



Contents lists available at [ScienceDirect](#)

Canadian Journal of Diabetes

journal homepage:
www.canadianjournalofdiabetes.com

**DIABETES
CANADA**



Original Research

Qualitative Evaluation of the Barriers and Facilitators Influencing the Use of an Electronic Basal Bolus Insulin Therapy Protocol to Improve the Care of Adult Inpatients With Diabetes

Karmon E. Helmle MD, MSc^{a,*}; Alun L. Edwards MB, Bchir^a; Andre W. Kushniruk PhD^b; Elizabeth M. Borycki RN, PhD^b

^a Division of Endocrinology and Metabolism, Department of Medicine, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada

^b School of Health Information Science, University of Victoria, Victoria, British Columbia, Canada

Key Messages

- Barriers and facilitators related to many factors influence the decision to order basal bolus insulin therapy in an inpatient environment.
- A systemic approach to the implementation of electronic inpatient glycemic management protocols is required in complex social organizations.

ARTICLE INFO

Article history:

Received 2 August 2017

Received in revised form

26 October 2017

Accepted 26 October 2017

Keywords:

basal bolus insulin
glycemic control
inpatient diabetes management
insulin therapy
qualitative analysis
quality improvement

Mots clés :

schéma insulinaire de type basal-bolus
régulation de la glycémie
prise en charge du diabète en milieu
hospitalier
insulinothérapie
analyse qualitative
amélioration de la qualité

ABSTRACT

Objectives: A qualitative evaluation of the perceived impact of a new evidence-informed electronic basal bolus insulin therapy order set on clinical workflow and practice, and exploration of potential barriers and facilitators to electronic basal bolus insulin order set uptake and use in acute care facilities for various acute care team members.

Methods: We conducted 9 semistructured focus groups with multidisciplinary nursing staff (n=22), resident trainees (n=24) and attending physicians (n=23) involved in the delivery of inpatient diabetes care at 3 adult acute care facilities. The domains of inquiry included impact on workload, perceived impact on patient care and discipline-specific barriers and facilitators to use, including care-providers' needs, comfort and competencies, contributions from the clinical environment and efficacy of communication. The interviews were transcribed and analyzed using a content analysis approach.

Results: Several major themes emerged from the focus group discussions, including impact of education, information technology/user interface, workflow, organizational issues and practices, and perceived outcomes. Barriers and facilitators were identified relating to each theme.

Conclusions: The outcomes highlight the complex interplay between educational, organizational and technical themes and the significance of employing a systemic approach to support the implementation of electronic inpatient glycemic-management protocols within complex social organizations.

© 2017 Canadian Diabetes Association.

R É S U M É

Objectifs : Une évaluation qualitative des répercussions perçues d'un nouveau modèle d'ordonnances électroniques relatif aux schémas insulinaires de type basal-bolus qui est fondé sur des données probantes sur le flux de travail et la pratique cliniques, et une exploration des obstacles et des facilitateurs potentiels à la mise en application et à l'utilisation du modèle d'ordonnances électroniques relatif aux schémas insulinaires de type basal-bolus dans les établissements de soins de courte durée pour les divers membres de l'équipe de soins aux malades en phase aiguë.

* Address for correspondence: Karmon E. Helmle, MD MSc, Division of Endocrinology and Metabolism, Department of Medicine, Cumming School of Medicine, University of Calgary, 4448 Front Street SE, Calgary, Alberta T1M 1M4, Canada.

E-mail address: Karmon.helmle@albertahealthservices.ca

Méthodes : Nous avons mené 9 groupes de discussion semi-structurés auprès d'une équipe multidisciplinaire formée d'un personnel infirmier (n=22), de stagiaires résidents (n=24) et de médecins traitants (n=23) qui participent à la prestation des soins du diabète en milieu hospitalier de 3 établissements de soins de courte durée pour une clientèle adulte. Parmi les domaines d'étude, on notait les répercussions sur la charge de travail, les répercussions perçues sur les soins des patients, et les obstacles et les facilitateurs disciplinaires à l'utilisation, notamment les besoins, l'aisance et les compétences des prestataires de soins, des contributions de l'environnement clinique et de l'efficacité de la communication. Les entrevues ont été transcrites et analysées au moyen de l'approche d'analyse de contenu.

Résultats : Plusieurs grands thèmes, dont les répercussions de l'enseignement, les technologies de l'information et de l'interface utilisateur, le flux de travail, les problèmes et les pratiques organisationnels, et les résultats perçus sont ressortis des discussions du groupe. Les obstacles et les facilitateurs relatifs à chaque thème ont été relevés.

