

What tools are available to predict the need for transfusion after a surgery?

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. Also, if a clinician considers a patient has a high risk of needing a transfusion, there are some measures that can be taken before surgery to reduce the likelihood of requiring transfusion. We wanted to determine whether there were any prediction tools that had been developed that could be used to help clinicians identify patients at higher risk of needing a blood transfusion after surgery.

What is a prediction tool?

A prediction tool uses available information to make predictions regarding future events. In this case, we were interested in tools which would use patient details to assess their risk of requiring a blood transfusion after surgery. The tools consider certain characteristics of the patients, such as age, height, blood and many others. 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 is basically testing 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 did not look at any particular type of surgery, and included cardiovascular, general surgery, orthopaedic and others.

We identified 68 relevant prediction tools. In general, tools were “moderately accurate” at predicting the risk of transfusion. This means that they will not be able to correctly identify every patient who will or will not need a transfusion.

Most of the studies we identified were at “high risk of bias”. This means that because of limitations in the studies describing the tools, we cannot completely trust the reported accuracy of the tools. Also, most of the tools we found needed information on many

different patient characteristics, which means that using the tool for prediction could be too time consuming for busy clinical teams to use.

What did we conclude?

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