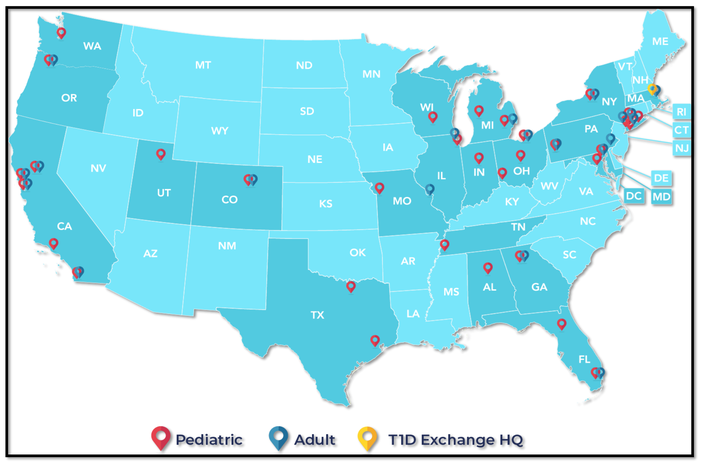
Early Automated Insulin Delivery Systems Adoption in Diabetes Care: Multi-Center Provider Perspective on Barriers

Authors **Ori Odugbesan, MD MPH[1]; Timothy Bol, BA[1]; Trevon Wright[1]; Grazia Aleppo, MD[2]; Marina Basina, MD[3]; Julia Barillas Cerritos, MD[4]; Kristina Cossen, MD[5]; Sarah Corathers, MD[6]; Stephanie Crossen, MD[7]; Kai E. Jones, MD[8]; Ming Yeh Lee, MD, PhD[9]; Carol Levy, MD[10]; Nestoras Mathioudakis, MD[11]; Grenye O'Malley, MD[10]; Deborah Plante, MD[7]; Priya Prahalad, MD[9]; Nicole Rioles MPA[1] on behalf of the T1D Exchange QI Collaborative**

1) T1D Exchange; 2) Northwestern University Feinberg School of Medicine; 3) Stanford University Medical Center; 4) NYU Langone Mineola; 5) Children's Healthcare of Atlanta Emory University School of Medicine; 6) Cincinnati Children's Hospital; 7) University of California Davis Health System; 8) Washington University School of Medicine; 9) Stanford University Pediatric Endocrinology; 10) Mount Sinai Hospital; 11) Johns Hopkins University

Introduction

- The T1D Exchange is a Boston-based nonprofit with a mission to improve the outcomes of people with diabetes.
- T1D Exchange Quality Improvement Collaborative(T1DX-QI) is a learning network with 62 clinical centers caring for 90,000+ people with T1D and 60,000+ people with T2D across 22 US States (Figure 1).

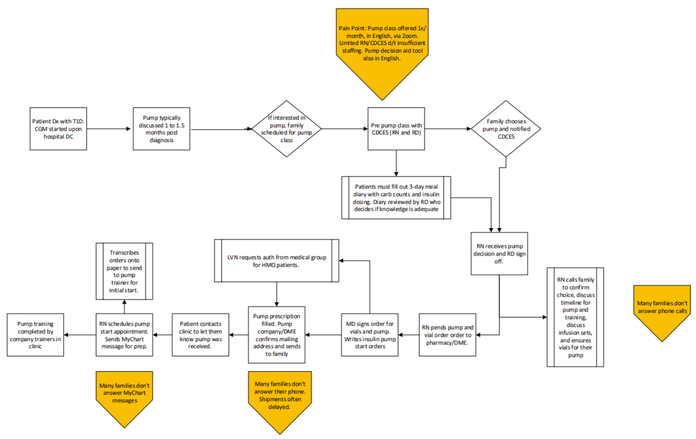


Background

- Automated Insulin Delivery (AID) systems have been shown to reduce HbA1c levels, reduce the incidence of severe hypoglycemia and diabetic ketoacidosis, and ease diabetes-related distress in individuals with type 1 diabetes.
- Although early initiation of AID after diagnosis is associated with improved glycemic outcomes, reduced risk of long-term complications, and improved quality of life, it is not yet standard practice.
- This study aims to identify the barriers to early AID adoption from the perspective of diabetes care providers.

Methodology

- The T1D Exchange Quality Improvement Collaborative (T1DX-QI) engaged thirteen endocrinology centers (6 Adult and 7 Pediatric) to participate in this study.
- Centers applied Quality Improvement tools including process maps (Figure 2), Ishikawa Diagram, Effort-Impact-Matrix, Key Driver Diagram to identify barriers, identify, and prioritize interventions to support early AID adoption within their clinics.
- Identified barriers were then grouped into three tiers based on how frequently they were reported across centers.

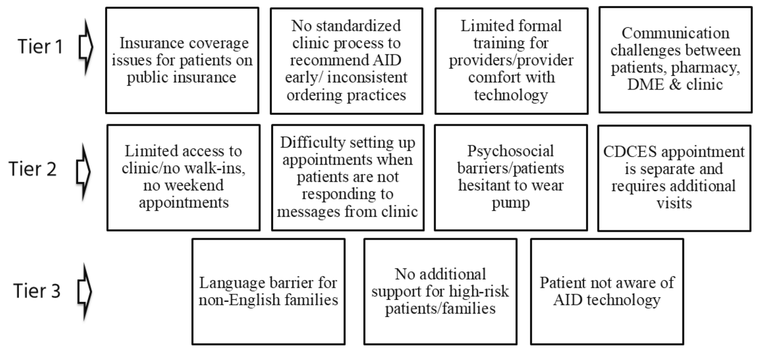


Result

- Tier 1 barriers were reported by at least 80% of providers across participating centers
- Tier 2 barriers were reported by 50–80% of providers
- Tier 3 barriers were reported by fewer than 50% of providers (Figure 3).

Result

- Tier 1 barriers included insurance coverage issues, lack of standardized clinic processes, limited provider training, and communication challenges among patients, pharmacies, DME, and clinics.
- Tier 2 barriers involved limited clinic access, scheduling difficulties, psychosocial hesitancy toward pump use, and the need for separate CDCES appointments.
- Tier 3 barriers included language barriers for non-English-speaking families, lack of support for high-risk patients, and low patient awareness of AID technology.



Conclusion

- Understanding the barriers to adopting AID is a critical first step in developing effective strategies and research frameworks aimed at increasing early uptake.
- T1DX-QI launched a new initiative to increase the percentage of newly diagnosed patients prescribed AID and to expand the number of T1DX-QI centers reporting AID use for real-world data analysis.

This research was supported in part by Medtronic Diabetes Inc.