

Inside the skin of a patient with diabetes: fostering cognitive empathy through insulin pump simulation

Dans la peau du patient diabétique : favoriser l'empathie cognitive au travers une simulation de pompe à insuline

Paul MacDaragh Ryan¹

¹Cork University Hospital, Cork, Ireland

Correspondence to: Paul MacDaragh Ryan MB BCH BAO PhD, Cork University Hospital, Wilton, Cork, Ireland; phone: +353 85 786 2174;

email: paul_ryan@umail.ucc.ie

Published ahead of issue: October 28, 2020; published: February 26, 2021. CMEJ 2021; 12(1). Available at <http://www.cmej.ca>

© 2021 Ryan; licensee Synergies Partners

<https://doi.org/10.36834/cmej.70552>. This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License.

(<https://creativecommons.org/licenses/by-nc-nd/4.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is cited.

Implication Statement

In order to best treat a patient, the carer must be able to clearly see their point of view. In the case of the complexities of insulin pump therapy, physicians may not fully understand the common challenges that drive patients to non-adherence. The author undertook a three-day simulation using wearable technology to explore this experience. This form of simulation represents a simple yet effective means by which to foster cognitive empathy in undergraduate and postgraduate medical education settings alike.

*"If you just learn a single trick, Scout, you'll get along a lot better with all kinds of folks. You never really understand a person until you consider things from his point of view... until you climb inside of his skin and walk around in it."*¹
-Atticus Finch

Empathy is at the core of effective care and indeed patient perception of care quality. Cognitive empathy is a teachable process of placing oneself into the situation of another in order to more clearly understand their perspective.² This process is distinguishable from compassion in that the carer does not necessarily have an emotional response to the situation but can still comprehend and react appropriately to patient distress. This is an important distinction, as there is data to suggest that doctors who use cognitive empathy in their patient

Énoncé des implications de la recherche

Pour offrir le meilleur traitement possible, le soignant doit être en mesure de voir les choses du point de vue du patient. Or, les médecins pourraient ne pas comprendre les défis courants liés à la complexité du traitement par pompe à insuline qui expliquent la non-observance thérapeutique chez les patients. L'auteur a mené une simulation de trois jours pour explorer l'expérience de ce traitement à l'aide d'une technologie portable. Cette forme de simulation constitue un moyen simple et efficace pour favoriser l'empathie cognitive dans les établissements d'enseignement médical prédoctoral et postdoctoral.

approach may be in part protected from physician burnout.³ That is to say, *understanding* a patient's pain while not personally *feeling* it appears to be an effective self-preservation measure for doctors.

Simulation provides an opportunity to expose the learner to the patient's point of view, hopefully instilling understanding and empathy for the patient's experience of their illness or condition.⁴ Type-1 diabetes (T1D) is an emotionally and physically demanding condition, requiring round-the-clock attention to detail in order to prevent its highly morbid sequelae. Children and adolescents with T1D often long to terminate their contract as an active contributor to the homeostatic processes of their body. To better understand the challenges faced by children with diabetes, I undertook a three-day patient point of view

simulation of wearing and independently operating a saline-primed insulin pump (IP) as a final year medical student on a Pediatric Endocrinology elective. In a way, this simulation allowed me to get inside the skin of a person with T1D.

Innovation

The Diabetes Educator Nurse loaded the pump with saline and inserted the cannula subcutaneously into the back of my right upper arm without much discomfort. The IP measured 4x5cm. It was sleek and discretely covered by my shirt sleeve, an aspect which I recognized to be of importance to adolescents who often face stigmatization or isolation for non-conformism.⁵ Although the design of the IP allowed me to periodically forget its presence, I could not shake the responsibility which it represented. The IP was scheduled to release a basal level of ‘insulin’ continuously and allowed for pre-meal boluses which I would calculate according to my glucose levels and predicted carbohydrate intake. Connected to the IP was a handheld interface about the size of a glucometer, which allowed for recording of readings and delivery of boluses.

Evaluation

I initially expected that this technology would substantially lighten the workload of patient self-management; however, I quickly realized that my preconceptions were simplistic and naïve. Several days of simulated glycemic management took their toll on my concentration, self-efficacy, and motivation for self-care. I began to recognize the validity of the challenges often reported by children and adolescents operating these systems, and the ‘bad habits’ which could arise as a result.

