

Insulin Pump use in Pediatric Type 1 Diabetes: Multinational comparison with 54,768 Pediatric Patients from the T1D Exchange (US), National Paediatric Diabetes Audit (England and Wales), and the DPV Initiative (Germany and Austria)

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Objectives: Advances in diabetes technology have improved care of children and adolescents with type 1 diabetes (T1D). While use of continuous subcutaneous insulin infusion (CSII) pumps has expanded dramatically in the past decade, there remains considerable variability between countries in the support for and use of pump technology. In this study, investigators in 3 large multicenter registries of T1D patients pooled their pediatric data to compare the frequency of use of CSII in children in the US, England/Wales and Germany/Austria.

Methods: Data for years 2011 and 2012 from the T1D Exchange (US), the UK National Paediatric Diabetes Audit (England/Wales) and the DPV initiative (Austria/Germany) were compared. Data were analysed using multivariable logistic regression models (SAS9.4).

Results: The overall use of CSII was much lower in children in England/Wales than in the US or Germany/Austria. CSII use was higher in patients with longer T1D duration in all countries. Odds of CSII use was higher in females in the US (OR=1.09), Germany (OR=1.29) and Austria (OR=1.50). Additionally, patterns of CSII use by age exist by country as does cross sectional HbA1c (Table). Mean HbA1c values were lower in CSII versus injection patients.

Rates of CSII by Country and Age and Mean HbA1c

HbA1c	<6 yo	6-<10 yo	10-<14 yo	14-<18 yo	CSII Overall	HbA1c CSII	HbA1c Injections
US, n=13,966	33%	44%	50%	49%	47%	8.2%	8.6%
England, n=13,666	22%	16%	14%	11%	14%	8.5%	9.0%
Wales n=873	21%	17%	18%	14%	16%	8.2%	9.0%

Germany, n=24,483	69%	42%	37%	34%	41%	7.9%	8.1%
Austria, n=1,779	70%	39%	38%	32%	41%	7.9%	8.1%

Conclusions: In Europe young children are more likely to be on CSII in contrast to older children being more likely in the US. The optimal age and time after T1D diagnosis to begin CSII therapy requires further study.