



Maths as others see it

What is maths?

Vox pops:

Mathematics means to me numbers, figures, adding up, taking away ...

... Numbers, figures, graphs ...

... Working things out, financial things ...

... Numbers, numbers ...

... Basics ...

... Sums, maths, figures ...

... It means numbers and figures and calculations and headaches ...

Emma Prescott:

In my job the sort of maths I would be using are things like estimate the probability of drops in haemoglobins, calculation of drug dosages, calculation of volumes to be infused intravenously

...

This is the patient's haemoglobin, measured in grams, and these are the weekly periods. So if this patient, after one week post-transfusion, starts at eleven grams, we can estimate that within a week it will drop one and half grams. So, for this particular patient, after the second week, they would have dropped to nine point five grams. So we can estimate that around this time is when we need to actually transfuse some blood into them, and then we would see the rise up again.

Why don't I send off the sample to the blood bank, we can hold it to store it, and then give me a call next week and tell me how you feel ...

Patient:

Yeah, alright.

Emma Prescott:

... and if need be we can order a couple of pints of blood for you ...

Thalassaemia is a genetic disorder, which means that these patients are actually born with the disorder. From about the age of six months they don't produce enough, or any at all, adult haemoglobin, which is essential for life. Haemoglobin carries oxygen to the body tissues, so therefore we have to replace this haemoglobin in the form of blood transfusions. And that usually means that they come to the hospital every three weeks for six to eight hours.

Well, we don't want to over-transfuse these patients, because that in itself would produce problems, so we have to estimate how the haemoglobin will drop, and ideally we'd like to transfuse when the haemoglobin is around nine point five to ten grams.

Emma Prescott:

... OK, cos I can't add the extra to this small bag ...

Patient:

Right you are.

Emma Prescott:

... so we'll have to give you a little bit more.

PATIENT

Will it be at the same time or ...

Emma Prescott:

It will be extended, I'm afraid. I'll put this over the same time as the ...

The probability of any of your children being born with thalassaemia major is one in four, right. I'll just illustrate it by showing you on a diagram. So, if we say that this is you – one normal gene and one thalassaemia gene and you're perfectly normal. And then this is your wife, and likewise she is the same as you, she's inherited just the trait. OK? So, we can work out the probability of each child being born, on whether they have a normal, a carrier, or have thalassaemia. So, if you pass on this gene, and your wife passes on this gene, then again this baby will be born like yourself as a carrier.