Nurses across Alberta *improve* CARE of patients with diabetes in hospital

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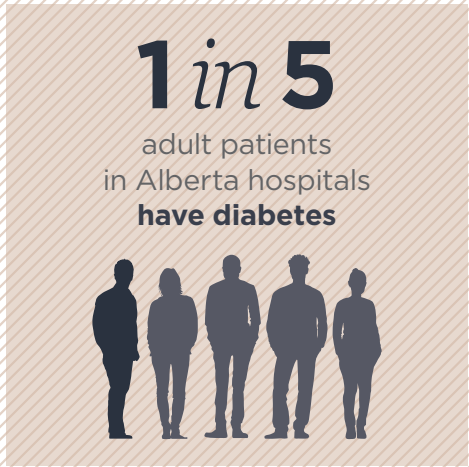
Approximately 20 per cent of all adult patients in hospital have either Type 1 or Type 2 diabetes. While Diabetes Canada recommends a blood glucose (BG) of 5-10 mmol/L for most patients with diabetes while in hospital, 2014 point-of-care testing data revealed that over a third of BG tests in Alberta hospitals were above 10 mmol/L.

BG that is too high, or hyperglycemia, increases the risk of complications in hospital including post-operative infections, pneumonia, diabetic ketoacidosis (DKA) and delayed wound healing. It also puts the patient at risk for long-term complications. In the same year (2014), a province-wide patient survey found that patients with diabetes were less satisfied with their hospital stay than patients without diabetes.

One cause of hyperglycemia in hospital is the common practice of prescribing subcutaneous sliding scale insulin, which does not prevent hyperglycemia, instead it reactively addresses the patient's high BG after it has occurred. Other known contributing factors to hyperglycemia include the discoordination of diabetes medication administration relative to BG testing and meal time, and the overtreatment of hypoglycemia.

Like other hospitals across Canada and the United States, there has been a tolerance by clinicians for hyperglycemia in Alberta >



hospitals; perhaps because the harm to the patient is not immediately evident or perhaps because the patient's other acute illnesses take precedence. This tolerance of hyperglycemia is very confusing for patients, as they are taught to keep their BG in range to avoid complications.

IN 2015, THE DIABETES OBESITY AND NUTRITION

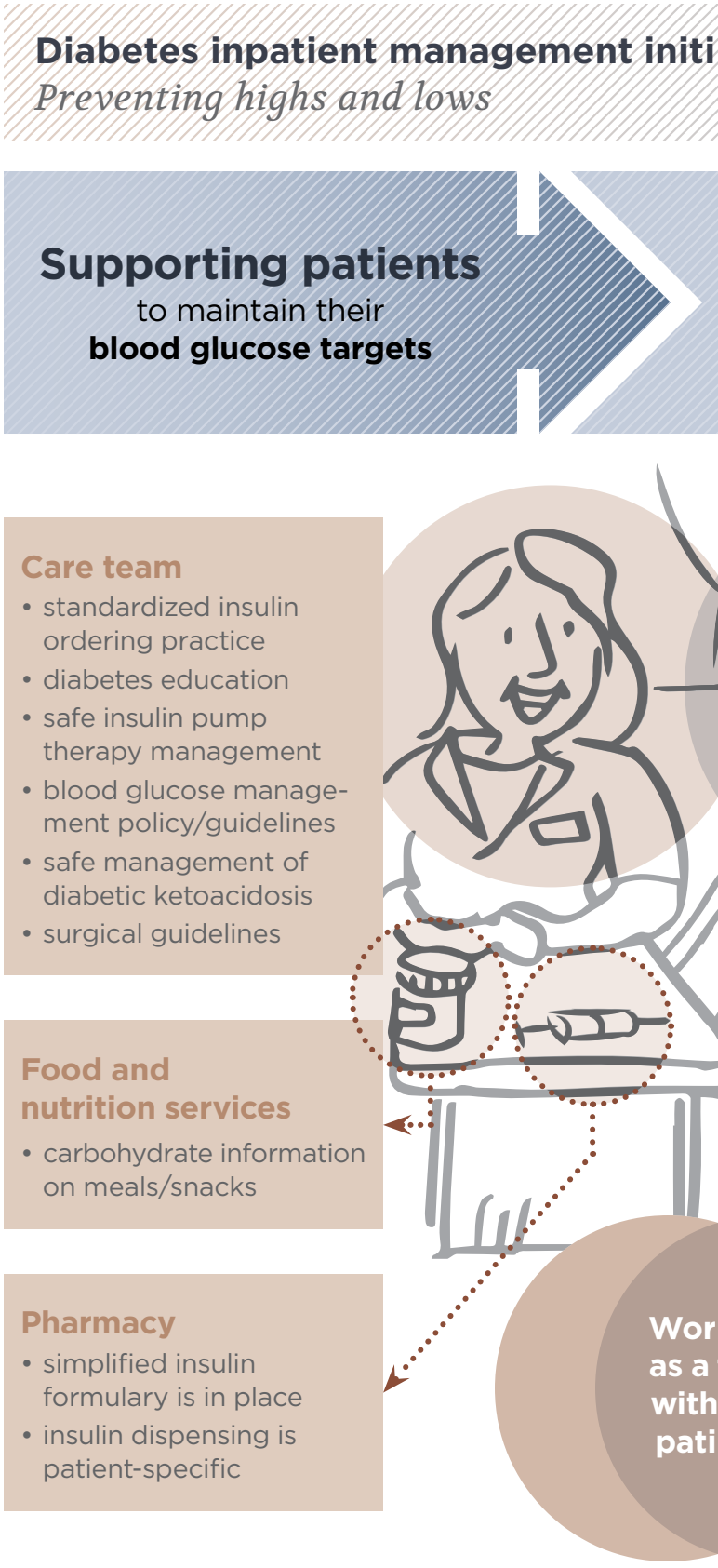
Strategic Clinical Network (DON SCN)™ launched the Inpatient Diabetes Management Initiative, developed in collaboration with patients, provincial pharmacy, nutrition food services, provincial lab point-of-care testing and multidisciplinary health-care providers in zone operations.

