

CHALLENGES IN USING INSULIN PUMPS IN PEDIATRICS: A SELF REPORT BY FAMILIES

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ABSTRACT

• **Type 1 Diabetes Mellitus (T1DM)** is a chronic autoimmune condition that requires multiple daily insulin administrations. Insulin pump therapy provides less injections and reduced episodes of hypoglycemia. This technology contributes to more flexibility in T1DM management, but requires frequent re-evaluations and adjustments for optimal management. The discontinuation rate of insulin pump therapy is higher in adolescents compared to other groups. Previous studies have shown that a small number of pediatric patients discontinue pump therapy, but risk factors for discontinuation are unclear. The most common challenges reported in insulin pump continuation are disliking the pump, problems wearing it, and glycemic control problems that leads to burnout.

METHODS

One hundred families who have children with T1DM on insulin pumps were a part of a self-reported survey. The survey was delivered during regular outpatient follow up visits. The project was approved by the Institutional Review Board in our University.

RESULTS

Sixty-three percent of the children using insulin pump therapy were between the age of 13 and 18 years.

Fifty-six percent of the total patients had the insulin pump for more than 5 years.

The reported problems in the first year while using pumps were: Pump failure (60%), diabetic ketoacidosis (23%), and severe hypoglycemia (13%).

CONCLUSIONS

Technological problems remain the most common challenge for families. Insulin pump failure can easily lead to diabetic ketoacidosis (DKA). Other problems may include device misuse, site infections and adherence to skin, and should always be explored. Further studies should examine concerns related to body image, interference with daily activities, and other psycho-social factors.

REFERENCES

Cope JU, Samuels-Reid JH, Morrison AE (2012). Pediatric Use of Insulin Pump Technology: A Retrospective Study of Adverse Events in Children Ages 1-12 Years. *Journal of Diabetes Science and Technology*, 6,(5): 1053-10599.

Jenise C. Wong, MD, PhD, ClaireBoyle, MS, Linda A. DiMeglio, MD, MPH, Lucy D. Mastrandrea, MD, PhD, Kimber-Lee Abel, RN, BSN, CPN, CDE, Eda Cengiz, MD, MHS, Pinar A. Cemeroglu, MD, GraziaAleppo, MD, Joseph F. Largay, PA-C, CDE, Nicole C. Foster, MS, Roy W. Beck, MD, PhD, Saleh Adi, MD, for the T1D Exchange Clinic Network (2016), Evaluation of Pump Discontinuation and Associated Factors in the T1D Exchange Clinic Registry. *Journal of Diabetes Science and Technology*, 11, 2: 224-32. doi:[10.1177/1932296816663963](https://doi.org/10.1177/1932296816663963)

Kostev K., Rockel T, Rosenbauer J, Rathmann W. (2014). Risk factors for discontinuation of insulin pump in pediatric and young adult patients. *Primary Care Diabetes* 346-351. <https://doi.org/10.1016/j.pcd.2014.03.006>

Shulman, R., Stukel, T. A., Miller, F. A., Newman, A., Daneman, D. and Guttman, A. (2017), Insulin pump use and discontinuation in children and teens: a population-based cohort study in Ontario, Canada. *Pediatr Diabetes*, 18: 33-44. doi:[10.1111/peidi.12353](https://doi.org/10.1111/peidi.12353)