Workshop 4
Making the complex simple

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THE FUTURE OF TYPE 2 DIABETES IN PRIMARY CARE FROM SANOFI-AVENTIS

Goal of workshop

Insulin commencement – 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

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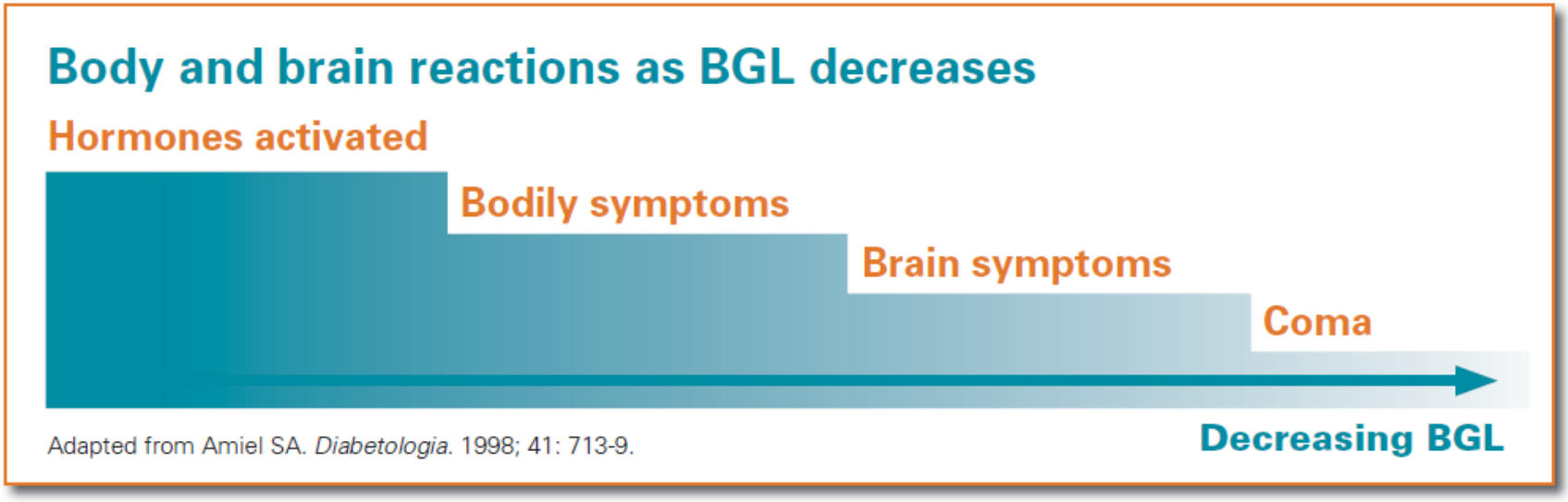
Patient point 2: Hypoglycaemia

- ☆ What is it?
- ☆ How will it feel?
- ☆ Does it matter?
- ☆ How is it treated?
- ☆ Physiology

Patient point 2: Hypoglycaemia

- ☆ **When BGL falls low enough to cause symptoms**
- ☆ **Usually defined as < 4 mmol/L (people develop symptoms at different levels)**



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Patient point 2: 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 .

- Taking too much Insulin, timing too early before eating, or double dose.
- Unexpected exercise ,running for Bus ,mowing lawn ,playing soccer ,walking dog ,moving house ,chopping wood etc
- Not enough Carbs in meals ,i.e having one piece of toast for breakfast when usually has 4 Weetbix.
- Missing a meal or instead of lunch at 1 pm left until 3 pm
- Alcoholic beverages on empty stomach
- Delayed hypos !!!Exercise!!!

Patient point 2: Hypoglycaemia treatment

1. **15g fast acting carbohydrate**
   - Preferably glucose-based cool drink
   - Normal Coca Cola, fizzy drinks ,Powerade 200 mls
   - Jelly beans (6-7)
   - Glucose tablets
2. **15g slow acting carbohydrate**
   - Healthy snacks such as a piece of fruit, slice of bread, two plain biscuits
   - Test BS again in about 15 mins
3. **Glucose is always the best choice…**
   - Why?
   - Acarbose slows down absorption of Starch /carbs therefore needs dextrose or Glucose itself to treat Hypos
   - Fast action

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Patient point 3: Blood Glucose Testing

- ☆ **Why?**
  - ☆ Safety
  - ☆ Titration of dose
  - ☆ Patient education

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Relationship Between HbA1c and BGL's

Av BGL = (2 x A1c) – 6

HbA1c (Current DCCT aligned units %	Average BGL	New Units (mmol/mol)
6.0	6.0	42
6.5	7.0	48
7.0	8.0	53
7.5	9.0	59
8.0	10.0	64
8.5	11.0	69
9.0	13	75

To work out Hba1c in % to mmol/mol:

Hba1c of 8% = 8 - 2 = **6** - 2= **4** **SO its 64 mmol/mol**

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Patient point 3: Blood Glucose Testing

☆When?

