

Using Diffusion of Innovation Theory to Explore Insulin Pump Use in Children Living with Type 1 Diabetes in Spanish



Emily Sousa, PhD, MSN, MPH, RN, NP, PPCNP-BC, CDCES, DiplACLM, Rebecca Barber, PhD, RN, CPN

Center for Endocrinology, Diabetes, and Metabolism, Institute for Nursing and Interdisciplinary Research

Children's Hospital Los Angeles

Background

In children living with Type 1 Diabetes (T1D), insulin pump therapy (IPT) protects against acute diabetes emergencies, long term complications, and improves quality of life. IPT is not as widely used in families who communicate with clinic in Spanish.

Purpose/Aims

This project aims to:

1. Explore team and family perceptions of attributes of Insulin Pump Therapy in Spanish.
2. Apply the diffusion of innovation theory to understand opportunities to optimize access.

Theory + Methods

Diffusion of Innovation Theory, Developed by Rogers in 1983

Diffusion is a social process in response to learning about an innovation.

Rogers' Diffusion of Innovation (DOI) Theory allows for a structure to consider the rates of adoption and situations where innovations are introduced and do not diffuse.

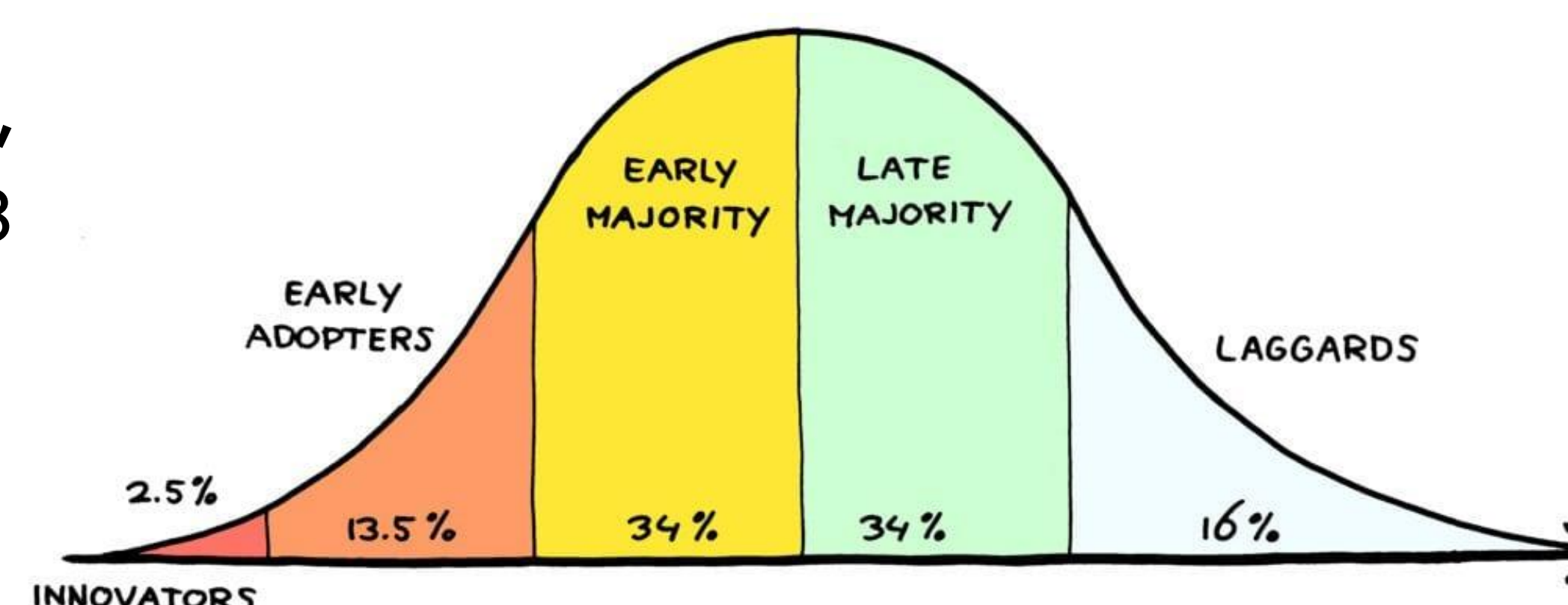
The way targeted adopters perceive the attributes of an innovation is critical → accounts for 49-87% of the variance in whether they adopt

Pankratz, et al, 2002:

Applied DOI to implement drug prevention program using a 17-item survey

Factor analysis identified perceived attributes associated with program adoption:

- **Relative Advantage** – is the new idea better than what we already do? +
- **Compatibility** – is the new idea consistent with values and past experience? +
- **Complexity** – is the new idea difficult to understand/use? -
- **Observability** – is the impact of the new idea visible to others? +
- **Trialability** – can the new idea be tried temporarily in a limited way? +



Project Progress + Plan

IRB currently under review, CHLA-23-00344

Adapted 17-item survey to insulin pump use in Spanish from team and family perspectives (2 surveys)

Prepared surveys in Qualtrics for data collection

Collect Staff and Family responses:

- Team: as many as possible
- Families living with T1D, caregiver prefers Spanish:
 - 120 families without IPT
 - 120 families with IPT

Factor analysis to guide program development and clinical approach

Literature cited

Pankratz, M., Hallfors, D., & Cho, H. (2002). Measuring perceptions of innovation adoption: The diffusion of a federal drug prevention policy. *Health Education Research*, 17(3).

O'Connor, M.R., Carlin, K., Coker, T., Zierler, B., & Pihoker, C. (2019). Disparities in Insulin Pump Therapy Persist in Youth With Type 1 Diabetes Despite Rising Overall Pump Use Rates. *Journal of Pediatric Nursing*, 44, 16-21.

Rogers, E.M. (1983). *Diffusion of Innovations*. / (1995) *Diffusion of Innovations*, 4th Edition. Free Press, New York.

<https://theboldbusinessexpert.com/2020/11/02/diffusion-of-innovation-getting-past-the-first-wave-of-innovators-and-early-adopters-to-reach-the-tipping-point/>

Acknowledgments

Thank you to the Children's Hospital Los Angeles Postdoctoral Fellowship in Nursing, the Institute for Nursing and Interprofessional Research, and the Center for Endocrinology, Diabetes, and Metabolism for their support of this work. Thank you to Dr. Frank Sousa for his academic and professional guidance, and his generosity with wisdom.

Further information

If you have a questions or would like to follow along, please reach out: esousa@chla.usc.edu

