

# The long list of questions for adult cardiac surgery research

*These are the 45 unanswered questions that came from cardiac surgery professionals, people using services and their carer's. The questions that were asked many times have been grouped and summarised in a single question. A full list of all questions submitted and the questions belonging to each group can be found on the JLA website (<http://www.jla.nihr.ac.uk/>).*

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Does ERAS (Enhanced Recovery After Surgery) improve outcomes in heart surgery?

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Is restricted or liberal fluid management better for heart surgery?

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How does different anaesthetic management (choice of anaesthetic drugs, use of steroid at induction. Mode of delivery – intravenous vs volatile) affect outcomes of heart surgery?

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What are the best blood vessels to use for bypass surgery?

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Is it possible to develop effective artificial vein grafts for coronary surgery?

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How are patients selected for PCI (coronary stenting) or coronary bypass surgery?

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What is the best strategy for patient blood management in heart surgery?

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What is the best way of measuring for the pumping function of the heart (cardiac output) during and after surgery?

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How does minimally invasive heart surgery compare to traditional open surgery?

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How does a patient's quality of life (QOL) change (e.g. disability-free survival) due to heart surgery and what factors are associated with this?

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What are the long-term outcomes, including life expectancy, after heart surgery?

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What are the benefits of heart surgery in older patients?

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How can we address frailty and improve the management of frail patients on heart surgery?

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How can we improve the outcomes of heart surgery patients with chronic conditions (obesity, diabetes, hypertension, renal failure, autoimmune diseases etc.)?

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What patient factors (ethnicity, underlying conditions, biomarkers, genetics etc.) affect/predict heart surgery outcomes?

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What are the best cardiovascular medications for management in heart surgery (e.g. ACE-inhibitors, antiplatelet, anticoagulant?)

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What is the impact of prolonged artificial ventilation after heart surgery?

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What is the best time for removing temporary pacing wires following heart surgery? What are the complications associated with pacing wires?

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What are the most effective ways of preventing and treating post-operative atrial fibrillation?

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What is the best way to prevent and manage pain after heart surgery? What is the best way to manage pain in drug-dependent patients?

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How do we minimise damage to organs from heart-lung machine/heart surgery (heart, kidney, lung, brain and gut)?

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How do we reduce and manage infections after heart surgery including surgical site/sternal wound infection and pneumonia?

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How best to clinically manage heart failure patients before heart surgery?

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What is the best strategy for managing acute heart failure patients before heart surgery?

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Does Left Atrial Appendage Occlusion (LAAO) device reduce the risk of stroke after heart surgery?

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What are the best ways to prevent diagnose and treat patients with acute aortic dissection (including long-term management)?

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Are percutaneous stents better than traditional open surgery for diseases of the thoracic aorta?

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What is the best choice of heart valve replacement in young adults?

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How do transcatheter techniques for heart valve surgery compare to traditional open surgery (TAVI vs AVR)?

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What is the best way to manage infective endocarditis (infection in the heart valve)?

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When should heart valve intervention occur for patients without symptoms?

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What can patients do (in terms of their lifestyle choices – exercise, diet, smoking, well-being etc.) before and after heart surgery to improve outcomes?

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Does prehabilitation (a programme of nutritional, exercise and psychological interventions before surgery) benefit heart surgery patients?

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Does improving Vitamin D level before surgery improve the outcomes of heart surgery?

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How can we improve the communication between the medical team and patients/carers regarding the risks and benefits of heart surgery?

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Can we use 3D bio printing or stem cell technology to create living tissues (heart valves/heart) and repair failing hearts (myocardial regeneration)?

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Can we use Big Data (artificial intelligence, computer simulation etc.) to help predict and plan treatment in heart surgery patients?

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Does having access to specialist cardiac nurses or consultants by electronic methods improve outcomes for heart surgery patients?

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Do outcomes of heart surgery and follow-up time vary by postcode/location and how to reduce the variation?

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Is there association of time on waiting list with outcomes of heart surgery? Does cancellation of heart surgery affect outcomes?

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What level of heart surgeon's caseload maximises safety and successful surgical outcomes?

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Does publication of surgeon-specific outcome data influence patient selection for heart surgery?

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What is the impact of intra-hospital transfer or critically ill heart patients on the outcomes of surgery?