- ☆Depends on insulin type and purpose
- ☆Aim to capture peak and duration of insulin dose
- ☆Value of fasting BG and post prandial BG

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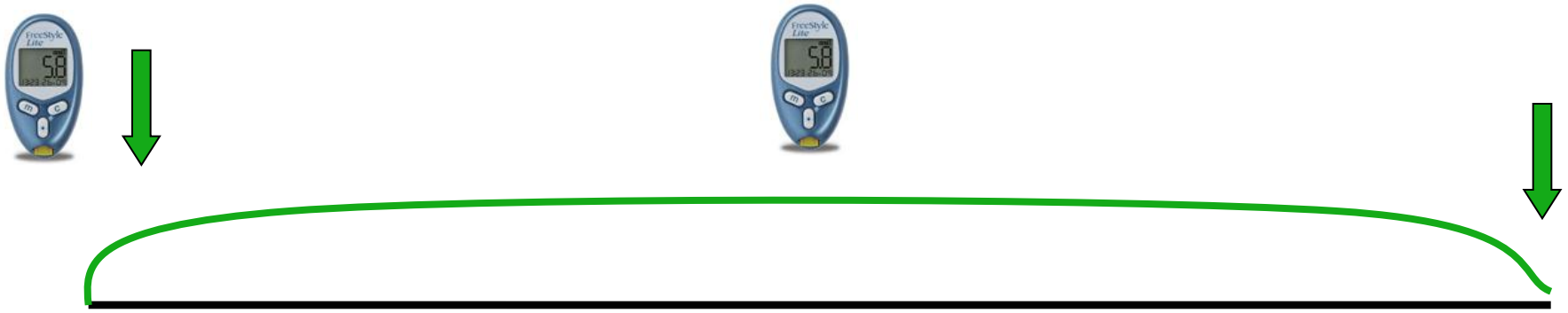
Patient point 3: Blood Glucose Testing
When?

For example

☆ **Patient commencing insulin glargine in the evening**



0 hours -
time of injection

Duration up to
24 hours

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Patient point 5: Insulin doses in T2D

- ☆ Requirements depend on insulin resistance and deficiency
- ☆ Duration of DM will affect remaining beta cell function
- ☆ Maximum dose of insulin is when you are having hypos consistently at the same time of day

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Patient point 5: Insulin doses in T2D

When might changes need to be made?

- ☆ **BGLs low overnight**
- ☆ **BGLs consistently > 15 mmol/L**
- ☆ **Illness with glucose excursions**
- ☆ **Prescribed steroids or some other medications that are known to affect BGLs**
- ☆ **When HbA1c target is not achieved**

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When to test ????

Breakfast		Lunch		Dinner		BeforeBed	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

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Patient point 6: Storage

- ☆ “Spare insulin” in fridge
  - ☆ Preferably kept in its original packaging
- ☆ “In use insulin” < 30° C for 28 days

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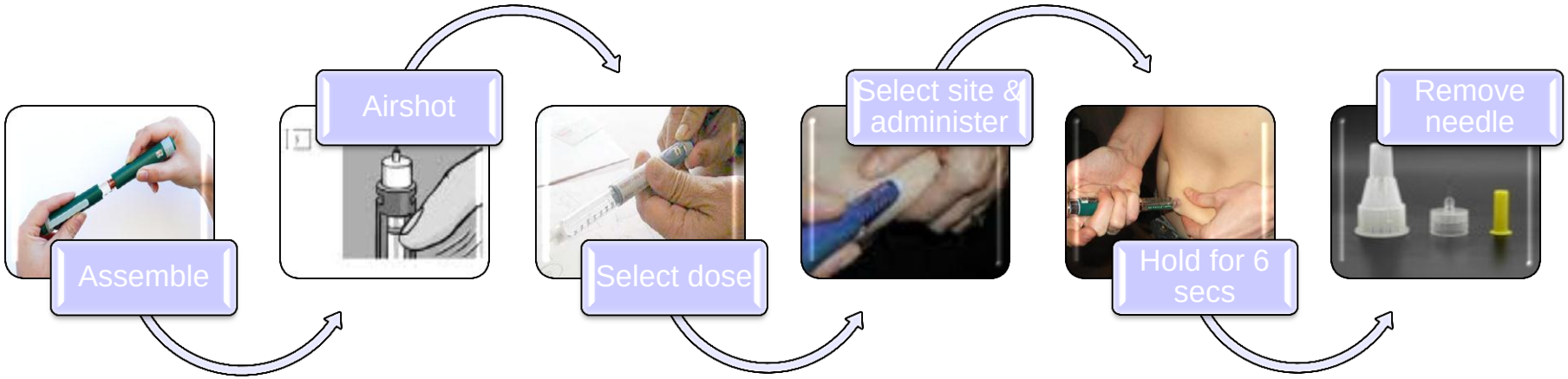
Patient point 7: Device instruction