Conclusions : Les résultats illustrent l'interaction complexe entre les thèmes portant sur l'enseignement, l'organisation et les technologies, et l'importance d'utiliser une approche systémique pour assurer la mise en œuvre des protocoles électroniques de prise en charge de la glycémie en milieu hospitalier dans le cadre d'organisations sociales complexes.

© 2017 Canadian Diabetes Association.

Introduction

Of every 5 inpatients, 1 has diabetes (1,2). The quality of care for inpatients with diabetes unquestionably influences patient outcomes, hospital occupancy and cost because inpatient hyperglycemia is associated with increased complications, prolonged hospitalization and mortality (1,3). The care of patients with diabetes while in hospital is confounded by a number of factors: acuity of illness, comorbidities, adverse medication effects and fluctuating nutritional and activity statuses, all of which complicate the optimization of glycemic control (2). Diabetes Canada, therefore, recommends safe and reasonable blood glucose targets of 5 to 10 mmol/L in hospital (2).

Historically, inpatient insulin management has inappropriately relied on reactive sliding scale insulin (SSI) which, while simple to order, increases blood glucose lability and risk for hypoglycemia. Basal bolus insulin therapy (BBIT) is anticipatory and aims to prevent hyperglycemia by integrating insulin pharmacology to replicate physiologic insulin action. BBIT use in hospital improves glycemic control in medical and surgical inpatients, reduces complications in surgical inpatients and does not increase the risk for severe hypoglycemia when compared to SSI alone (4,5). Regulatory bodies have long advocated for the use of basal bolus insulin for treatment of noncritically ill patients with diabetes in hospital, although adoption of such protocols has been slow and challenging (2,6).

Computerized provider order entry (CPOE) and clinical decision support (CDS) tools may facilitate improved quality of inpatient diabetes care by decreasing the ambiguity of orders, improving clinical workflow, reducing medication errors and supporting specialized alerts and dose calculators (7). The organization of several orders into functional, commonly used groups forms the basis of an electronic order set. CDS tools are developed to support clinicians with relevant, timely and appropriate information in order to improve patient care. These tools range from simple provision of reference materials to more complex computerized alerts or reminders and algorithms to assist in clinical decision making (8,9). Studies have demonstrated that CPOE/CDS tools can significantly alter practice and improve subsequent glycemic control, but uptake has often been limited unless access to alternative, inappropriate treatment protocols was restricted (10–14). While consensus statements exist regarding the application of CPOE and CDS tools to optimize diabetes care, there is little literature exploring the barriers preventing implementation success (15).

Objectives

This study aimed to evaluate qualitatively the perceived impact of a new evidence-informed electronic BBIT inpatient order set, as

well as to explore potential barriers and facilitators affecting its uptake and use in a multidisciplinary group of users in the acute care setting.

Methods

Setting

Focus groups were conducted at 3 adult acute facilities in Calgary, a city of approximately 1.3 million people (16). The admission of adult patients with diabetes is common in all sites, with each site entering over 1,500 insulin orders monthly. All hospitals utilize a common electronic medical record that houses all electronically entered medication orders, laboratory results, diagnostic imaging and point-of-care testing results.

System to be evaluated: BBIT electronic order set and educational tools

Feedback from an earlier BBIT pilot project in Calgary informed the development of an electronic order set under the guidance of a multidisciplinary team. The BBIT order set directs appropriate glucose monitoring, diet orders, laboratory investigations, insulin doses and relevant referrals in a single order set. CDS tools were integrated; they included user education, order review reminders, insulin dose calculators and therapeutic guidance recommending against the use of SSI. Educational pocket cards, interactive web resources and multidisciplinary training inservices were introduced simultaneously with the BBIT order set across all sites in Calgary in August 2011.

Participants

Recruitment was achieved through responses to an advertising poster, with further recruitment using snowball sampling (17). Various subspecialties, including medical and surgical units, were represented. We conducted 9 semistructured focus groups 12 months after the BBIT order set was introduced, and there was a total of 69 participants. Participants were segregated on the basis of sites (3 acute care facilities) and multidisciplinary roles (nurses/nurse practitioners/pharmacists, resident physicians and attending physicians). Any adult, English-speaking member of the inpatient care with experience in the care of patients with diabetes before and after the implementation of the BBIT electronic order set was eligible.

Study design

A qualitative analysis, utilizing semistructured focus groups, was used to explore multidisciplinary users' experiences with the

Download English Version:

<https://daneshyari.com/en/article/11022257>

Download Persian Version:

<https://daneshyari.com/article/11022257>

[Daneshyari.com](https://daneshyari.com)