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New study set to change how critically ill patients are treated

Brussels, 24 March 2009 --- The current practice of intensively lowering blood glucose in critically ill patients increases the risk of death by 10%. Results of the largest trial of intensive glucose lowering in critically ill patients published today in The *New England Journal of Medicine* indicate that international clinical guidelines need urgent review.

Intensive blood glucose lowering has been widely recommended and embraced to control hyperglycemia (high blood sugar) which is extremely common among acutely ill patients and linked with serious complications such as organ failure and death. These new findings reveal that current practice to intensively lower blood glucose increases the risk of death among patients in the intensive care unit (ICU).

"Intensively lowering blood glucose in critically ill patients is not beneficial and may be harmful. Based on our findings, we do not recommend pursuing a normal blood glucose level in critically ill patients. We found that intensively lowering blood glucose levels increased a patient's risk of dying by 10%," said Chief Investigator, Professor Simon Finfer from The George Institute for International Health, which is affiliated with the University of Sydney.

Researchers from The Australian and New Zealand Intensive Care Society Clinical Trials Group, The George Institute for International Health, The Canadian Critical Care Trials Group and Vancouver Coastal Health Research Institute set out to clarify the target range for blood glucose levels in critically ill patients. They followed 6104 ICU patients in Australia, New Zealand, Canada and the USA for up to 90 days to assess whether the treatment would improve patients' chance of survival.

"Previous, smaller research studies have produced conflicting results and overall suggested that intensive blood glucose control didn't affect death rates in critically ill adults. This new study gives us more powerful information, based on this larger study with stronger evidence, we can conclude that targeting very low levels of blood glucose is not safe," said North

American Chief Investigator Dr Dean Chittock of Vancouver Coastal Health and University of British Columbia, Vancouver, Canada.

There are over six million admissions each year to ICU's in North America. The new evidence suggests that current guidelines must be reviewed.

"It's essential that international guidelines reflect this new evidence. Many professional organizations recommend very tight glucose control for ICU patients – they will now need to take this new evidence into consideration and adjust recommendations accordingly," added Dr Chittock.

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The study, NICE-SUGAR (Normoglycaemia in Intensive Care Evaluation and Survival Using Glucose Algorithm Regulation) randomly assigned patients to one of two target ranges for blood glucose; an intensive control target (81-108mg/dL; 4.5-6.0 mmol/L) or a conventional control target (180mg/dL; 10.0 mmol/L or less). Control of blood glucose was achieved by the use of an intravenous infusion of insulin.

A unique feature of the NICE-SUGAR study was standardized complex blood glucose management, which was accessed by multiple centres as a computerized algorithm.