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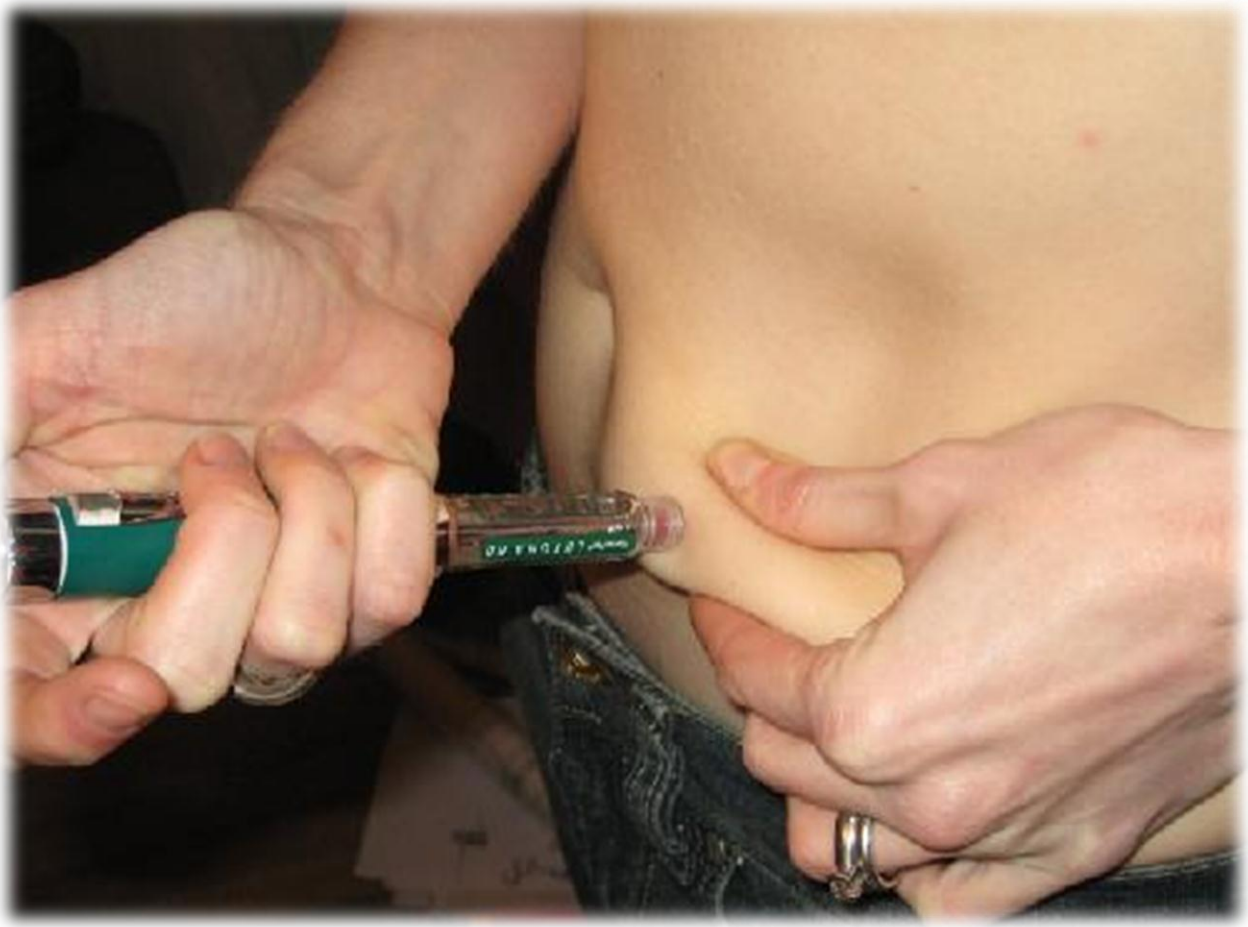
Let's have a go



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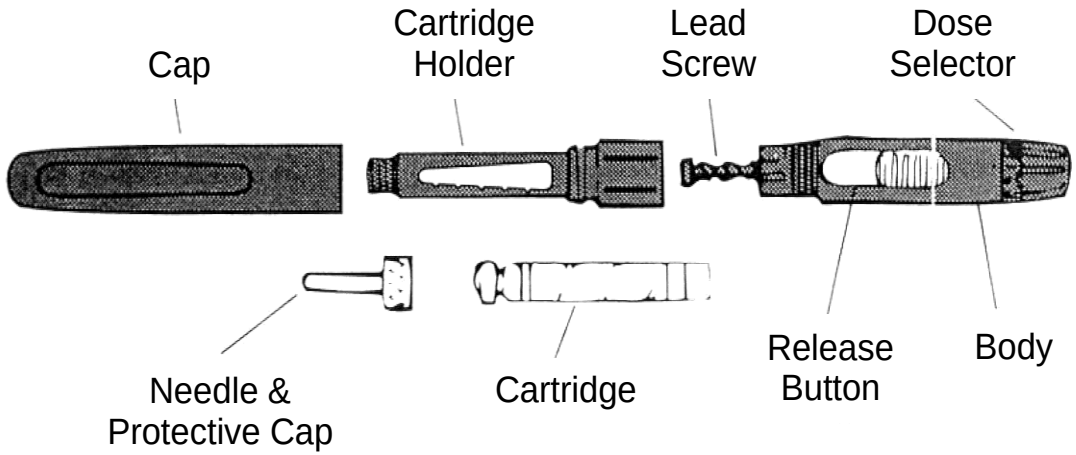
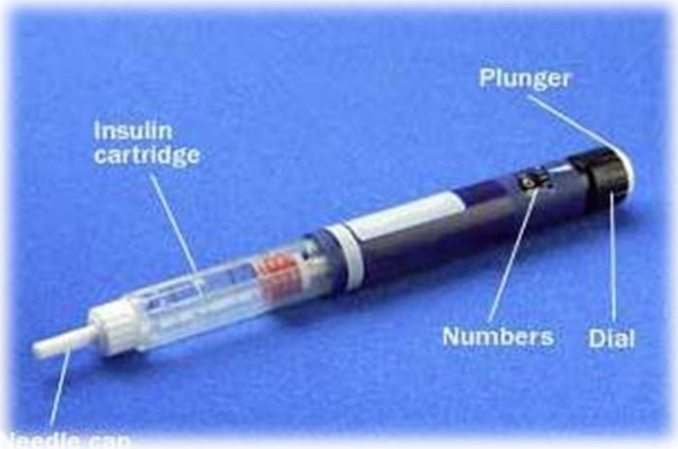
Reusable insulin pens



