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2024

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Recommended Citation

Beattie, Caitlin; Chin, Cassandra; Tarrant, Claudia; Burgess, Lee-Anna MD; and Clements, Benjamin MD, "Continuous Glucose Monitoring in Medical Education: Bridging pre-clinical sciences with the patient experience" (2024). *UVM AHEC*. 19.

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Continuous Glucose Monitoring in Medical Education

Bridging Pre-clinical Sciences with the Patient Experience



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INTRODUCTION

- Continuous Glucose Monitors (CGM) are increasingly being used to manage patients with Type 1 and Type diabetes.
 - CGM use improves glycemic control and reduces hypoglycemic events.¹
 - Primary care providers are often not experienced in prescribing, managing, and interpreting data from CGM.²
- There are few studies regarding CGM training in medical education.³⁻⁶ A few studies have shown that education involving hands-on use of CGM improves comfort and understanding of these devices.³⁻⁶



LCOM students Lexi Amaio and Caroline Johnston, receiving their CGMs.

The purpose of this study was to:

- Improve CGM education at the Larner College of Medicine.
- Reinforce basic-science concepts of metabolism and nutrition in the pre-clinical curriculum.
- Allow students to reflect on the patient experience of using a CGM.

METHODS

- During the M1 basic science Nutrition, Metabolism, and Gastrointestinal Systems course, 40 students elected to participate in continuous glucose monitoring.
 - Students completed a 45-minute session reviewing CGM technology, data reports, benefits in T1DM and T2DM populations, and practical considerations for prescribing CGM.
 - Students were provided with a Dexcom G7 monitor (N=20) or Libre Freestyle 3 monitor (N=20) to wear for 10-14 days.
- On day 6, students were invited to participate in an optional focus group discussion with faculty.
 - Students were encouraged to share and discuss their experience.
- Participation was voluntary and students consented.

KEY THEMES FROM FOCUS GROUP

Insights on Health and Metabolism Concepts



- Glucose responses to eating, fasting, stress, and exercise, including:
 - low-carbohydrate diet
 - glucose trends during Ramadan fasting

Improved Health Behaviors



- Healthier choices while grocery shopping
- Increase in food experimentation
- Glucose awareness serving as meal reminders

Technical Issues



- Device failures
- Dermatitis from adhesive

Understanding of Patient Experience



- Stigma of wearing a visible medical device
- Constant worry about relying on technology for insulin-dependent patients
- Burden of frequent alarms
- Satisfaction with customer-service from medical device company

Negative Effects



- Anxiety about glucose variability and high readings
- Increased phone usage
- Hyper-fixation on data

DISCUSSION

- This pilot study demonstrated the broad educational impact of a medical student curriculum regarding use of Continuous Glucose Monitoring.
- Highly enthusiastic student feedback in support of CGM curriculum.

FUTURE DIRECTIONS

Future curricular goals:

- Ensure working knowledge of CGM technology.
- Formal assessment of impact on knowledge and attitudes regarding nutrition, health, and lifestyle modifications.
- How can we better understand the patient experience?
- How can we better understand the potential negative effects of CGM use?



Dexcom G7 and FreeStyle Libre 3 CGM devices used by students.

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