

Anemia, Bleeding, and Blood Transfusion in the Intensive Care Unit: Causes, Risks, Costs, and New Strategies

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The definition of anemia is controversial and varies with the sex, age, and ethnicity of the patient. Anemia afflicts half of hospitalized patients and most elderly hospitalized patients. Acute anemia in the operating room or intensive care unit is associated with increased morbidity as well as other adverse outcomes, including death. The risks of anemia are compounded by the added risks associated with transfusion of red blood cells, the most common treatment for severe anemia. The causes of anemia in hospitalized patients include iron deficiency, suppression of erythropoietin and iron transport, trauma, phlebotomy, coagulopathies, adverse effects of and reactions to medications, and stress-induced gastrointestinal bleeding. The types and causes of anemia and the increased health care utilization and costs associated with anemia and undetected internal bleeding are described. The potential benefits and risks associated with transfusion of red blood cells also are explored. Last, the strategies and new tools to help prevent anemia, allow earlier detection of internal bleeding, and avoid unnecessary blood transfusions are discussed.