



Research Article

Risk assessment tools for predicting transfusion in surgery: a systematic review and meta-analysis

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Plain language summary

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What was the aim of this review?

Every person undergoing surgery is at risk of needing a blood transfusion, either because of the surgery itself, or complications from it.

Blood is a scarce resource, and knowing how much blood a specific patient is going to need can help reduce unnecessary blood waste. We wanted to determine whether there were any prediction tools that could be used to help clinicians identify patients at higher risk of needing a blood transfusion after surgery.

What is a prediction tool?

Prediction tools use available information to make forecasts regarding future events. We were interested in tools that use patient details to assess likely blood transfusion requirements after surgery. The tools consider certain characteristics of the patients, such as age, height, blood, and other clinical characteristics. These characteristics are assessed before surgery, in order to try to determine those patients who will need a transfusion.

To be certain that a tool will be useful for clinicians, tools need to undergo a process known as 'validation'. This checks that the tool still works when applied in a group of people who are distinct from the group in which the tool was originally developed.

What did we find?

We looked for tools to predict risk of transfusion in patients of any age undergoing surgery.

We identified 68 relevant prediction tools. In general, tools were not very accurate at predicting the need for transfusion and study methods were at risk of exaggerating tool accuracy, meaning they cannot be reliably used in clinical practice.

What did we conclude?

Currently, there are no tools that are good enough to be used routinely in clinical practice for predicting transfusion needs. We need more studies that evaluate developed tools in different populations ('validation studies') to find an appropriate tool for clinical work.