Dr Craig French Module 3 presentation

Sophie Scott **(Master of Ceremonies):** After that really fascinating insight into how this will happen in practice, it's very interesting. So the 2 modules that we've discussed are just the first of six new guidelines which are going to be released, and as we heard earlier these will include guidelines on the use of blood, medical procedures, obstetrics and paediatric care. And to tell us more, please welcome Dr Craig French, he's the co-chair of the College of Intensive Care Medicine of Australia and New Zealand, and the Australia and New Zealand Intensive Care Society. Please welcome Dr French. {Applause]

Dr Craig French: Thank you very much Sophie.

Like my fellow speakers, I'd just like to acknowledge the support of the NBA over what has been a multi-year journey to get to this point. In particular Amanda Thompson, the co-chair of the Expert Working Group with me, and Jennifer Roberts at the NBA as well as all of the NBA Staff.

I'm here to talk today about the Medical Module. I represent a number of people who have been involved in the design of this module. The Clinical Reference Group, that was established as we've heard for all modules, the chair of this module was Mark Dean, who is in the audience today as well, and I thank all of the members of the Clinical Reference Group who have enabled us to get to this point.

So I guess what we know, if you look at the questions I've written, is that anaemia is bad for you, but is the correction of anaemia with red cell transfusion actually good for you? And when we started this journey, one of the questions we actually asked, I think it was generic Question 1, was exactly that "is anaemia bad for you?". When we applied the systematic review to this very heterogeneous group of patients; we're talking patients that could have acute myocardial infarctions, patients who have chronic kidney disease, patients with haematological malignancy, patients with… elderly patients in institutions. So a very broad heterogeneous group. Not surprisingly we got 100s of thousands of articles which actually demonstrated quite clearly and convincingly that anaemia is bad for you. This is what's really called an aetiology question; is this condition actually bad for you? The next bit is an intervention; is the correction of anaemia with Red Cell Transfusion actually good for you? And the types of trials required to evaluate those two questions are very different.

The first question: large observational studies. The Second question: randomized control trials

And I have to say that unfortunately in the year 2012, in this year of medicine, there have not been a large number of randomised control trials for red cell transfusion in the broad medical group of patients. So given that the number of recommendations we've been able to make relating to blood transfusion in this very broad group of patients is relatively small. And most of the comments or guidance that we are giving patients are in the form of practice points; so the evidence suggests something may be of benefit and the consensus group gets together, evaluates the evidence and provides the best guidance that we possibly can.

So I'll just take you through a few of the practice points that we developed for this module now. And these ones, sort of, are representing the changes that have occurred between this guideline and the clinical guidelines from 2001.

The 1st sounds like a pretty sensible statement; red cell transfusion should be dictated not by haemoglobin concentration alone, but based on the assessment of clinical status. But unfortunately really, practice has become transfusing according to haemoglobin concentration alone. And it didn't really matter what the patient looked like or how the patient felt, if their haemoglobin was 70 or 80, they got the blood transfusion.

The next area that we were challenging is the single unit transfusion, and certainly over a decade ago, the single unit transfusion was actively discouraged. If you were going to give a transfusion, you give two, three units, don't give a single one. Completely now changing that focus; moving towards a single unit transfusion, evaluating the effect of that transfusion on the individual patient and assess whether further transfusion is appropriate. And that assessment takes not only into account a clinical assessment but also a laboratory assessment as well.

And finally, in patients with iron deficiency anaemia, iron therapy is required to replenish iron stores regardless of whether a transfusion is indicated. Again the role of the replacement of iron has undergone significant changes in the last decade, a lot of it being driven by Kathryn Robinson and the team from South Australia as well who have really been focussing on the awareness of iron replacement and iron therapy in this broader population of patients.

Clinicians, however, do want to have a number. They want to know "at what haemoglobin should I be transfusing?" despite those sort of generic statements and saying you must apply it to the individual patients. So we have had to come up with some guidance across the broad range of medical patients, which assists clinicians in making that decision. Are the benefits of transfusion greater in this patient, than the potential risks?

In general, with a haemoglobin concentration less than 70, red cell transfusion appears to be associated with reduced mortality and is likely to be appropriate. However, transfusion may not be required in well compensated patients, and there are certainly many patients with a haemoglobin particularly in that 60 to 70 range that may tolerate anaemia relatively well and other strategies to improve the haemoglobin concentration such as the administration of erythropoietin and iron therapy may be of benefit to them rather than transfusion.

