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# Bloodless Surgery Decreases Need for Transfusions

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Blood products may be safer than ever, but that doesn't mean the same for blood transfusions. Transfusions, even with "safe" blood, expose patients to a higher risk of complications and even death.

One life-threatening risk is bacterial infection from blood contaminated during storage. Another is Transfusion-Related Acute Lung Injury (TRALI), a respiratory condition that occurs in as many as one in 2,000 transfusions.<sup>1</sup> Transfusion-Associated Circulatory Overload (TACO), when a large volume of blood is transfused too quickly, affects an estimated one in every 100 to 10,000 transfusions.<sup>2</sup>

The most common transfusion-related hazard is Febrile Non-Hemolytic Transfusion Reaction (FNHTR). While not life threatening or long-lasting, the associated fever, chills and rigors cause more patient discomfort. Most of these complications can occur even after autologous transfusions, where patients receive the blood they donated themselves.

For decades, blood transfusion has been a standard and widely used practice. But, whether allogeneic or autologous, transfusion is often not as beneficial as avoiding it altogether.

## REDUCING BLEEDING BEFORE, DURING AND AFTER SURGERY

In connection, blood management is becoming a bigger focus for health care institutions. In fact, the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) is considering adding blood management performance measures as an element of hospital accreditation.

One blood management tactic is "bloodless surgery," an emerging standard of care



in elective procedures such as total joint replacements and spinal surgeries. Bloodless surgery does not mean the procedure involves no blood. It means that steps are taken before, during and after surgery to reduce the need for blood transfusion.

Weeks before surgery, patients may receive intravenous iron supplements and medications, such as Procrit, to increase red blood cells. During surgery, anesthesiologists may employ hypotensive anesthesia, which lowers blood pressure and lightens blood flow. Surgeons may opt for minimally invasive techniques or use special devices that promote blood coagulation. For example, TissueLink technology and Bovie electro-surgical devices allow surgeons to cauterize tissues to stop blood flow. Suture ligation can close off large blood vessels. Placing materials like Avitene sheets or thrombin-soaked gel foams in surgical openings also speed blood coagulation.

Another technique is spraying a plasma-rich platelet gel (PRPG) into the open wound to close off small blood vessels at the end of the procedure. The gel is made prior to surgery from the patient's own blood and is concentrated with growth factors. PRPG limits post-operative bleeding and stimulates wound healing and regenerative processes.

After surgery, patients may continue a regimen of medications to increase blood cell mass. Surgeons may try to

limit the amount of blood drawn for post-operative tests.

All of this adds up to a significantly reduced need for blood transfusion. And that means a significantly reduced risk of transfusion-related complications. Plus, without transfusions, patients have shorter hospital stays and lower hospitalization costs. Those benefits far outweigh the extra time and effort spent preparing for bloodless surgery with pre-op medication.

For the medical community, benefits are just as great. In addition to more successful clinical outcomes, bloodless surgery conserves costly blood products for situations where transfusion is dire.

After all, blood transfusion is like an organ transplant. It is necessary for some patients, but certainly not all. Avoiding it through bloodless surgery, where possible, is the most responsible practice.

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## References

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