Disposable insulin pens



Some of the current injection devices

Prefilled insulin pens

Reusable devices for use with cartridges

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Patient point 7: Device instruction
Checklist

- ☆ **Technical skills**
  - ☆ Written support materials
  - ☆ Demonstration of accurate dose dialling
  - ☆ Demonstration of device use/safety
  - ☆ Documentation
- ☆ **Support**
  - ☆ Carer
  - ☆ Domiciliary services

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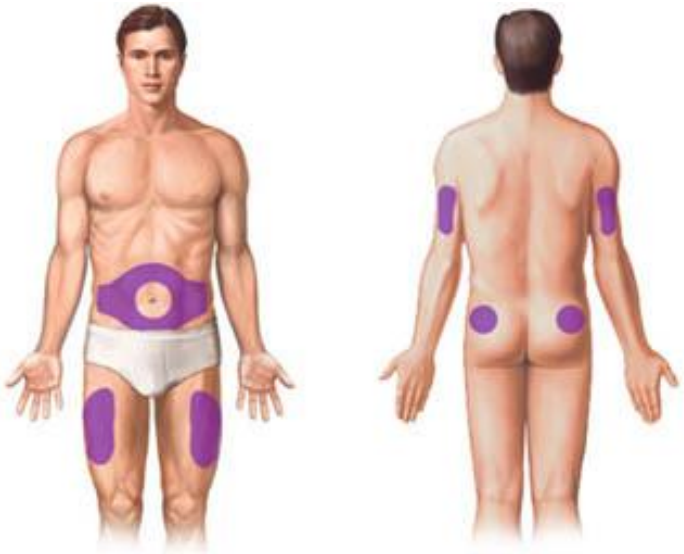
Patient point 8: Injection sites



- ☆ Abdo - fast
- ☆ Thighs - slow
- ☆ Buttocks - slow to medium
- ☆ Arms- medium (if placed correctly!!!)

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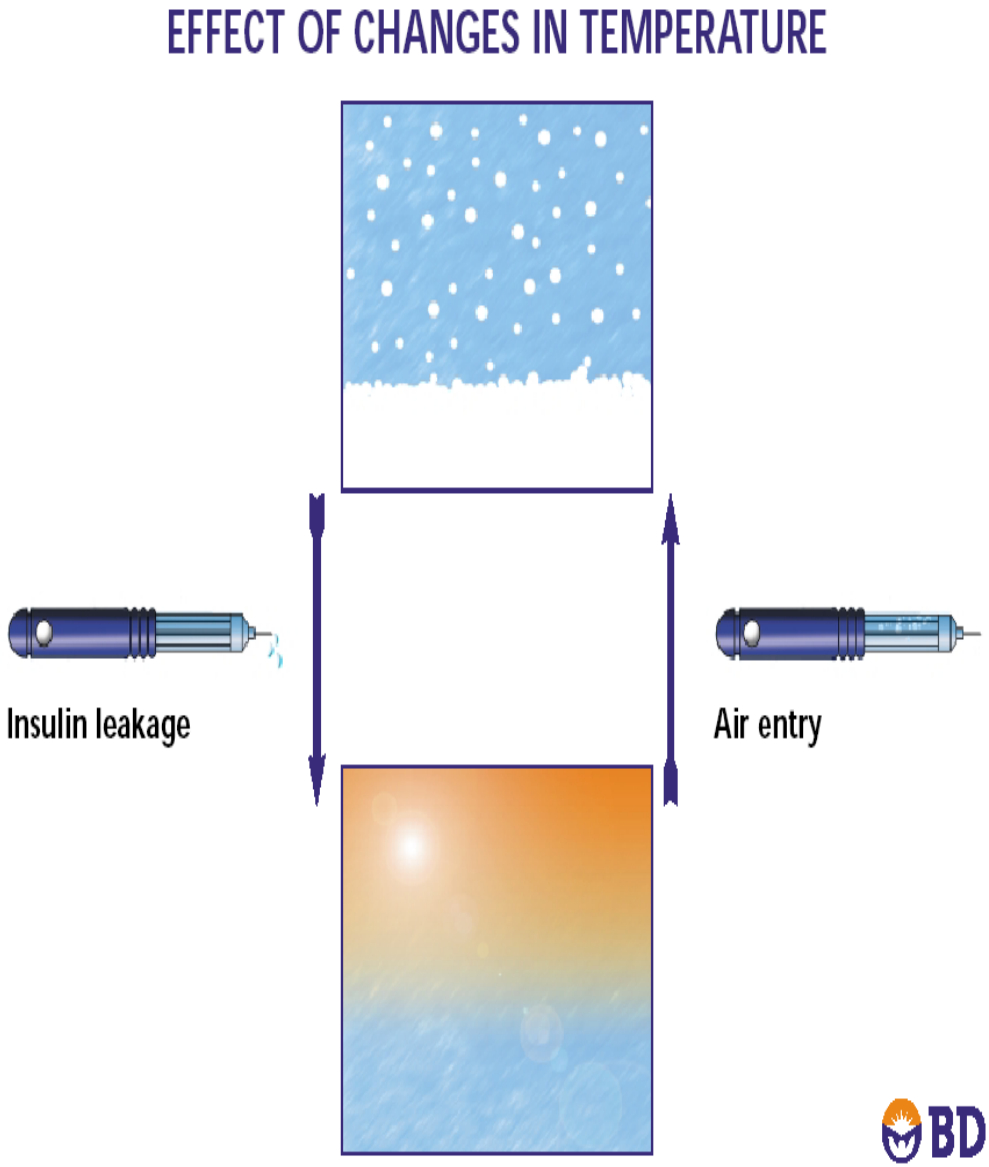
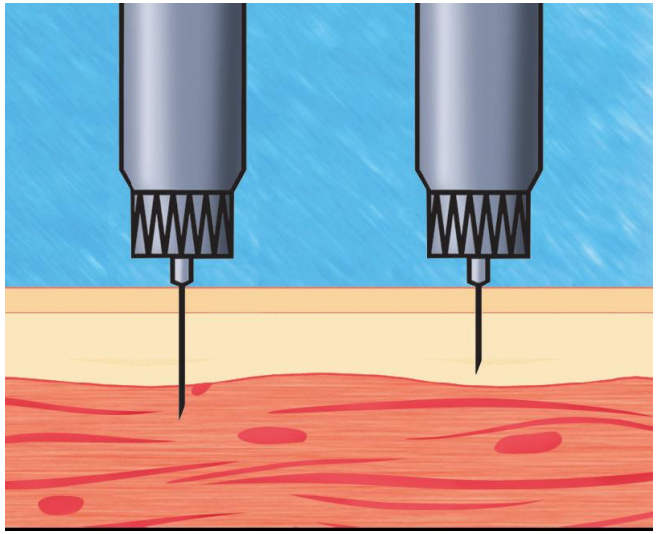
Needle reuse and dosage accuracy

