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Pump technology sustains insulin patch

By Susan Gotensparre

06/02/2007- **US-based start-up company Medipacs is developing a miniaturised digital pump, no bigger than a quarter, which could become the first patch-like product to help diabetics manage their insulin therapy.**

Medipacs has been in talks with companies to produce a patch able to hold a 72-hour insulin dose, whilst pumping out one millilitre over 24 hours, which will match the shelf life of insulin.

The patch is a scaled down version of a larger pump, also in development, which would be used for delivering active drugs over a two-week period. Another feature is that the patch is flexible enough to be programmed with a patient's required delivery rate.

The firm expects the patch to hit the $2bn drug delivery patch market in 24 to 30 months.

Medipacs' patch is attached to the skin by adhesive and is used with skin barrier technologies, such as micro needles, phonophoresis (ultrasound) and electrophoresis (applied electric field).

The firm explains that the pump runs on a small amount of power, less than three volts. The system's backpressure is more than enough to deliver insulin, which would require five pounds per square inch (psi) but can operate at a higher psi so it can be used for liquid pharmaceuticals with a higher viscosity.

The pump is still in research and development but the technology has been proven to operate over 72 hours and can sustain backpressure of 30 psi. The company hopes that larger pump will become a commercial reality within 18 to 24 months, where it would enter an infusion pump market worth $2bn (€1.54bn).

"Ultimately we want the pump to be able to run continuously for extended lengths of time as long as two weeks to a month so it can be used in the larger form of a portable infusion pump. The Medipacs technology will have a dramatic impact on lowering the cost of healthcare for patients that need delivery of liquid drugs and fluids over extended times," said Sonia Vohnout, Medipacs systems engineer.

" We have proven the concept and are now working on medical applications for the first commercialized products, once we have funding to proceed we are 18-24 months from market introduction," said Mark Banister, president of Medipacs, told In- PharmaTechnologist.com.

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