Wearing an IP meant fewer injections and allowed for greater dietary and activity-flexibility than typical regimens, all with theoretically tighter glycemic control (Figure 1). However, it represented a more complex management process with several limitations. This process of pre-prandial foresight is often difficult to habituate for many children and poor adherence frequently results in dismal glycemic control. This enlightening experience revealed the hidden complexities of T1D management, which even the most sophisticated and user-friendly systems incur. Indeed, the idea of operator fatigue has previously been heralded in relation to diabetes technologies.⁶ I experienced these first-hand and can now better understand and empathize with the so called ‘non-compliant’ patient.

Next steps

This exercise revealed to me that the implementation and maintenance of wearable technologies are not free of significant drawbacks for many children. Although closed-loop systems may address a number of these issues, physicians caring for children with T1D must understand and validate these challenges in order to best serve and collaborate with their patients.

Various reports have established the depleting effect of medical education on student clinical empathy.⁷ This experience demonstrated to me that this type of simulation can be an excellent means of promoting cognitive empathy for the ‘non-compliant’ patient. Orchestrating this simulation in a 100-student medical class may be challenging. However, I encourage each subspecialty to explore opportunities for patient point of view simulation to understand poor adherence or tolerance.

Sometimes, as Atticus Finch taught his daughter Scout in *To Kill a Mockingbird*, you need to climb inside a person’s skin and walk around in it in order to really understand their perspective, and in turn the barriers and the facilitators which they perceive.

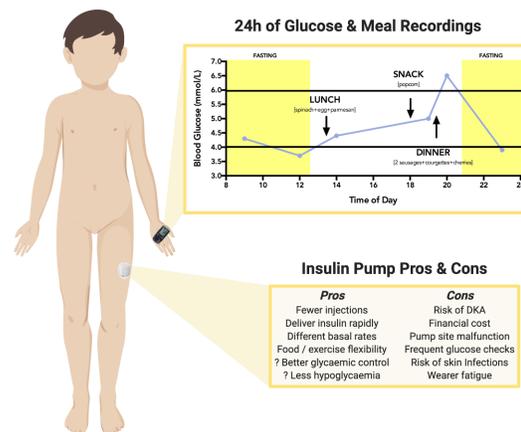


Figure 1. Pros and cons of insulin pumps learned through patient point of view simulation.

24 hours of the author’s own blood glucose and meal recordings for bolus calculations (upper panel), with the pros and cons of insulin pump use revealed to the author through this simulation (lower panel). Figure created with BioRender.com.

Funding: None.

Ethical approval and consent: Ethical approval was neither sought nor required.

Conflicts of Interest: The author reports no conflicts of interest.

Acknowledgements: The author expresses his sincere gratitude to the staff of the Division of Pediatric Endocrinology, IWK Health Centre, Halifax, NS, Canada for fostering his clinical learning, understanding and empathy for children with diabetes.

References

1. Lee H. *To Kill a Mockingbird*. New York: Harper Perennial Modern Classics; 2006.
2. Smith A. Cognitive empathy and emotional empathy in human behavior and evolution. *Psychol. Rec.* 2006;56:3–21. <https://doi.org/10.1007/BF03395534>
3. Lamothe M, Boujut E, Zenasni F, Sultan S. To be or not to be empathic: the combined role of empathic concern and perspective taking in understanding burnout in general practice. *BMC Fam Pract.* 2014;15:15. <https://doi.org/10.1186/1471-2296-15-15>
4. Ziv A, Wolpe PR, Small SD, Glick S. Simulation-based medical education: an ethical imperative. *Simul Healthc.* 2006;1(4):252-6. <https://doi.org/10.1097/01.SIH.0000242724.08501.63>
5. Arda Surucu H, Baran Durmaz G, Turan E. Does Type 1 diabetic adolescents' fear of stigmatization predict a negative perception insulin treatment? *Clin Nurs Res.* 2018;1054773818815258. <https://doi.org/10.1177/1054773818815258>
6. Shivers JP, Mackowiak L, Anhalt H, Zisser H. "Turn it off!": diabetes device alarm fatigue considerations for the present and the future. *J Diabetes Sci Technol.* 2013;7(3):789-94. <https://doi.org/10.1177/193229681300700324>
7. Papageorgiou A, Miles S, Fromage M. Does medical students' empathy change during their 5-year MBBS degree? *Educ Health (Abingdon).* 2018;31(3):142-7.