

Reducing red blood cell usage

All acute hospitals spend significant sums on blood and its components. Steven Bliss looks at what one large trust did to reduce its usage of red blood cells

The *NHS efficiency map* is designed to help trusts manage their savings and improve their efficiency. Usage of blood and its components falls broadly under area 11 of the Map (non-pay), but it has wider implications for the quality of patient care.

University Hospitals Coventry and Warwickshire NHS Trust (UHCW) is one of the UK's largest teaching hospital trusts. It provides a very wide range of services, including many specialised services, and is a major trauma centre.

The trust runs two hospital sites: a 1,000-bed hospital in Coventry and a much smaller one in Rugby. It employs more than 8,000 staff (about 6,000 whole-time equivalents) and its annual income in 2015/16 was £585m.

Blood and its components are a major cost for a hospital of this size and type, which typically has to handle five massive haemorrhages every week.

What the trust did

In 2011, a national comparative audit of red blood cell use in medicine revealed that many hospitals were giving red blood cells or blood inappropriately. UHCW was aware, from information provided by NHS Blood Transfusion, that it was a high user of blood, even after taking account of its size. As a result, it decided to undertake

a serious review of clinical practice in the trust's use of blood.

An important point to make is that the review of blood usage was not just about saving money, but a quality initiative as well. Patients who are given more blood than they really require have a slightly higher risk of infection, and they also tend to stay in hospital rather longer than they otherwise would. Doctors often tended to give two transfusions, 'to be on the safe side', but this was not actually benefiting their patients.

In July 2014, national guidance was issued, *Patient blood management – an evidence-based approach to patient care*. Building on this, UHCW introduced a new policy in November that year, entitled *Don't use two until you review*. This stopped the habitual prescribing of two transfusions commonplace before, and significantly reduced usage.

Also in 2014, the trust gave all its doctors a 'red blood cell calculator and algorithm for assessing anaemia'. This helped doctors to calculate quickly the right amount of blood to give based on body weight for patients who were haemodynamically stable.

It also helped to reduce the usage of red blood cells significantly. Blood usage was measured quarterly. The trust also monitored patient activity by monitoring



the number of patients wearing patient identification wristbands.

This was found to be an accurate way of monitoring activity because all patients who have a blood transfusion have to wear an electronically issued wristband. It led to a 2% year-on-year reduction in the use of red blood cells in 2014/15 and a further 10% year-on-year reduction in 2015/16, resulting in an overall saving of about £250,000 a year. This occurred despite year on year increase in patient activity.

Using the most modern technology, the red blood cell calculator is now available as an app on mobile phones and on the hospital intranet (see figure 1). The app is easy to use and was developed in house.

UHCW also conducted a review of blood usage by selecting 20 patients in each of its medical and big blood user specialties. It found a consistent pattern of inappropriate blood usage in about a third of patients.

An internal review in 2015/16 led to further significant savings. These patients were randomly reviewed, and again it was found that some blood had been given inappropriately. When this was fed back to doctors, clinical practice started to change.

The budget for blood usage is devolved: each specialty is recharged

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for what it uses. But that in itself is not enough to manage usage. Each specialty is given regular reports on usage. And, at least as important, the work described here has demonstrated to doctors the clinical benefits of minimising the amount of blood they prescribe initially. The trust is doing further work on the link between blood usage and length of stay, concentrating initially on orthopaedics.

Overall the trust has managed to reduce its usage of blood products at a time when activity is increasing. In the first quarter of 2016/17 its usage of blood products was lower than in the first quarter of 2015/16, even though patient activity had increased.

The price of red blood cells increases by nearly 4% in April 2017, but the trust plans to manage this cost pressure by further efficiency.

Lessons learnt

The following lessons have emerged:

- Simply devolving a budget, through recharges, is not enough to ensure proper management of it. Much more information, and central drive, is needed.
- Doctors are very willing to change their clinical practice if it can be shown that it is not actually benefiting their patients. This is at least as strong a driver as the need to save money.
- Fairly simple technology such as apps and calculators can help to change practice. So can simple but easily memorable messages.
- There is more scope for savings in blood usage than many trusts may realise. ○

Figure 1: Red blood cell calculator app

Select indications for red blood cell transfusion

- Acute/ongoing blood loss ⓘ
- Symptomatic anaemia with no easily treatable cause ⓘ
- Long-term transfusion-dependent anaemia ⓘ
- Radiotherapy patient ⓘ
- Chemotherapy patient ⓘ