The initial priority was to implement basal bolus insulin therapy (BBIT), a method of ordering subcutaneous insulin injections that mimics the normal physiologic secretion of insulin, aiming to safely achieve target BG levels. It is proactive and tailored to the patient's individual needs. Over the past four years, DON SCN™ has supported multidisciplinary teams in hospitals across Alberta to implement BBIT. The implementation strategy was based on an attempted implementation in Calgary in 2012 and insights from other hospitals/jurisdictions across Canada. The strategy included site-based champions, including nurses, prescribers (including nurse practitioners) and pharmacists that provided peer-to-peer education and addressed concerns that arose. They were supported by their local administrative champions. As well, teams were encouraged to assess individual site, unit or program barriers and facilitators to the practice change and address each barrier. The strategy also involved data pre- and post-implementation that was shared back with the whole team. The majority of hospitals have now implemented BBIT and retired sliding scale insulin ordering practices.

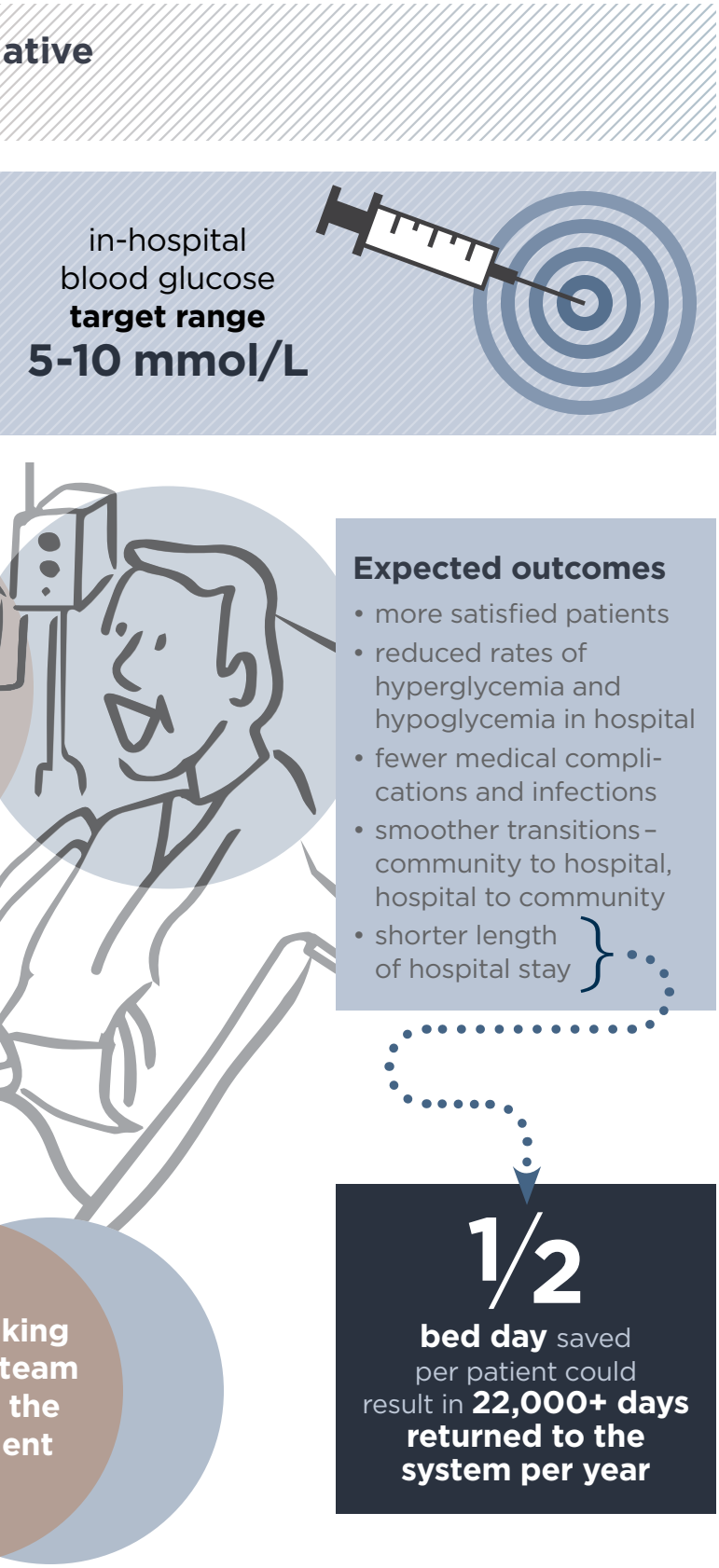
PRIOR TO THE INPATIENT DIABETES MANAGEMENT

