MYTH

Albumin should be used routinely to prime the cardiopulmonary bypass (CPB) circuit

✕ **BUSTED**

The ALBICS trial (n=1,386) found that 4% albumin vs. Ringer's lactate for CPB priming produced no reduction in major adverse events at 90 days. Albumin priming increased perioperative bleeding, and resulted in higher transfusion requirements, higher infection rates, and more reoperations.[1]

References

1. Pesonen E, Vlasov H, Suojaranta R, et al. Effect of 4% albumin solution vs Ringer acetate on major adverse events in patients undergoing cardiac surgery with cardiopulmonary bypass: a randomized clinical trial. *JAMA.* 2022;328(3):251-258. doi:10.1001/jama.2022.10461

Canadian Blood Services

BREAKTHROUGHS IN iBLOOD
ADVANCEMENTS INTO ACTION

MYTH

20% albumin protects the kidneys in high-risk patients

✕ **BUSTED**

In high-risk patients, 20% albumin has not been shown to protect the kidneys. The ALBICS-AKI trial showed postoperative 20% albumin in patients with eGFR <60 mL/min/1.73 m² increased acute kidney injury (AKI) incidence (48.9% vs. 43.4%) and transfusion requirements. Albumin infusion produced no patient important benefits.[2]

References

2. Shehabi Y, Balachandran M, Al-Bassam W, et al. Postoperative 20% albumin infusion and acute kidney injury in high-risk cardiac surgery patients: the ALBICS AKI randomized clinical trial. *JAMA Surg.* 2025;160(8):835-844. doi:10.1001/jamasurg.2025.1683. Available from: https://jamanetwork.com/journals/jamasurgery/fullarticle/2835041

Canadian Blood Services

BREAKTHROUGHS IN iBLOOD
ADVANCEMENTS INTO ACTION

MYTH

Albumin is the best first-line fluid for volume replacement on CPB

✕ BUSTED

Multiple contemporary guidelines[3] recommend against routine albumin as perioperative volume replacement.[4] Crystalloids (Ringer's lactate/acetate) are evidence-based first choice. Albumin only improves fluid balance — not mortality — while costing more and increasing bleeding, infection, and kidney failure risk.[1,2,5]

References

1. Pesonen E, Vlasov H, Suojaranta R, et al. Effect of 4% albumin solution vs Ringer acetate on major adverse events in patients undergoing cardiac surgery with cardiopulmonary bypass: a randomized clinical trial. *JAMA.* 2022;328(3):251-258. doi:10.1001/jama.2022.10461
2. Shehabi Y, Balachandran M, Al-Bassam W, et al. Postoperative 20% albumin infusion and acute kidney injury in high-risk cardiac surgery patients: the ALBICS AKI randomized clinical trial. *JAMA Surg.* 2025;160(8):835-844. doi:10.1001/jamasurg.2025.1683. Available from: https://jamanetwork.com/journals/jamasurgery/fullarticle/2835041
3. Metcalf RA, Nahirniak S, Guyatt G, et al. Platelet Transfusion: 2025 AABB and ICTMG International Clinical Practice Guidelines. JAMA. 2025;334(7):606–617. doi:10.1001/jama.2025.7529
4. Skubas NJ, Callum J, Bathla A, et al. Intravenous albumin in cardiac and vascular surgery: a systematic review and meta-analysis. *Br J Anaesth.* 2024;132(2):237-250. Available from: https://www.bjanaesthesia.org/article/S0007-0912(23)00630-X/fulltext
5. Wahba A, Kunst G, De Somer F, et al. 2024 EACTS/EACTAIC/EBCP guidelines on cardiopulmonary bypass in adult cardiac surgery. *Eur J Cardiothorac Surg.* 2025;67(2):ezae354. Available from: https://www.eacts.org/clinical-practice-guideline/2024-eacts-eactaic-ebcp-guidelines-on-cardiopulmonary-bypass-in-adult-cardiac-surgery/

Canadian Blood Services

BREAKTHROUGHS IN BLOOD
ADVANCEMENTS INTO ACTION

MYTH

If the patient needs inotropes, albumin is the safest colloid to improve outcomes

✕ **BUSTED**

The HAS FLAIR-II investigators randomized 466 patients to 20% albumin vs. crystalloids and they observed no improvements in duration of inotropes, proportion of patients needing inotropes to day 7, duration of ventilation, time to ICU discharge, length of stay or mortality.[6]

References

6. Honore PM, Lawler PR, Zarbock A. Who should receive volume resuscitation with 20% albumin after cardiac surgery? It is probably more complex than just a lack of flair! *Intensive Care Med.* 2024;50:1123-1125. doi:10.1007/s00134-024-07524-2

Canadian Blood Services

BREAKTHROUGHS IN iBLOOD
ADVANCEMENTS INTO ACTION

MYTH

It is impossible to change physician behaviour to curtail unnecessary use in cardiac surgery

✕ BUSTED

A team-based approach to reducing unnecessary use of albumin hospital wide resulted in an over 50% reduction in the use of albumin, including in cardiac surgery.[7]

References

7. Forster CM, Halls S, Allarakhia S, et al. Improving appropriate use of intravenous albumin: results of a single-centre audit and multifaceted intervention. *BMJ Open Qual.* 2024;13:e002534. doi:10.1136/bmjoq-2023-002534

Canadian Blood Services

BREAKTHROUGHS IN BLOOD
ADVANCEMENTS INTO ACTION

MYTH

Albumin is inexpensive and widely available without concerns for shortages

✕ **BUSTED**

Albumin costs $60-150 US per 25 g (e.g., 100 mL of 25%). This is much more expensive than saline or other crystalloids. Shortages of albumin have been reported in the UK and the USA.[8]