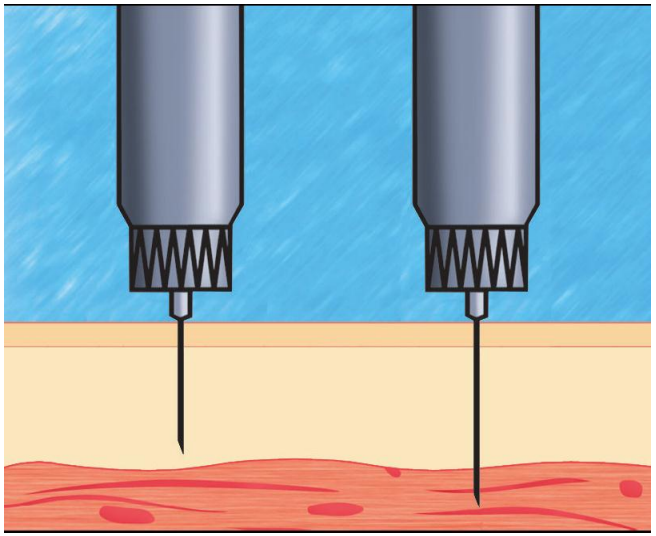
Insulin leakage
Air entry

- **Needle reuse and dosage accuracy**
- **Insulin contained in pen cartridges is exposed to temperature changes when insulin pens are carried around. Keeping the needle on the insulin pen between injections leaves an open passage to the insulin, allowing insulin to leak out of the cartridge**
- **and/or air to be drawn in through a mechanism related to temperature changes.**



Patient point 9: Pen needles





- 4-5 mm
  - Children
  - Most adults
  - No pinch technique
- 6-8 mm
  - Most clients- even if overweight

