

DM or hyperglycemia. The use of virtual consults may be considered an alternative to support hospitals lacking these services.

Grade B; BEL 1

Recommendation 15.9

For critically ill persons, IV insulin infusion is recommended to treat persistent hyperglycemia in the ICU using validated protocols that allow adjustment of insulin dose for glycemic excursions based on prespecified glucose targets. For those receiving IV insulin, POC testing should be performed every 30 to 120 minutes.

Grade A; BEL 1

Recommendation 15.10

A glucose target of 140 to 180 mg/dL is recommended for most critically ill persons in the hospital setting. More intensive targets between 110 to 140 mg/dL may be appropriate in select populations, particularly critically ill persons postcardiothoracic or other surgeries, while minimizing the risk of hypoglycemia.

Grade A; BEL 1

Recommendation 15.11

For most noncritically ill persons in the hospital setting, a glucose target of 140 to 180 mg/dL is recommended. For hospitalized persons who are able to achieve and maintain glycemic control without hypoglycemia, a lower target range (100 to 140 mg/dL) may be reasonable. For persons in a hospital setting with high clinical complexity, terminal illness, limited life expectancy, or high risk for hypoglycemia, less stringent targets are appropriate.

Grade B; BEL 1

Recommendation 15.12

Insulin therapy following approved protocols is recommended as the preferred therapy for managing hyperglycemia in the hospital. For noncritically ill hospitalized persons with T2D, an individualized approach is recommended for consideration of noninsulin agents alone or in combination with insulin (see also **R 15.16**).

Grade A; BEL 1

Recommendation 15.13

The insulin regimen for hospitalized persons with satisfactory meal intake should include basal, prandial, and correction doses. For those without adequate food intake, a regimen of basal, prandial, and correction doses should be used as necessary for glycemic control. Exclusive use of “sliding-scale” insulin should only be used for those whose glucoses are in the target range most of the time, and only occasionally exceed it.

Grade A; BEL 1

Recommendation 15.14

The management of hyperglycemic emergencies, including DKA and hyperosmolar state, should include fully adequate fluid resuscitation to correct fluid deficits, electrolyte replacement (potassium), and insulin therapy. Simultaneous continued infusion of insulin and dextrose solutions after correction of hyperglycemia is often required until DKA resolves to avoid hypoglycemia.

Grade A; BEL 1

Recommendation 15.15

Transition from IV insulin in the ICU to a subcutaneous insulin regimen is typically required when acidosis is resolved and a person is no longer critically ill. A proactive regimen with scheduled subcutaneous insulin therapy, with basal, nutritional/prandial, and/or correction doses, is recommended for most persons.

Grade A; BEL 1

Recommendation 15.16

For hospitalized persons with T2D and mild admission hyperglycemia (glucose <180 mg/dL), a personalized approach is recommended for the use of noninsulin agents alone or in combination with basal insulin, aiming for the most efficacious regimen with the lowest hypoglycemic risk. For some hospitalized persons with T2D, DPP-4 inhibitors plus correction doses with rapid-acting insulin, or basal insulin plus DPP-4 inhibitors may be sufficient.

Grade A; BEL 1

Recommendation 15.17

A hospital-wide standardized plan should be in place to prevent hypoglycemia. Each hypoglycemic episode should be documented, and appropriate adjustments should be made to prevent recurrence.

Grade B; BEL 2

Recommendation 15.18

It is recommended to start discharge planning soon after hospital admission and to provide and document appropriate individualized plans for transition to an ambulatory setting and follow-up care at discharge for all persons with DM or newly diagnosed hyperglycemia.

Grade A; BEL 1

Evidence Base 15: How should DM be managed in the hospital?

DM affects up to ~10% of the US population³⁶ and is even more common among hospitalized persons, present in up to 20% to 40% of admissions and has been particularly high during the COVID-19 pandemic.^{1249,1250} The association between inpatient hyperglycemia and increased risk for complications and mortality is well established in persons with and without previously diagnosed DM.^{1251–1254} Hyperglycemia is associated with prolonged hospital stay, increased incidence of infections, greater disability after hospital discharge, and death.^{91,1255,1256}

Substantial evidence indicates that correction of hyperglycemia with insulin administration reduces hospital complications and mortality in critically ill persons, as well as those who receive care for general medicine and surgery.^{92,1257,1258} Several RCTs, including the real-world Normoglycemia in Intensive Care Evaluation and Survival Using Glucose Algorithm Regulation study^{95,96,104} and meta-analyses^{1257,1259,1260} reported higher rates of severe hypoglycemia and increased morbidity and mortality with intensive insulin therapy (glycemic targets of 80 to 110 mg/dL) compared with more relaxed glycemic targets, demonstrating that intensive glycemic control (80 to 110 mg/dL) in critically ill persons may be difficult to achieve, with no consistent mortality benefits in all studies, and increased risk of complications in those treated intensively, compared to moderate glycemic targets.^{95,96,104} However, personalized glycemic targets between 110 to 140 mg/dL may improve outcomes in selected populations, particularly critically ill persons postcardiothoracic surgery, in hospital units that have shown low rates of hypoglycemia. In addition, minimizing glycemic variability, independent of glucose levels, could result in lower rates of complications and CV mortality in critically ill persons^{1261–1263} and in