Initiative, most hospitals in Alberta had a document in place to direct the management of hypoglycemia, but processes varied greatly and there was no formal process to guide the treatment of hyperglycemia (prior to the patient having DKA). In 2016, a provincial multidisciplinary team led by DON SCN™ (including nurses in many different roles) developed a provincial policy for adult glycemic management, as well as procedures for both hyperglycemia and hypoglycemia management. These procedures primarily focus on early recognition and treatment. CARNA was consulted and provided input for the governance documents. Simultaneously, DON SCN™ collaborated with provincial lab point-of-care testing to have the alerts on all glucose meters in Alberta hospitals changed to align with the procedures. There are now alerts when the patient's BG is less than 4.0 or greater than 18.0 mmol/L instead of only at critically low or high lab values.

Another aspect of the initiative was developing guidelines for safe management of insulin pump therapy in hospital.



SOURCE: Diabetes, Obesity & Nutrition Strategic Network, December 2015, ahs.



ca/scns/page7676.aspx, email don.scn@ahs.ca

Many patients with Type 1 diabetes use insulin pump therapy to manage their diabetes. These pumps use only rapid-acting insulin, so if they are disconnected or turned off, patients require insulin within two hours to prevent hyperglycemia and/or DKA. The guidelines largely focus on supporting patients to continue to use their insulin pump therapy device in hospital when safe and appropriate, as well as ensuring patient safety if the pump is stopped for any reason.

The initiative also included a DKA protocol for emergency room and inpatients (making the carbohydrate content of menu items available to patients), patient-specific dispensing of insulin (a high-alert medication), a simplified insulin formulary and the development of perioperative and diabetes in pregnancy guidelines (with complementary provincial order sets). The initiative has furthermore led to the development of a pediatric glycemic management policy with procedures (that will mirror the existing adult governance documents).

NURSES WERE INVOLVED IN AND CONTRIBUTED TO every aspect of this improved diabetes management in-hospital QI initiative. Clinical nurse educators (CNE) across the province embraced the change and assisted the DON SCN™ with the development of nursing educational resources. CNEs also played a key role in implementing and educating other nurses about BBIT, the glycemic management policy and procedures, glucose meter alerts and other aspects of this multi-faceted QI initiative. Nurse managers and leaders endorsed and supported the changes.

The diabetes inpatient initiative could not have been possible without the involvement of nurses from across the province. Acute care nurses are now equipped and empowered to support their patients to achieve their recommended BG target while in hospital. RN

For more information about this quality improvement initiative, please visit albertahealthservices.ca/scns/Page10970.aspx or contact DON SCN™ at don.scn@ahs.ca.

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