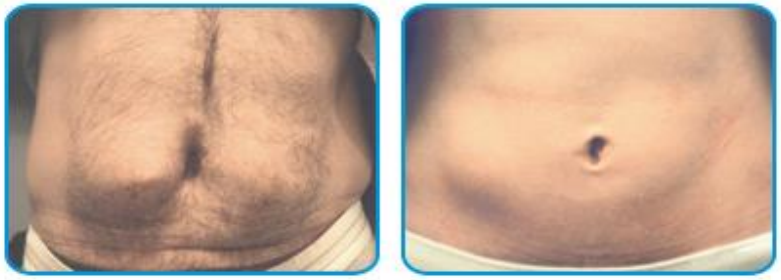
Key practice points

1. Lifestyle education
2. Suit device to patient
3. Insulin to match pt lifestyle
4. Expectation that dose will increase
5. Constantly review

INJECTION SITES

- The abdomen is generally the preferred injection site.

INJECTION SITES CONT.

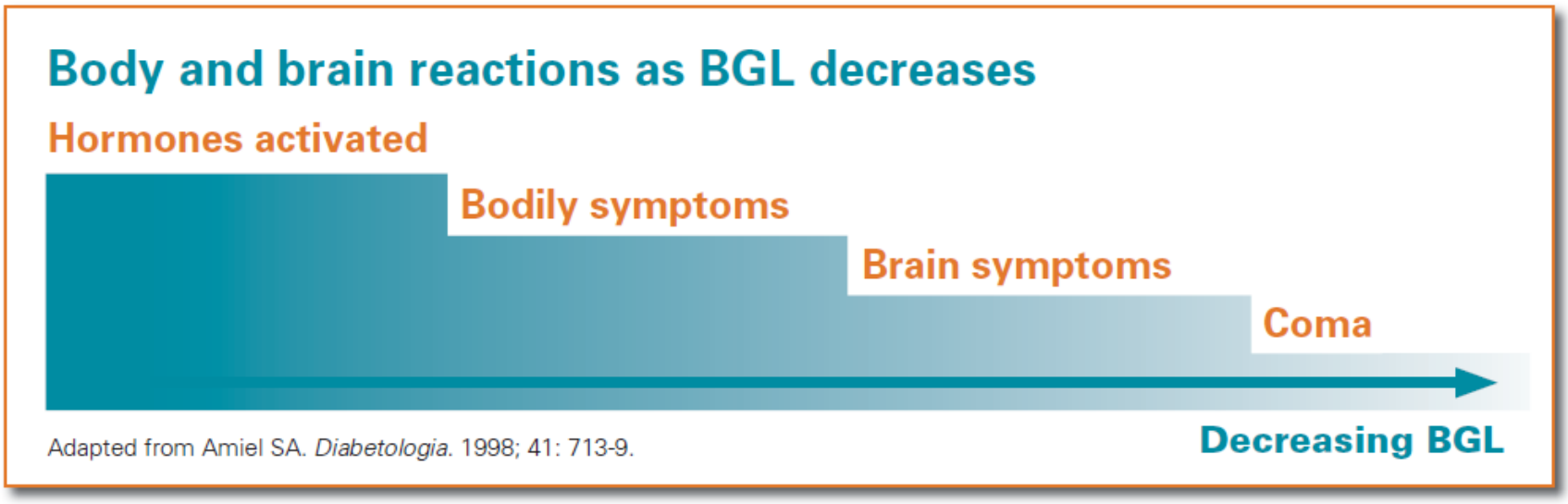


- Insulin absorption can be different between sites hence rotating around just the abdomen
- Lantus is reported to have consistent absorption regardless of injection site.
- Rotating injection sites is important for avoiding lipohypertrophy.

Reference: Childs, Cypress, Spollett. (2009). *Complete nurse's guide to diabetes care* (2nd ed.). Virginia: American Diabetes Association.

Hypoglycaemia

- ☆ **Usually defined as < 4 mmol/L (people develop symptoms at different levels)**



Hypoglycaemia

Caused by the body's initial reaction (trying to increase BGL)	From the brain
Irritability	Inability to concentrate
Anxiety	Weakness, dizziness
Hunger/ feeling sick	Headache
Paleness	Confusion
Shakiness	Blurred or double vision
Heart pounding	Odd behaviour
Sweating	Slurred speech
Numbness – fingers, lips, toes	Lack of coordination/ unsteady
	Lapses in consciousness
	Convulsions

Causes of Hypoglycaemia:

-Too much Insulin

-Extra exercise

-Not enough Carbohydrate with meals

-Missed or delayed meals

-Alcohol without food

-Delayed hypos (Exercise and alcohol)

HYPOGLYCAEMIA - Treatment

STEP 1 – 15-20g of fast acting carbohydrate. Regular fizzy drinks, jellybeans (6-8), glucose tablets, 3 teaspoons of sugar. [NOT chocolate cakes or biscuits!]

