

**The Endocrine Society Statement to Providers on the
American College of Physicians Guidelines on Intensive Insulin Therapy**
February 23, 2011

On February 15, 2011, the American College of Physicians (ACP) published a new Clinical Practice Guideline titled “Use of Intensive Insulin Therapy for the Management of Glycemic Control in Hospitalized Patients” (*Ann Intern Med* 2011; 154:260-267). This guideline, based on a systematic review of the literature, includes recommendations against the use of intensive insulin therapy to strictly control blood glucose to near-normal levels in non-ICU hospitalized patients and in ICU patients - in each case irrespective of whether the patient has diabetes mellitus. The ACP rated these two recommendations as “strong” and indicated the non-ICU recommendation was based on “moderate-quality” evidence and the ICU recommendation on “high-quality” evidence.

The Endocrine Society agrees with these two recommendations in advising against instituting tight control of blood glucose to near normal levels in hospitalized patients. This position is consistent with the guidelines of the American Diabetes Association-American Association of Clinical Endocrinologists and the Department of Defense-Veterans Health Administration. Such strict blood glucose targets (80-110 mg/dL), as compared to more relaxed targets, appear to increase the frequency of potentially dangerous hypoglycemic events without any clear offsetting benefits in morbidity and mortality.

In a third recommendation, the ACP specifies a target blood glucose range for ICU patients of 140-200 mg/dL. In contrast to the first two recommendations, the ACP rated this recommendation as “weak,” supported by “moderate-quality” evidence.

The Endocrine Society does not agree that the upper limit of the target blood glucose range for ICU patients should be 200 mg/dL but rather supports a lower level of 180 mg/dL. This advice is consistent with the 2009 statement by the Society that, in ICU patients, “a target blood glucose of 144-180 mg/dL is a reasonable, and perhaps preferable, option”. This specific recommendation is based on several observational and prospective clinical trials that have clearly shown that blood glucose levels above 180 mg/dL are associated with increased risk of infections, longer hospital stay and mortality.

In particular, the Endocrine Society recommends starting insulin therapy for the majority of critically-ill hospitalized patients at a blood glucose threshold of no greater than 10 mmol/L (180 mg/dL) and aiming for a target blood glucose range of 140 to 180 mg/dL; a more stringent target 110-140 mg/dL may be appropriate in some special populations (i.e., cardiac surgery patients).

Although not the subject of the new ACP guideline, the application of the ACP-recommended 200 mg/dL upper limit for blood glucose to those general medicine and surgical patients *outside* the ICU also increases the risk for significant postprandial and symptomatic hyperglycemia as demonstrated in recent randomized control trials.

Disparities among Clinical Practice Guideline recommendations on a single topic promulgated by well-respected organizations are often disconcerting to both medical professionals and the lay public. These apparent contradictions can arise through various mechanisms, including differences in the character of the underlying literature review and variations in the specific clinical experience of those preparing the guidelines. The Endocrine Society will shortly be releasing a formal Clinical Practice Guideline on control of hyperglycemia in non-ICU hospitalized patients that is based on extensive literature review, analysis by a panel selected from recognized national and international experts in this area, input from the Society's clinical membership, approval by the Society's Clinical Guidelines Sub-Committee, Clinical Affairs Committee, and Council (Board of Directors), and peer review by journal editors.

The Endocrine Society is concerned that the differences among the views of various professional groups may be subject to exaggeration. In fact, all now seem to agree that a target of near-normalization of blood glucose levels in hospitalized patients is inappropriate but also that hyperglycemia can have adverse consequences and should be treated in a substantial fraction of hospitalized patients. The current difference of opinion revolves around the details of the specific target range for blood glucose in hospitalized patients, a subject that is evolving as the research base increases.

In summary, The Endocrine Society continues to support efforts that target rational glycemic management in the hospital and strongly rejects those interpretations of the clinical guidelines as implying that glycemic control in hospitalized patients is not important. The Endocrine Society strongly supports further research using new blood glucose monitoring technology in hospitalized patients, a line of investigation which is likely to improve the safety of intensive insulin therapy and will thus be critical in informing the medical community about the benefits and risks of various target ranges for blood glucose levels in hospitalized patients.