

# Glycemic Control in Hospitalized Patients: Hold On Loosely?

*A clinical guideline from the American College of Physicians recommends against intensive insulin therapy.*

Hyperglycemia is estimated to occur in as many as 40% of hospitalized medical and surgical patients. Given the association of hyperglycemia with morbidity and mortality, many studies have been conducted to evaluate whether intensive insulin therapy (IIT), aimed at strict glycemic control, improves outcomes. Although an early study suggested a benefit from IIT in critically ill surgical patients ([JW Gen Med Nov 16 2001](#)), many subsequent trials, including one involving critically ill medical and surgical patients ([JW Gen Med Mar 24 2009](#)), have shown no benefit.

In a systematic review of randomized controlled trials for the American College of Physicians (ACP), researchers evaluated clinical outcomes of IIT aimed at achieving tight glucose control (vs. less-strict control) and harms associated with strict glucose control. Twelve studies involved medical or surgical intensive care units (ICUs), and 9 involved patient cohorts with specific diagnoses (e.g., stroke, myocardial infarction); none involved non-ICU medical patients.

IIT did not improve short-term mortality (at  $\leq 28$  days), and no consistent evidence showed that long-term mortality (at 90 or 180 days), length of stay, or infection rates were better with IIT. However, IIT was associated with higher risk for severe hypoglycemia (defined as glucose level  $\leq 40$  mg/dL; relative risk, 6.0;  $P < 0.001$ ).

**Comment:** On the basis of this review, the ACP does not recommend IIT to control blood glucose among hospitalized patients, regardless of patients' diabetes mellitus status. Furthermore, the ACP suggests a target blood glucose level of 140 to 200 mg/dL if insulin therapy is used in such patients. The preponderance of evidence shows no consistent benefit in outcomes from IIT but does show a real risk for severe hypoglycemia. The consequences of severe hypoglycemia are not entirely clear, but preliminary studies have suggested that it is associated with higher mortality ([JW Gen Med Mar 25 2010](#)), dementia, and adverse cardiovascular events (presumably caused by catecholamine surges). Also note that the ACP-recommended glucose-target upper limit of 200 mg/dL is higher than those suggested by most other guidelines (range, 150–180 mg/dL). Much remains unknown about the optimal level of glucose control in hospitalized patients (especially in general medicine wards), but one thing is certain: Glucose targets should be neither too high nor too low.

— [Aaron J. Calderon, MD, FACP](#)

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