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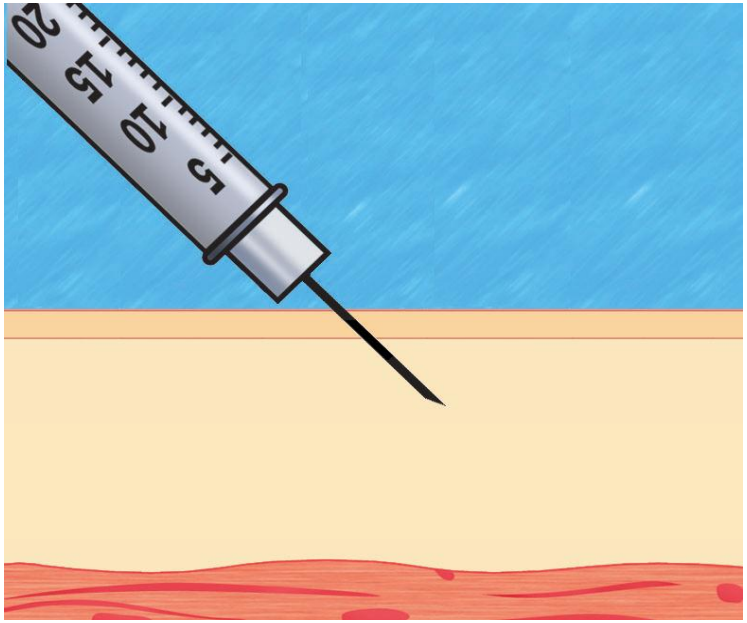
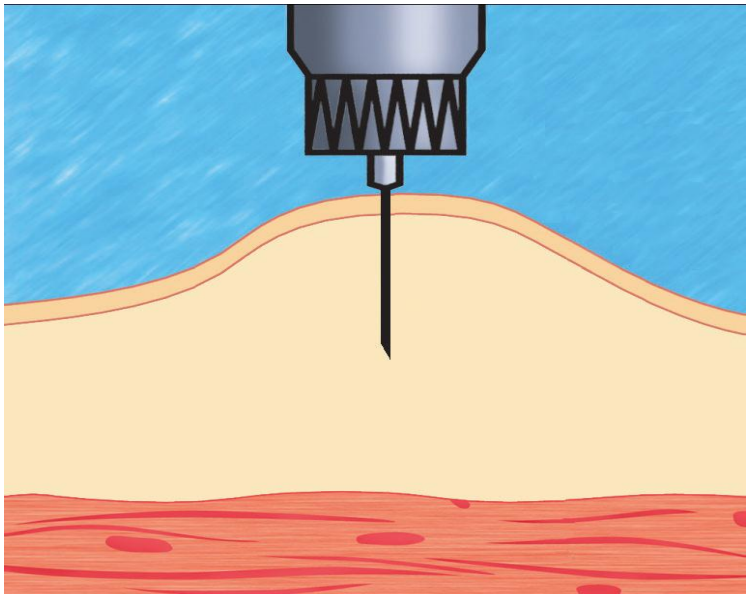
Patient point 9: Pen needles

Angle of Insertion:





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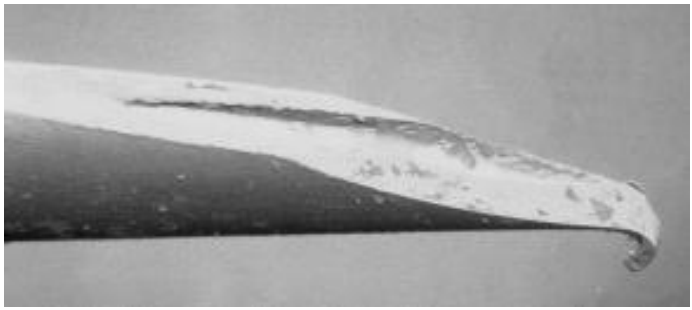
Needle Reuse and injection pain

- **In order to significantly reduce the discomfort of the injection, thinner, shorter and sharper insulin needles have been developed. Repeated use however can impact the performance and safety of the needle by:**
- **Removing**
- *Photographs showing the type of damage that can occur with needle reuse:**

New needle at x370 magnification



Reused needle at x370 magnification

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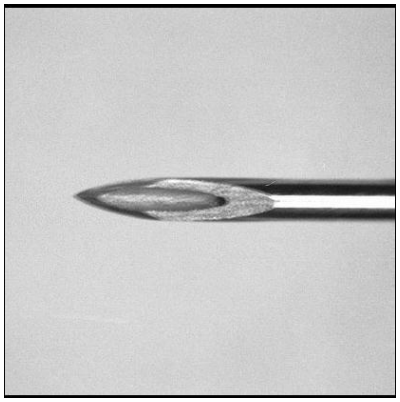
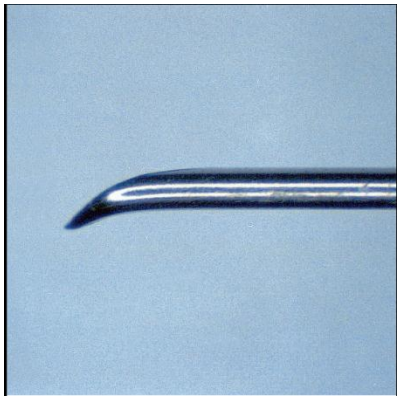
Patient point 9: Pen needles

Pen Needles:

