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Experiential CGM Training in Primary Care: Mixed-Methods Evaluation of a Nationwide Program in Singapore

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Background

- **Continuous Glucose Monitoring** (CGM) provides real-time glucose data that enhances glycemic control, reduces hypoglycaemia, and supports self-management.
- Yet, adoption faces **barriers** such as **limited provider training** and **organizational constraints**.
- This mixed-methods study evaluated an **experiential CGM training program** designed to bridge gaps in Singapore's public primary care clinics.

Objectives

1. Assess post-training knowledge, attitudes, and barriers to CGM use.
2. Gather qualitative feedback on CGM training.
3. Identify factors associated with higher self-reported knowledge post-CGM training.

Intervention

A **structured CGM training module**, as part of Primary Tech-Enhanced Care for Diabetes Mellitus (PTEC-DM) program **combining both**:

Theoretical: Online lectures and didactic sessions covering CGM principles and clinical applications.

Experiential Learning: Hands-on exposure, using a "provider-as-patient" approach.

- Each provider wore real-time CGM **[RT-CGM]** or intermittently scanned CGM **[IS-CGM]** or **both**.
- **151 public primary care providers** (doctors, nurses, care coordinators, dietitians, pharmacists) across **3 polyclinic clusters trained**.

Methods

Study Design: A **longitudinal pre- and post-intervention design** with **mixed-methods** approach and a focus on **post-intervention** findings.

Component 1: Quantitative

(N=71) Post-training survey with qualitative feedback

Component 2: Qualitative

(N=7) Focused group discussions/ interviews with 29 providers

Results

Component 1: Post-Training Survey Findings

Knowledge & Confidence: Nearly all participants reported understanding CGM post-training; 66.2% felt confident using CGM data (doctors 83.9% vs nurses 55.9%).

Satisfaction: Very high overall satisfaction (98.6%) with the training program.

Barriers: 74.6% highlighted device cost as a major barrier; time and workflow constraints also noted.

Experiential Value: 44% found wearing a CGM personally impactful; 39% reported improved patient counselling ability.

Integrated survey and feedback showed experiential training boosted CGM value and counselling confidence, but cost, technical issues, and workflows highlight need for refresher training and better integration.

Component 2: Qualitative Focus Group Findings

Device Comparisons: RT-CGM valued for continuous data but seen as bulky/costly; IS-CGM praised for ease of use/affordability but limited by need for manual scans.

Behavioural Impact: Experiential training fostered empathy, improved confidence, and increased provider credibility with patients.

Implementation Barriers: Time pressures, workflow gaps, and high device costs limited real-world adoption.

Recommendations: Ongoing mentorship, structured refresher training, subsidies/cost solutions, and vendor support for clinics.

Implications and Next Steps

1. **Training & Integration**: Periodic CGM refresher sessions, follow-up coaching, and embedding CGM workflows into routine care with adequate resources will strengthen provider confidence and practice.

2. **Sustainability & Policy**: Addressing device costs through policies or subsidies is essential to sustain adoption, with experiential learning shown to empower providers and improve diabetes management.

Conclusion

Post-training, primary care teams reported greater confidence, knowledge, and a more patient-centered, empathetic approach to diabetes care with CGM. The program's success is encouraging for broader adoption of diabetes technology in primary care.