

White Coat over a Blue Gown: Perspectives and E-management Tips from a Medical Student with Diabetes

Melissa R Pasqua, BSc¹

¹Faculty of Medicine, University of Ottawa

ABSTRACT

Mainstream technology has become a vital component of the medical world. Along with it comes the advent of electronic applications for chronic management, particularly diabetes mellitus. As a medical student with type 1 diabetes, I provide here a brief overview of advancements in diabetes self-management.

RÉSUMÉ

La technologie courante est devenue un élément essentiel du monde de la médecine. Celle-ci nous apporte des applications électroniques qui facilitent la prise en charge de maladies chroniques, plus particulièrement le diabète sucré. En tant qu'étudiante atteinte de diabète de type I, je vous fournis ici un aperçu des progrès accomplis dans l'autogestion du diabète.

Diabetes mellitus is rapidly climbing in prevalence worldwide [1]. With it comes the many complications of macrovascular and microvascular damage that impacts the healthcare system. As a result of this, diabetes management has become a priority for Canadian physicians. Medical students find the name “diabetes” prominent in their lectures, and are taught the guidelines for diabetes management. Nonetheless, medical students and many healthcare providers do not receive training on how to make management easier and user-friendly, in the way that e-management tools can. This experience, however, is different when you are a medical student living with diabetes.

I was diagnosed with Type 1 diabetes in the summer of my “sweet sixteen”, which I always found a cruel irony. As broken as I felt, I managed to build myself back up and make health a priority, where my interest in medicine bloomed. My condition has helped me understand the intricate metabolism of the body, the importance of compassion for the impact of chronic illness, the delicate nature of breaking bad news, and, most critically, the importance of glucose management to prevent the complications of diabetes.

One of the largest contrasts between the separate generations of diabetes patients is the popularity of the insulin pump. My HbA1c hovered above 7% until I encountered the Animas 2020, the latest insulin pump at the time. I would have to say that choosing to go on the insulin pump, despite the initial 2 weeks of checking my blood sugar 10 times per day (including at 3 am), was the best

decision of my life. With ongoing technological advancements, insulin pumps are becoming more desirable. The latest insulin pumps feature wireless technology, where the glucometer acts as a remote control to the insulin pump, such as the OneTouch Ping (the model I currently use). There are also tubeless systems (for example, the OmniPod), and continuous glucose monitoring (CGM), where a glucose sensor communicates with the insulin pump to deliver multiple glucose readings throughout the day [2,3]. Furthermore, an artificial pancreas is in development that will combine a CGM system with an insulin pump capable of delivering insulin and glucagon automatically [4]. However, the majority of those with diabetes still use glucometers, which have also modernized. Examples include the Bayer Contour USB meter, which is a glucometer that is part USB key for quick download onto a computer [5], and the iBGStar, an app and accessory that turns the iPhone into a glucometer [6].

As advanced as glucometers are, many patients with diabetes find it tedious to write every blood glucose measurement of the day in a tiny logbook. I would often delay the assessment of my blood glucose measurements in order to find trends, as the work became tiresome and time-consuming. This was until I discovered the many at-home programs where meters can be downloaded to produce digital logbooks and summaries that can be sent to healthcare providers, an example (and my favourite) being Diasend [7].

In addition to glucometer-downloading applications, there are other electronic tools that can help patients manage their diabetes. Exercise and healthy eating have become much easier for

Keywords: diabetes, chronic disease management, technology

all patients. My favourite tool is Calorie King, an iPhone app that provides nutrition information from almost every food and food chain, making carbohydrate-counting on-the-go much easier.

Healthcare providers can use their iPads and electronic applications to diagnose their patients and look up information quickly on the wards. They should also take the opportunity to show their patients how they can medically help themselves using technology. Being aware of these tools helps healthcare providers in their roles as health advocates, as well as clinicians, allowing their patients to optimally self-manage. Therefore, if you are a healthcare provider, the next time you see a patient with diabetes, pull out your iPad and say, "Let me show you a great app..."

REFERENCES

1. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes estimates for the year 2000 and projections for 2030. *Diabetes Care*. 2004; 27: 1047 – 53.
2. GlaxoSmithKline Inc. Welcome to the OmniPod [Internet]. 2013. [cited 2014 Aug 23]. Available from: <http://www.myomnipod.ca/content/en/the-omnipod/the-omnipod.html>
3. National Diabetes Information Clearinghouse (NDIC). Continuous Glucose Monitoring [Internet]. 2008 December [last updated 2013 Oct 4; cited 2014 Aug 23]. Available from: <http://diabetes.niddk.nih.gov/dm/pubs/glucosemonitor/>.
4. Haidar A, Legault L, Dallaire M, Alkhateeb A, Coriati A, Messier V, Cheng P, Millette M, Boulet B, Rabasa-Lhoret R. Glucose-responsive insulin and glucagon delivery (dual-hormone artificial pancreas) in adults with type 1 diabetes: a randomized crossover controlled trial. *CMAJ* 2013; 185 (4): 297 – 305.
5. Bayer Diabetes. Contour® USB [Internet]. Toronto (ON): Bayer Inc; 2014 [cited 2014 Aug 23]. Available from: <https://www.bayerdiabetes.ca/en/products/contour-usb-meter.php>.
6. Sanofi. iBGStar® Blood Glucose Meter [Internet]. 2010 [last updated 23 December 2011; cited 2014 Aug 23]. Available from: <http://www.bgstar.com/web/ibgstar>.
7. Diasend. Support – How it works: Our Reports [Internet]. [cited 2014 Aug 25]. Available at <http://www.diasend.com/ca-en/support/our-reports-2>.