The grey zone is always this area between 70 to 100 grams per litre, and in the previous guidelines, it basically was pretty much open slather. If the patient had haemoglobin between 70 and 100, you could safely give a blood transfusion and no one question your decision. Again, we're moving away from that again, we're saying "well really, between 70 and 100, giving blood doesn't seem to lead to any benefit". It doesn't seem to outcomes in terms of mortality in any potential way. So the decision to transfuse really needs to be based upon frequent reassessment of the patient; the patient's symptoms, the patients critical signs, how they've responded to previous transfusions as well. And importantly when we looked at all the various sub-groups, those patients who you thought if you topped them up they might be a bit better, the elderly patients who suddenly after a blood transfusion get up and walk around, well the evidence from the literature search we evaluated, although not strong simply doesn't support that view.

And finally, the haemoglobin concentration of greater than 100. The old transfusion trigger generated back in the 1940s when it was found that the viscosity of blood was more about the number (that's why the transfusion figure was around 100), unlikely to be of benefit, is usually unnecessary, and importantly, in some groups of patients, may be associated with increased mortality.

So given a bit of a clinical context, and how these guidelines may influence one particular area of practice, a 52 year old man on this common scenario comes in with a big myocardial infarct, gets reperfusion therapy, and he's anaemic on presentation. His haemoglobin on presentation is 80, the resident is young and enlightened, and has read the guidelines, and asks the cardiologist who is demanding we give him blood, "well, should we actually give him blood, and if so how many bags of blood should we give?". The cardiologist then revaluates his thinking and thinks of the potential benefits to the patient of blood transfusion, which actually have to be weighed against the potential for harm. And could the treatment of the anaemia could well contribute to more myocardial damage. Less haemoglobin, less oxygen delivery, critical myocardia, maybe blood transfusion would be of benefit, the anaemia may increase his mortality and these could be reduced by transfusion. However, could the transfusion in some way contribute to an adverse outcome? Further blockages in arteries, thrombosis, all sorts of things? And is there any evidence to base any of these deliberations upon?

Well, there is. I mean there actually was quite a lot. Probably of all the areas that we looked at in terms of haemoglobin concentration triggers for transfusion, the best data was in the setting of acute coronary syndromes. And certainly, it would appear that we can come out and say that if the haemoglobin concentration is less than 80, on the balance of probabilities, for most patients (although assess each patient individually), a red cell transfusion is a benefit to the patient. In that razor between 80 and 100 where patients are frequently transfused with acute coronary syndrome, the effect of red cell transfusion on patient outcomes is quite uncertain, and there could even still, at that level, be an increased risk of myocardial infarction. So any decision to transfuse with a haemoglobin between 80 and 100 should be made with caution, based on careful consideration of the risks and benefits. And out of all this, we were actually able to make a recommendation, albeit at a low level, but there was enough evidence from high quality research to support this statement that in acute coronary syndrome, patients with a haemoglobin greater than 100 (so these are patients who are still anaemic by the WHO definition of anaemia), red cell transfusion is not advisable because of an association with increased mortality. And this is certainly one way in which these guidelines will probably influence practice.

So my area is actually in critical care medicine (or expensive care), and the module for critical care is currently, well it's actually being reviewed by the NHMRC, and I thought we actually got the feedback today. And the general feedback was pretty favourable, and I think we'll be able to move towards getting these guidelines enforced quite quickly.

So pleased to say that the body of evidence for transfusion in the critical field is substantially stronger than that of the broader medical population. Indeed the probably world leading randomised control… at this stage still the largest randomised control of trial transfusion practice in the world has been done in the critical field, and what will be the largest randomised control trial for transfusion medicine is going to start randomising our first patients in October in Australia. And

that's a study looking at the age of blood and the effect on outcomes, and it's funded by the NHMRC as well. So we were able to make some recommendations related to transfusion practice in the critically ill. Unfortunately, for blood component therapy, there is a bad, little or none. The thirty practice points there for plasma, cryoprecipitate, platelets. And the other area [Video Skips] and tranexamic acid there as well and as I said, hopefully going to see NHMRC Approval soon.

The next module, as we've heard, the final phase, phase 3, for those of us who have been in the long haul is due to commence next year and hopefully, we estimate a probably 9 month time frame to get those guidelines written. Given our learning's over the past 4 years and how we've improved the processes, I can see Leia smiling there, we'll get them done in a timely fashion indeed.

So I guess what these guidelines, what we hope to do, is challenge the dogma of medicine. Traditionally, as I said, when I was going through medical school, we were just told things by our superiors and we believed them because that was the case, and I hope that we were just like little lemmings and off we go! So hopefully now some of our junior doctors and even more senior doctors that have been enlightened with Clinical Practice Guidelines based upon evidence will actually want to follow the rest of the pack and that will ultimately lead to better patient outcomes.

Thank you.