- ☆ Needles should never be reused
  - ☆ 100 needles for 3 months





After 2nd Use

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

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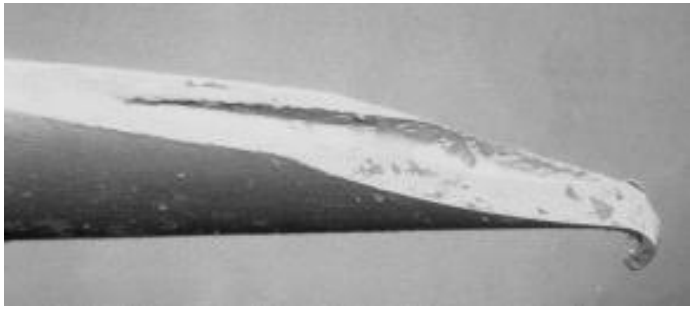
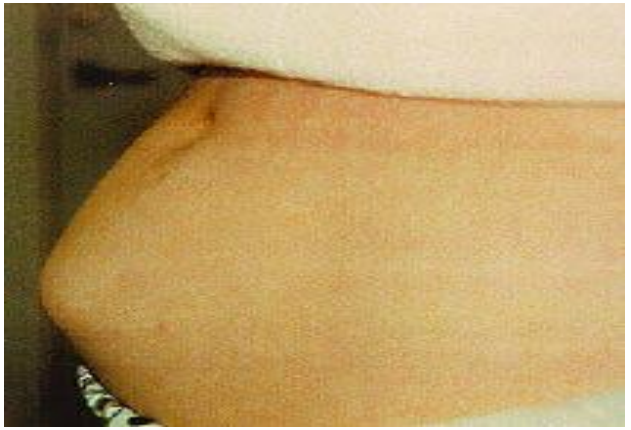
Needle reuse and lipodystrophy

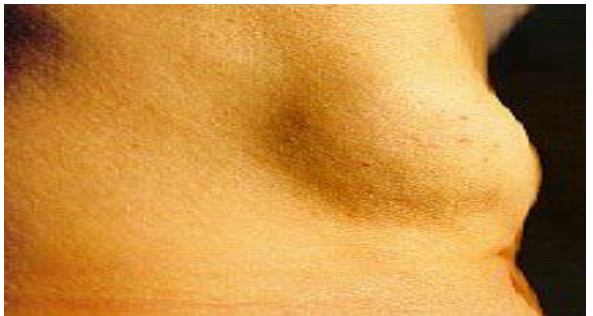
- **With reuse, the needle tip can bend into the shape of a hook causing bleeding, bruising and laceration at injection sites. There is increasing evidence that this micro-trauma is involved in the development of lumpy nodules also called "lipodystrophy".**
- **Injecting into lipodystrophy can affect the absorption of your insulin and** lead to
- erratic glycaemic control**.**



Lower abdomen



•Flanks



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Patient point 10: Sharps
Community Sharps Disposal

☆ **Lancets, pen needles and syringes – must be secured in strong plastic container**

To Locate your local sharps disposal facility call Diabetes New Zealand or your local council or see www.diabetes.org.nz at 623 Valley Road Mount Eden

CcCollect a Plastic container when its full with used needles you can take it back there with $2 Donation to Diabetes Auckland ,they will dispose of it .

or Put used needle in an empty Plastic Janola/Bleach Bottle when full cellotape the lid and put in normal rubbish bin.

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DIABETES CAN GET OUT OF CONTROL RAPIDLY DURING SICKNESS.

FLUIDS ARE LOST FROM THE BODY ANDMUST BE REPLACED

WHAT TO DO?

1.	TEST YOUR BLOOD GLUCOSE 3-4 times daily		If your tests are continually higher than 15mmol/L then contact your doctor.
2.	**Continue** to take your usual diabetes tablets/insulin **However** do not take **Metformin** while you have vomiting or diarrhoea.		Your blood glucose may rise during illness so you will still need your diabetes tablets/insulin.
3.	Have plenty to DRINK		Dehydration can develop quickly especially if you are vomiting or have diarrhoea. Try and take one drink each hour. See questions on back page.
4.	Find the cause of the illness		Seek early treatment of any illness or injury as it can easily upset diabetes control.
5.	CONTACT the Doctor, Practice Nurse, or the Diabetes Team		If you have any of the following:- - Vomiting or diarrhoea - Blood glucose levels continually above 15mmol/L - Infection or fever.
6.	CONTACT FAMILY or friends		Family and friends can lend support and practical help with food and shopping.

NOTE:
It is sensible to have a small store of tinned and packet foods for emergencies.
This is especially important if you live alone.

DON'T FORGET

- Continue your usual diabetes tablet(s)/insulin, but remember **NOT** to take Metformin if you cannot eat, are vomiting or have diarrhoea.
- **DRINK** at least 1 glass of fluid every hour especially if you have diarrhoea or fever or are vomiting.
- Replace food with drinks or soft foods. (see back page)
- Contact your doctor, practice nurse or the Diabetes team for further help.

Sick Day advice for people with Type 2 Diabetes

Illness such as colds, flu, infections, vomiting or diarrhoea may create special problems for people with diabetes as illness tends to worsen diabetes control.

When you feel sick you may not feel like worrying about your diabetes, but, this is just the time to take special care to prevent more serious problems developing.

WHAT TO EAT WHEN YOU DON'T FEEL LIKE EATING

1. DRINK FLUIDS FREQUENTLY

Sip one glass (200ml) every 1 – 2 hours

If your blood glucose level is less than 8:

Fruit juice – fresh, canned or in cartons

(Not Just Juice)

Fizzy drinks – containing sugar. Best if left to go flat, e.g. ginger ale, lemonade, coke, tonic water

If your blood glucose level is higher than 8: **Diet drinks (i.e. water, soda water, or mineral water) are suitable.**

2. IF YOU HAVE DIARRHOEA, be sure to use:

(i) **Oxo cubes, or Beef stock, Chicken cubes or stock, or Vegemite/Marmite or bovril as a drink.**

(ii) **Commercial packet or tinned soup these are all good with dry toast or bread.**

