

# Iron infusion before bowel surgery reduces need for blood transfusion

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Change in clinical practice would have clear benefits for patients undergoing major bowel surgery, according to analysis conducted by researchers from UCL and the Royal Devon and Exeter Hospital.

The study, published in *The British Journal of Surgery*, provides evidence that giving [iron](#) intravenously before colorectal surgery improves outcomes for patients, reducing the need for [blood transfusion](#) by 33%.

Anemia is a common problem in patients undergoing bowel surgery due to bleeding from the gut and [blood loss](#) during the operation. Anemia is also associated with feeling tired and unwell, a slower recovery and other complications after surgery.

Blood transfusion is used when [blood levels](#) are low, but there has been concern that colorectal cancer patients may have higher rates of complications and cancer recurrence if they've had a blood transfusion. Iron is commonly used to treat anemia, with a full course of treatment being administered intravenously in 15-30 minutes. To date intravenous iron infusion has been used sparingly, with a question remaining whether treating patients before [major surgery](#) would reduce the need for blood transfusion.

In this study, a [meta-analysis](#) of five randomized controlled trials was conducted by researchers from UCL, focusing on a subset of patients from those trials who had undergone bowel surgery. In these trials, patients were split into two groups, a [control group](#) and a group who received iron intravenously prior to surgery.

The analysis showed that patients who had received iron infusion were 33% less likely to require a blood transfusion during or after surgery.

Professor Toby Richards, senior author of the study from UCL Division of Surgery & Interventional Sciences, said, "This is the first time that [clinical trials](#) have shown a patient benefit from treatment with an iron infusion before surgery, which has the potential to treat anemia and reduce the need for blood transfusion. Previous studies had not shown

this benefit for all patients undergoing surgery in the NHS, but this analysis identifies a subset of patients undergoing bowel surgery who will see a benefit."

Professor Neil Smart, colorectal surgeon from the Royal Devon and Exeter Hospital and co-lead of the study, said, "With over 20,000 major colorectal cancer resections per year in the UK, the findings of this study have the potential to improve outcomes for the second most common cause of cancer mortality. In the past, surgeons were uncertain whether the benefits of iron infusion could be realized in the short time frames of cancer care and consequently the uptake of this treatment was limited. Our findings show that improved outcomes can be achieved if iron infusion is given in the period between cancer diagnosis and surgery."

As well as reducing the risk for patients, fewer blood transfusions would be good news at a time when there are blood supply shortages in the UK.

Sue Pavord, Vice President of British Society for Haematology, said, "The recent shortage of blood supply in the UK means it is more important than ever to focus on ways to avoid blood transfusions and their associated risks. This analysis shows a reduction of over one-third in blood transfusions when anemic patients are treated with intravenous iron before their colorectal surgery. If we could combine this insight with others from the previous PREVENTT study, then hospital readmissions could potentially be cut even more, which would be important for both [patients](#) and the NHS."

**More information:** Hans Lederhuber et al, Preoperative intravenous iron and the risk of blood transfusion in colorectal cancer surgery: a meta-analysis of randomised controlled trials, (2023). [DOI: 10.1093/bjs/znad320](#)

Provided by University College London

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