Evidence into Action: Using Knowledge Translation to Improve Inpatient Diabetes Management

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Disclosures

• None

• I have no actual or potential conflict of interest in relation to this topic or presentation.
Background

• In Alberta, 1 in 5 adult patients admitted to hospital has diabetes

[Image of four human figures]

• The literature indicates that failure to manage BG effectively (target of 5-10 mmol/L) increases patient morbidity and length of stay

• Diabetes Canada recommends the use of Basal Bolus Insulin Therapy (BBIT) for most patients with diabetes in hospital requiring subcutaneous insulin
Basal Bolus Insulin Therapy (BBIT)

- BBIT is a proactive means of ordering multiple daily injections of subcutaneous insulin that better replicates how our body naturally produces insulin
- Using BBIT over traditional sliding scale insulin (SSI) in hospital reduces hyperglycemia and related complications*

Diabetes Care Gap

Alberta audit data highlighted a Care Gap noting heavy dependence on outdated and unsafe SSI protocols

• Directly contributing to:
  • **Over one third** of recorded BG values being above this recommended target, and

• a **40% longer stay in hospital** for those with diabetes versus their counterparts without diabetes
The Diabetes, Obesity, and Nutrition Strategic Clinical Network (DON SCN) Inpatient Diabetes Team:

• Created and led a multifaceted provincial initiative to address this significant and complex care gap in the provision of diabetes care in Alberta hospitals

• The overall goal was to improve glycemic management in hospital
  • Better aligning with guidelines, available literature and how patients are taught to manage their diabetes outside of hospital
Foundational work

The initiative was informed by foundational work:

• **Patient Survey**: involving feedback received from 672 patients with diabetes admitted to an Alberta hospital in 2014, which highlighted patient identified systemic care gaps

• **A national environmental scan**: completed to identify commonly recognized barriers and facilitators to BBIT implementation
The initial priority: Implementation of BBIT

• Baseline BBIT use across Alberta hospitals was exceedingly low
  • 23% (16-31%) at baseline

• Previous local quality improvement initiatives with BBIT implementation had shown early implementation success, but were troubled by practice drift after 6-9 months*

  “It’s more that just an order set! It’s more than just education!”

• Knowledge translation science
  • To transform and sustain this important practice change
  • Collaboration with KT experts and the Alberta SPOR Support Unit (SUPPORT= Support for People and Patient-Oriented Research and Trials)

*Helmle, et al., ADA Clinical Diabetes, Feb, 2018
BBIT Implementation Strategy

• A BBIT implementation strategy was developed in partnership with the DON SCN team, knowledge translation (KT) experts and early adopter sites throughout Alberta:
  • Chinook Regional Hospital
  • Canmore General Hospital
  • Oilfields General Hospital
  • Calgary Urban Hospitalist Program at four acute care sites
  • University of Alberta Hospital
  • Grey Nuns Community Hospital
  • Queen Elizabeth II Hospital
“BBIT Site Implementation Guideline”

- Guide multidisciplinary teams through all stages of implementation
  - May be tailored to site-specific needs

- Site champions
  - Nursing, Pharmacy and Physician
  - are empowered to provide peer-to-peer education facilitating the change locally
  - Supported by site Administration champions

- Site readiness
Early adopter sites collaborated with the DON SCN team to:

• Co-develop, evaluate and share the many resources required for successful implementation, including:
  • Site Implementation Guide
  • Readiness Assessment
  • Facilitated Train-the-Trainer sessions
  • Order set and Glucose/Insulin record
  • “How to BBIT” guide for multidisciplinary frontline providers
  • Self-directed learning for nurses
  • Webinars and
  • More - www.bbit.ca
An interactive BBIT knowledge translation (KT) toolkit (www.kttoolkit.ca) allows teams to:

• Self-identify common barriers to BBIT implementation (at all stages)
• Links to targeted, evidence-informed interventions to overcome each barrier
Provincial policy was developed supporting best practice:

• Glycemic Policy

• Hypoglycemia Procedure

• Hyperglycemia Procedure
  • novel, culture change
Audit feedback

• Early adopter sites were supported to collect baseline and audit data for 18 months

• Populated onto their own Tableau dashboard

• Sites received targeted feedback on their BBIT ordering practices

• Reviewed with the sites regularly
  • Infographics also provided to share with the multidisciplinary team and frontline staff

• Practice drift could be addressed quickly and early, with a re-evaluation of barriers and new tools from the KT toolkit could be implemented to overcome them

• Micro Plan-Do-Study-Act cycles

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Results

• The early adopter sites consistently and significantly increased BBIT ordering:
  • 1.3-2.5x above baseline when using the KT toolkit (average absolute increase +21.5% +/- 10%),
• Resulting in a significant decrease in patient days with hyperglycemia
• No increase in days with hypoglycemia
• The Calgary Zone Hospitalist group, caring for over 14,500 patients/year across 4 acute care sites in Calgary, demonstrated a significant **9.6% reduction in length of stay** attributable to the intervention
Sustainability and Spread

• This QI initiative started at 7 acute care early adopter sites across the province

• Has now spread to all operational zones in the province and has been implemented or is in the process of being implemented at over 100 acute care sites
Post-implementation surveys

• Sites reported overall satisfaction with the intervention
It’s more than just an order set!

- Informed by knowledge translation science, a successful AND sustainable BBIT implementation process has been developed
- Processes and learnings are informing BBIT implementation across Alberta
  - Implementation has become independently initiated and led
- The learnings from this initiative are highly generalizable
  - May inform BBIT implementation outside of Alberta
  - May serve as a road map for other complex interventions
## Acknowledgements and many thanks to...

**Diabetes, Obesity and Nutrition Strategic Clinical Network Core Inpatient Diabetes Management Team:**
- Dr. Karmon Helmle – Physician Champion
- Glenda Moore - Initial SCN Project Lead
- Leta Philp - Clinical Practice Lead
- Rhonda Roedler - Pharmacy champion
- Ed Rogers - Senior Analyst-DIMR
- Catherene Joseph – DON SCN Network Manager
- Chandell Popik - Project Manager
- Leian Petersen – Previous Clinical Practice Lead, North
- Gabrielle Zimmerman - Knowledge Translation Scientist (AIHS SPOR)
- Naomi Popeski - SCN Assistant Scientific Director
- Sasha Wiens - Diabetes Nursing Education
- Kelly Mrkla – past KT Consultant

**Diabetes, Obesity and Nutrition SCN Support:**
- Petra O’Connell
- Dr. Alun Edwards
- Dr. Peter Sargious

**Financial Support:**
- DON SCN funding
- Department of Medicine Research Development Fund Grant
- CDA/CSEM Diabetes Junior Investigator Award (AstraZeneca)

**Early Adopter Sites:**
- Chinook Regional Hospital – all site champions
- Black Diamond Hospital – all site champions
- Canmore Hospital – all site champions
- Calgary Hospitalist Innovation Committee (CHIC) members, particularly Dr. Trevor Chan, Alison Drake, Judy Schoen
- Grey Nuns Community Hospital – all site champions
- Queen Elizabeth II – all site champions
- University of Alberta Hospital – all site champions

**Collaborative Efforts with:**
- Point of Care Testing
- AHS Provincial Pharmacy
- AHS Nutrition Food Services
- AHS Clinical Analytics, D.I.M.R. (Data, Integration Measurement and Reporting)
- AHS Forms
- AHS Human Factors
- Members of Steering Committee/Working Groups
- Sunrise Clinical Manager Order Set Teams
- AHS Information Technology
- Anthony Dechant (website development)
- Patient advisors