

A cluster randomised trial, cost-effectiveness analysis and psychosocial evaluation of insulin pump therapy compared with multiple injections during flexible intensive insulin therapy for type 1 diabetes: the REPOSE Trial

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Plain English summary

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People with type 1 diabetes (T1DM) need insulin therapy to sustain life. The most common treatment is injecting insulin several times a day. Another approach uses insulin pumps, the size of mobile phones, which are attached under the skin through fine tubing and which provide small amounts of insulin. In the UK, pumps are recommended for people struggling to control their diabetes with injections, and are used far less often than in other countries. The research conducted so far on pumps has weaknesses. We wanted to conduct a fair test to see if pumps would benefit adults with T1DM.

We conducted a large study (a randomised controlled trial) in which 267 people attended a structured education course: half were assigned to a pump for 2 years, whereas the other half used injections. We compared average blood sugar levels [by a test measuring glycated haemoglobin (HbA_{1c})] to compare diabetes control after 2 years.

Our results showed that both groups improved diabetes control after training. Participants using pumps had slightly better control, but differences were small (HbA_{1c} was 0.24% lower than in the injections group). We found that pumps were not cost-effective, although people using pumps reported better satisfaction with their treatment and in some aspects of their quality of life.

Our study suggests that making insulin pumps more widely available before structured training is unlikely to improve diabetes control or be cost-effective. Providing structured education to more people could be highly beneficial, with pumps made available to those needing better ways of delivering insulin to reach glucose targets.

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