

# Tight blood sugar control might not help all critically ill kids

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Study found no benefit with heart surgery patients, but those with other conditions were discharged earlier.

(HealthDay)—Children who are critically ill after having heart surgery do not benefit from having their blood sugar levels aggressively controlled, but some kids with other life-threatening conditions might, a new study suggests.

Experts said the findings, reported in the Jan. 9 issue of the *New England Journal of Medicine*, suggest that critically ill children should not routinely have their blood sugar tightly controlled.

But doctors might consider it for kids who have landed in the intensive-care unit for reasons other than [heart surgery](#), said study author Dr. Duncan Macrae. Macrae's team found that those children had a shorter hospital stay when they received insulin infusions to keep their blood sugar within normal range.

People who are critically ill or injured often develop very high blood sugar levels—what doctors call hyperglycemia. The condition is a response to stress and injury, said Macrae, a consultant in pediatric intensive care at the Royal Brompton and Harefield NHS Foundation Trust in London.

In the past, doctors did not aggressively treat hyperglycemia in [critically ill patients](#), thinking it was natural and even helpful, Macrae said. But in 2001, a study of severely ill adults found that getting blood sugar levels down to normal decreased patients' risk of dying or developing certain complications, such as kidney failure.

Not all studies since have found a benefit, however, and there's been much less known about the effects in children.

Doctors aren't sure that [high blood sugar](#) itself directly increases critically ill patients' risk, said Dr. Michael Agus, of Boston Children's Hospital, who wrote an editorial published with the study.

"Hyperglycemia may merely be indicative of severe physiological stress," and not necessarily the cause of complications, Agus said.

The only way to figure it all out, Agus said, is to do clinical trials, like the current one.

For the study, Macrae's team focused on nearly 1,400 children being treated in ICUs at 13 different hospitals in England. Sixty percent had undergone heart surgery, while the rest had landed in the ICU for other reasons, such as a severe head injury or blood infection.

Roughly half of the children were randomly assigned to "conventional" [blood sugar control](#), which involved infusions of insulin only when sugar levels went above a certain level. The other children received tight blood

sugar control, with insulin infusions that were continuously adjusted to keep sugar levels in the normal range.

In the end, the intensive therapy did not improve children's survival odds: 5 percent of kids in each group died within 30 days.

But when the researchers dug deeper, they found that among children who had not undergone heart surgery, those on tight blood sugar control got out of the hospital faster—two weeks sooner, on average.

Agus suggested a potential explanation for the difference between the two groups: Children not having heart surgery seemed to be more critically ill, and might have had more to gain from tight blood sugar control, he said.

Children having heart surgery are in fairly stable condition going in, and the course of their recovery is more predictable, Agus said. But children who land in the ICU because of accidents or a sudden illness are generally in less stable condition.

Macrae said the reasons for the shorter hospital stay are not clear. But the findings suggest that, for children who have not had heart surgery, doctors should consider tight blood sugar control, he said.

Agus was more cautious. He said the best course for those critically ill kids "remains an open question," and ongoing studies should help find an answer.

The major risk from tight blood sugar control is hypoglycemia, in which [blood sugar levels](#) drop too low, Macrae said.

Hypoglycemia can also be dangerous, potentially causing complications such as seizures and brain damage. In this study, 7 percent of children on

tight blood [sugar control](#) developed severe hypoglycemia, versus just 1.5 percent in the comparison group.

Agus said doctors need to feel confident that the benefits of intensive insulin therapy outweigh the risks of lowering [blood sugar](#) too much.

More broadly, he said the new trial underscores the importance of studying treatments in children, rather than relying on results in adults. "It would be a big mistake to simply take findings in adults and apply them to all critically ill children," Agus said.

As this study shows, even different groups of [children](#) might respond differently to a therapy, he said.

**More information:** The Nemours Foundation has more on [pediatric intensive care](#).

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