STEP 2 – Retest blood sugar if back above 4mmol then move to step 3, if not repeat step 1.

STEP 3 – Meal if due or 15-20g of slow acting carbohydrate. Piece of fruit, slice of bread, 2 plain biscuits

Blood Glucose Testing

- Why?
  - Safety
  - Titration of dose
  - Patient education
- When?

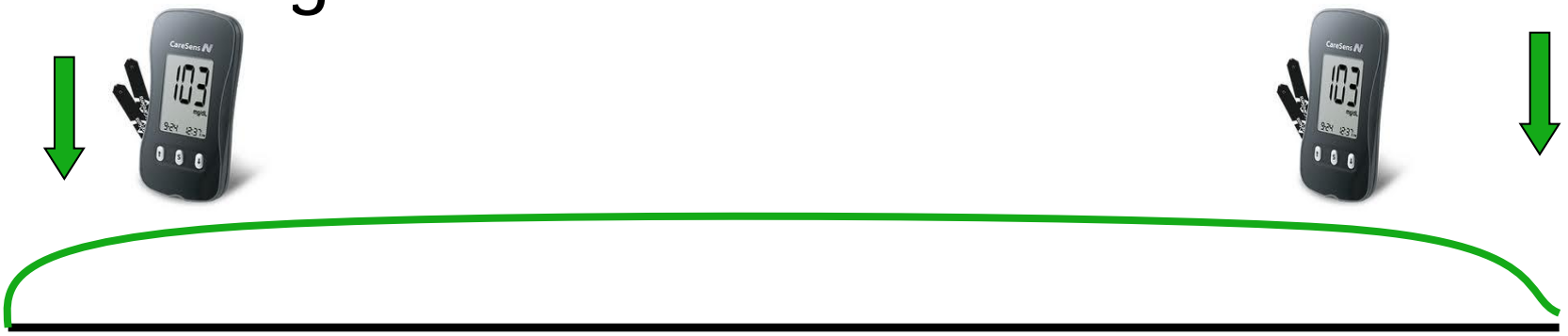
Depends on insulin type and purpose

Value of identifying pattern, fasting, pre and post-prandial

Patient point 3: Blood Glucose Testing When?

For example

- Patient commencing insulin glargine in the evening



0 hours -
time of injection

Duration up to
24 hours

Why Do We Test ???

Breakfast		Lunch		Dinner		Before Bed	O/Night	Remarks: activity
Before	After	Before	After	Before	After			
6.7								
7.5		7.7						
7.2				6.8				
6.2					7.9			
5.9						12.5		My Birthday
5.9				7.2				
		6.7			7.8			
7.2				6.5				
		4.1			6.8			Played Golf

SICK DAYS – KEY MESSAGES

Key Messages:

- **TEST FREQUENTLY (3-4x daily)**
- **WEAR YOUR MEDICAL ALERT EVERY DAY**
- **TELL someone** you are unwell and ask them to check on you regularly
- Continue your diabetes medications, do not reduce them without advice (However, do not take Metformin if vomiting)
- Have plenty to drink . Replace meals with drinks / soft foods if necessary.
- Contact GP or diabetes team for further advice.
- Go to hospital if feeling drowsy, confused, experiencing breathing difficulties, stomach pain, vomiting, bsl's >15mmol consistently or unable to keep bsl's >4.0

Drury, P. & Gatling, W. (2005). *Diabetes: Your questions answered* New York: Churchill Livingstone.

Travel

Further precautions:

Everyone starting insulin MUST be made aware of their responsibilities regarding driving.

Regular testing and hypo management / avoidance is of the utmost importance.

Travel

Further precautions:

Any Type 2 patients on insulin who wish to hold a passenger license, heavy vehicle license or driving instructor license are likely to require :

1. **Six-monthly medical certificate from a GP documenting:**
   - adherence to treatment
   - proof of regular self-testing of blood glucose with satisfactory levels
   - the absence of hypoglycaemic episodes or unawareness
   - the absence of significant diabetic complications
2. **A regular pattern of shifts with adequate meal breaks**
3. **A satisfactory annual specialist review**

Reference: New Zealand Transport Agency. (2009). *Medical aspects of fitness to drive*.

SHARPS DISPOSAL

- Lancets and pen needles must be secured in a strong plastic container.
- Ideally use a sharps disposal container OR a plastic Janola / bleach bottle and speak to your pharmacist about safe disposal.
- Diabetes Auckland provide sharp containers and charge $5.00 (members) and $5.50

(non-members) which includes sharps

disposal.

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