

My perfect pump

Richard Oppenheimer looks at what he wants from a perfect pump

Can you remember the days when computers were about as user friendly as a tank full of piranhas, or when mobile phones needed you to spend a week reading the manual before you could even make a call? Well sometimes looking at today's insulin pumps it all comes flooding back.

Let's face it – insulin pumps aren't cheap. So having spent a day drawing out a flowchart just to try and work out all the commands on a MiniMed 507, and realising that most of the other pumps were no better, I decided to write down what I expect to see in a well designed pump – and why I hate some of the ones on offer now.

Seriously though, your insulin pump is the most intimate purchase you're likely to make. It's your little friend that keeps you alive. It's going to live with you 24 hours a day for the rest of your life. And there's a few pumps around I wouldn't want to go to bed with!

Meanwhile, here's what I think is the very least you should expect from a decent pump. When I find one that measures up I'll let you know.

If you're a pump user [I'd love to hear from you](#) what you hate – or love – about your pump. If you're a pump manufacturer – I'm waiting for your call!

Safety

Let's face it: your life depends on your pump. So this has got to be the number one priority.

- Are operations which are potentially dangerous (like priming, or cartridge change) arranged so you can't perform them by accident while your pump is running and attached to you?
- Will the pump fail catastrophically if one of the batteries goes down?
- Can the buttons be pushed accidentally while the pump is in your pocket?
- Will it malfunction if you accidentally put it in the same pocket as your mobile phone?

User interface

Probably sooner rather than later you're going to have to use your pump in the middle of a hypo and there's nobody else to do it for you. So:

- Are the commands logical, can you use it without thinking?
- Do all the commands have a common look and feel?
- It is designed so you can't get into a dangerous situation by accident?
- Does it have on-screen instructions in plain language which are clear enough to read in poor light, or if you – like a lot of people with diabetes – are sight impaired?

Functionality

This is the absolute minimum you need:

- simple one-shot bolus,
- extended duration bolus,
- ability to give a one-shot bolus while an extended bolus is running,
- 'any-key' panic interrupt of bolus delivery,
- 24 hour programmable basal rates with several different selectable profiles (particularly for women),
- temporary basal rates with programmable timeout,
- easy user interrupt of extended duration bolus or temporary basal rate,
- a memory giving you your last few boluses, total insulin used today, summary of insulin used the last few days, a counter showing the amount of insulin left in your cartridge,
- alarms and status information displayed in plain language.

Ease of use

- Are the buttons well laid out, can you feel them easily, or are critical buttons easily confused in the dark or if you are holding the pump upside down?
- Are the on screen commands clear, unambiguous and in plain language?
- Is the command structure logical and easy to use?
- Can you operate it through your clothing and be confident you haven't made a mistake?
- If you're not too technically minded do you feel confident with it?
- Is it easy to change or refill the insulin reservoir?
- Could you operate it while you are having a hypo?

Accessibility

- Could it be used by someone partially sighted?
- Does it have on-screen instructions which are clear enough to read in poor light, or if you are sight impaired?
- What if you have neuropathy, and poor feeling in your fingers?
- Are the audible signals meaningful?
- If your sight is bad, are the audible signals good enough to tell you what's going on?

Support

- How good is the manufacturer's backup?
- How fast can they get you a spare pump, or do they provide you a backup?
- And if you are in difficulties can they talk you through it?
- Does it use readily available batteries or are you going to be stuck when your spare turns out to be a dud?
- Is the instruction manual downloadable from the manufacturer's website (remember, you're unconscious in hospital and someone needs to know how your pump works)?
- And is the website marked on the pump?

Styling and comfort

- We never thought of a pump as a fashion accessory – but when you wear it everywhere you go, you want it to look good. Especially if you are style conscious.
- And when you roll over on it in bed you don't want it to dig into you and wake you up.
- There's no such thing as a pump that's too small, but you don't want it to be fiddly.
- Whether you prefer pre-filled cartridges or a refillable reservoir is a matter of personal choice, but bear in mind that a pump which takes pre-filled is likely to be physically larger, and re-filling isn't usually too difficult once you've got the hang of it.

Technology

- Does it use up-to-date technology or is it starting to look a bit dated?
- Can the manufacturer easily update your pump's software to give you the latest functionality?
- Is it reliable?
- Can you download data from your pump to your PC, and then integrate that data with data from your glucose meter?
- Is it ready for interfacing with the next generation of continuous glucose monitors?

Out of the box

- Can it be used by someone who hasn't been explicitly trained to use your pump?
- What happens if you find yourself in the hands of medics who need to operate your pump for you?

Engineering

- Designed so that bubbles get trapped and aren't easily passed into the infusion set.
- Designed so the pump gives doses of insulin at regular frequent intervals, especially important if you have low basal rates.
- Sufficiently robust for your lifestyle.

See our other page where members of the Insulin Pumpers UK discussion group say [what they don't like](#)

about their own pump.

Add your comment

We welcome your opinions. What features would you like on your perfect pump? Use the form below to tell us. We may include your ideas on this page.

Your name:

Your email address (leave it out if you want):

Your comment:

Send comments

Author: Richard Oppenheimer <r.oppenheimer@btinternet.com>. Richard Oppenheimer is not a medical professional. He has Type 1 diabetes and uses an insulin pump. The information given here is based on his own personal experience. [More about Richard Oppenheimer...](#)

Created: April 2001; Last updated: Tuesday 5 June 2001