3. If you have a sore mouth, or cannot chew usual foods try:

Egg flip – **1 cup milk, 1 egg, sweetner to taste, vanilla**
Custard – **1 cup milk, 1T custard powder, sweetener.**
Fruit Yoghurt – **or junket**
Milk**, with Milo if liked**
& Biscuits – **crackers, crispbread, litebread**
Ice cream – **1 scoop**
Ordinary Jelly – **½ cup**

Sick day management guidelines – Type 2

Patient education points:

- ☆ Contact Diabetes Nurse if:
  - BGL > 15 mmol/L for more than 24h or BGL rises despite 2 extra insulin doses

  Go to Hospital if :
  - Feeling drowsy, confused, difficulty breathing, severe abdominal pain
  - Persistent vomiting, esp if frequent for more than 2-4 hours
  - Hypoglycaemia is severe or BGL can't be kept > 4 mmol/L
  - Too unwell

- ☆ Make a sick day management kit including sick day action plan

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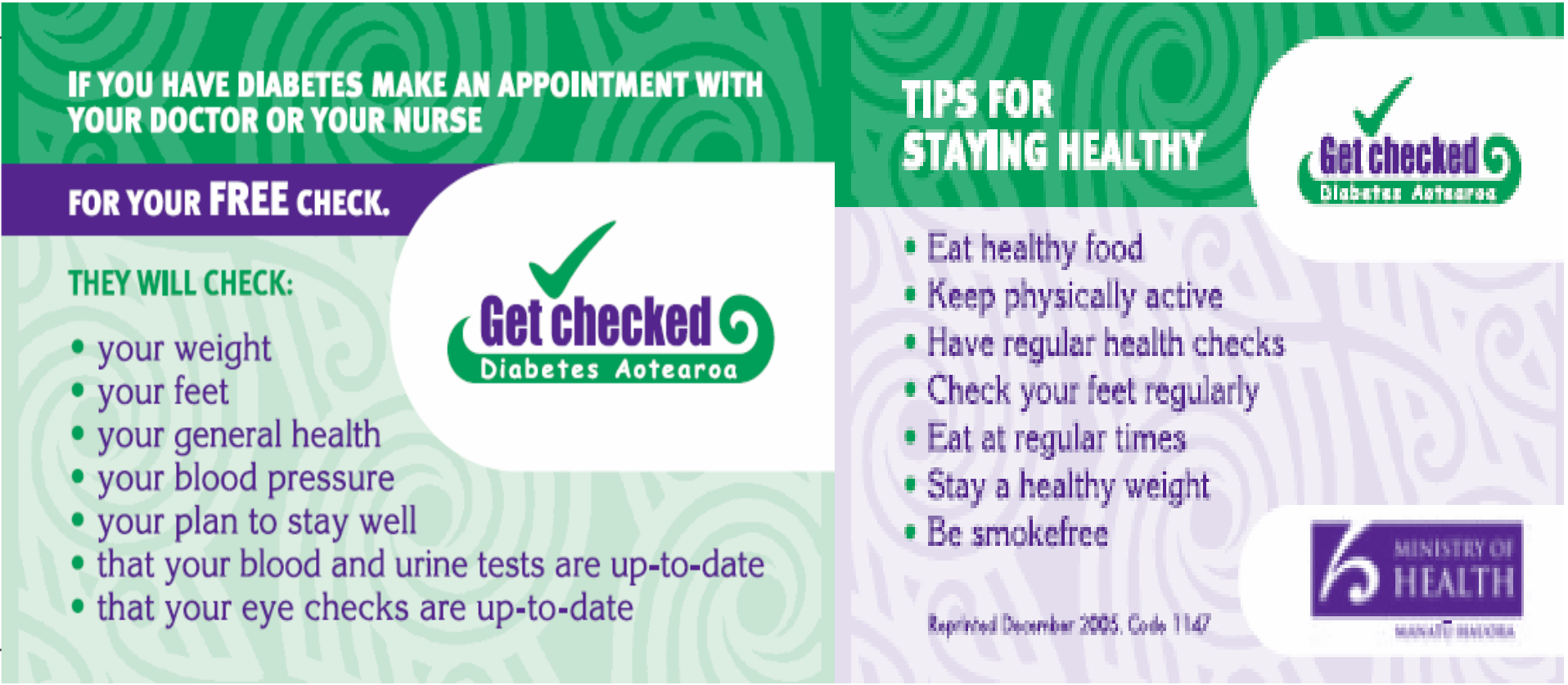
MOH Free get Checked



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Key information for patients to know

- ☆ Starting doses are always low doses and will need to be increased
- ☆ Dose will be as much insulin as is needed to control BGL's adequately, there is no maximum dose
- ☆ Some people notice a temporary visual disturbance
- ☆ BGL's within target range give better organ protection and longevity of life – BG vs A1c (UKPDS)
- ☆ We will assist you to get the correct dose/s for your own BG control
- ☆ Adjusting insulin doses comes with practice
- ☆ Titrating can be done by phone ,fax or e-mails.
- ☆ There is always someone there to help you

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Key practice points

1. Refer to dietitian to help patients understand ‘food’
2. Choose insulin to match patient’s lifestyle
3. Suit device to patient
4. Create expectation that dose will increase
5. Constantly review...

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