References

8. Department of Health and Social Care. Shortage of human albumin 4.5% and 5% dose vials. NatPSA/2024/009/DHSC. 2024 Jul 30. Available from: https://www.cas.mhra.gov.uk/ViewandAcknowledgment/ViewAttachment.aspx?Attachment_id=104179.pdf) [NatPSA_202...9_DHSC (1) | PDF]

Canadian Blood Services

BREAKTHROUGHS IN iBLOOD
ADVANCEMENTS INTO ACTION

MYTH BUSTERS

Albumin in cardiac surgery | Common misconceptions about perioperative IV albumin use

MYTH 1 — Albumin should be used routinely to prime the CPB circuit

✕ BUSTED

The ALBICS trial (n=1,386) found that 4% albumin vs. Ringer's lactate for CPB priming produced no reduction in major adverse events at 90 days. Albumin priming increased perioperative bleeding, and resulted in higher transfusion requirements, higher infection rates, and more reoperations.[1]

MYTH 2 — 20% albumin protects the kidneys in high-risk patients

✕ BUSTED

The ALBICS-AKI trial showed postoperative 20% albumin in patients with eGFR <60 mL/min/1.73 m² increased AKI incidence (48.9% vs. 43.4%) and transfusion requirements. Albumin infusion produced no patient important benefits.[2]

MYTH 3 — Albumin is the best first-line fluid for volume replacement on CPB

✕ BUSTED

Multiple contemporary guidelines[3] recommend against routine albumin as perioperative volume replacement.[4] Crystalloids (Ringer's lactate/acetate) are evidence-based first choice. Albumin only improves fluid balance — not mortality — while costing more and increasing bleeding, infection, and kidney failure risk.[1,2,5]

MYTH 4 — If the patient needs inotropes, albumin is the safest colloid to improve outcomes

✕ BUSTED

The HAS FLAIR-II investigators randomized 466 patients to 20% albumin vs. crystalloids and they observed no improvements in duration of inotropes, proportion needing inotropes to day 7, duration of ventilation, time to ICU discharge, length of stay or mortality.[6]

MYTH 5 — It is impossible to change physician behaviour to curtail unnecessary use in cardiac surgery

BUSTED

A team-based approach to reducing unnecessary use of albumin hospital wide resulted in an over 50% reduction in the use of albumin, including in cardiac surgery.[7]

MYTH 6 — Albumin is inexpensive and widely available without concerns for shortages

✕ BUSTED

Albumin costs $60-150 US per 25 g (e.g., 100 mL of 25%). This is much more expensive than saline or other crystalloids. Shortages of albumin have been reported in the UK and the USA.[8]

WHEN IS ALBUMIN APPROPRIATE?

Currently there is no known clinical scenario where albumin may be beneficial in improving patient important outcomes. In addition, there are no studies to provide clinicians guidance on the optimal formulation or dose of albumin. There are proven risks of intravenous albumin as listed above. Albumin should only be used when other alternatives have failed. Patient written informed consent is required. Patients and/or substitute decision makers should be informed of the risks, benefits, and alternatives.

References

1. Pesonen E, Vlasov H, Suojaranta R, et al. Effect of 4% albumin solution vs Ringer acetate on major adverse events in patients undergoing cardiac surgery with cardiopulmonary bypass: a randomized clinical trial. *JAMA.* 2022;328(3):251-258. doi:10.1001/jama.2022.10461
2. Shehabi Y, Balachandran M, Al-Bassam W, et al. Postoperative 20% albumin infusion and acute kidney injury in high-risk cardiac surgery patients: the ALBICS AKI randomized clinical trial. *JAMA Surg.* 2025;160(8):835-844. doi:10.1001/jamasurg.2025.1683. Available from: https://jamanetwork.com/journals/jamasurgery/fullarticle/2835041
3. Metcalf RA, Nahirniak S, Guyatt G, et al. Platelet Transfusion: 2025 AABB and ICTMG International Clinical Practice Guidelines. JAMA. 2025;334(7):606–617. doi:10.1001/jama.2025.7529
4. Skubas NJ, Callum J, Bathla A, et al. Intravenous albumin in cardiac and vascular surgery: a systematic review and meta-analysis. *Br J Anaesth.* 2024;132(2):237-250. Available from: https://www.bjanaesthesia.org/article/S0007-0912(23)00630-X/fulltext
5. Wahba A, Kunst G, De Somer F, et al. 2024 EACTS/EACTAIC/EBCP guidelines on cardiopulmonary bypass in adult cardiac surgery. *Eur J Cardiothorac Surg.* 2025;67(2):ezae354. Available from: https://www.eacts.org/clinical-practice-guideline/2024-eacts-eactaic-ebcp-guidelines-on-cardiopulmonary-bypass-in-adult-cardiac-surgery/
6. Honore PM, Lawler PR, Zarbock A. Who should receive volume resuscitation with 20% albumin after cardiac surgery? It is probably more complex than just a lack of flair! *Intensive Care Med.* 2024;50:1123-1125. doi:10.1007/s00134-024-07524-2
7. Forster CM, Halls S, Allarakhia S, et al. Improving appropriate use of intravenous albumin: results of a single-centre audit and multifaceted intervention. *BMJ Open Qual.* 2024;13:e002534. doi:10.1136/bmjoq-2023-002534
8. Department of Health and Social Care. Shortage of human albumin 4.5% and 5% dose vials. NatPSA/2024/009/DHSC. 2024 Jul 30. Available from: https://www.cas.mhra.gov.uk/ViewandAcknowledgment/ViewAttachment.aspx?Attachment_id=104179.pdf) [NatPSA_202...9_DHSC(1) | PDF]

Canadian Blood Services

BREAKTHROUGHS IN BLOOD
ADVANCEMENTS INTO ACTION