



Effective Health Care

Blood Glucose Control Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Blood glucose control was found to be addressed by several recent systematic reviews and meta-analyses. However, many questions remain, particularly about patient selection criteria. Therefore, the topic is being considered for refinement as a meta-analysis that includes individual patient level data. If the project goes forward, the scope of this topic, including populations, interventions, comparators, and outcomes, will be further developed in the refinement phase.
 - To sign up for notification when this and other Effective Health Care (EHC) Program topics are posted for public comment, please go to <http://effectivehealthcare.ahrq.gov/getInvolved.cfm?involveType=subscribe>.
- This topic could also be considered for a potential new research project within the EHC Program.

Topic Description

Nominators: 1 national non-governmental advisory group, 1 individual

Nomination Summary: Both nominators are interested in the practice of inpatient management of hyperglycemia. Specifically, they are interested the harms and benefits of aggressive versus less aggressive control of blood glucose for patients in the hospital setting.

Population(s): Adults with Type 2 diabetes mellitus admitted to the hospital for non diabetes-related problems

Intervention(s): Aggressive blood glucose control

Comparator(s): Less aggressive blood glucose control

Outcome(s): Mortality, hypoglycemic and hyperglycemic events, pain, death, and cost

Setting(s): Inpatient hospital setting

Key Questions from Nominator: From nominator 2 (individual):
1. What are the health risks and benefits of aggressive versus less aggressive control of diabetes mellitus among patients hospitalized for non-diabetes related problems (e.g., myocardial infarction, surgery, non-cardiac disease, infection, pneumonia, etc.)?

Considerations

- The topic meets all EHC Program selection criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)
- Several early studies led to widespread adoption of aggressive glucose control in a variety of intensive care unit (ICU) settings; however, subsequent studies have not replicated the mortality benefit that was found in earlier studies. Furthermore, recent systematic reviews and meta-analyses agree in their overall conclusions that widespread adoption of aggressive glucose control should not be supported for all patients, but differ between reviews and with recent trial data about specific patient groups. This is likely due to the heterogeneity in design, setting, and patient population of the studies included in the reviews. A newer review suggests that some patients may benefit from aggressive insulin therapy and glucose control, although the characteristics of such patients remain to be clearly defined, as does the effect of different blood glucose protocols, the method of measuring blood glucose, and the influence of nutritional strategies.
- An additional systematic review on the topic is not warranted at this time, but an individual patient-level data (IPD) analysis may be appropriate. An IPD analysis has the potential to impact this topic in several ways, including 1) to elucidate why there are apparent differences within the existing reviews and trial data, 2) to determine who benefits and who does not from aggressive blood glucose control, 3) to clarify issues surrounding subgroups of patients (e.g., nondiabetics, diabetics, patient's receiving supplemental nutrition), and 4) to help formulate hypotheses for new research.
- Given the many uncertainties of this topic outlined by recent publications, this topic may be a good candidate for potential new research such as a prospective or retrospective review of target glucose levels for various patient types and settings (e.g., diabetics, nondiabetics, those receiving enteral and parenteral nutrition, surgical versus medical ICU).