SERIOUS HAZARDS OF TRANSFUSION - THE UK NATIONAL HAEMOVIGILANCE SCHEME: 18 YEARS OF REPORTING SHOWS HUMAN ERROR IS THE MOST COMMON CAUSE OF ADVERSE INCIDENTS

Paula HB Bolton-Maggs[1 2], Alison Watt[1], Debbi Poles[1]

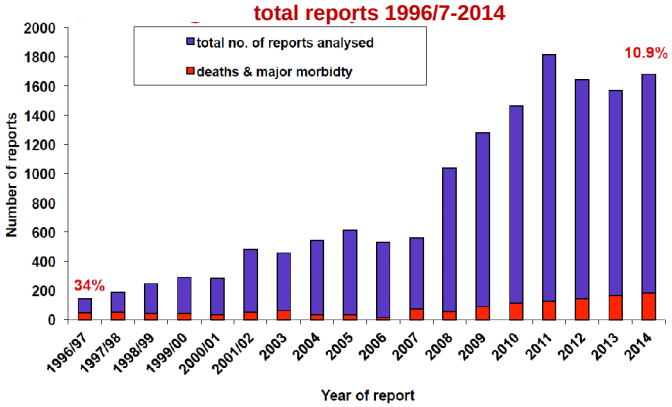
[1]Serious Hazards of Transfusion (SHOT) Office, Manchester, UK, [2]University of Manchester, UK, on behalf of the SHOT Steering Group.

Problem:

Blood transfusion is a useful and sometimes life-saving therapeutic intervention when used appropriately but carries risks of adverse reactions including major morbidity (currently 1 in 16,000 components issued) and death (1 in 180,000). Prior to the development of the UK Serious Hazards of Transfusion scheme (SHOT) there were very few data about complications including viral transmissions (HIV, hepatitis), haemolytic or other transfusion reactions, pulmonary complications, or wrong blood transfusion events. The emergence of the HIV epidemic and recognition of hepatitis transmission indicated a need for more accurate data to assist in health planning, and there was concern about mistakes resulting in death or serious injury from ABO mismatched transfusions for which there was no reporting mechanism. National data collection began in 1996.

The mission of SHOT is to improve patient safety by feedback and education to both participants and the Blood Services. The findings inform production of clinical and laboratory guidelines, and national policy on transfusion safety.

Figure 1: Deaths and major morbidity: percentage of total reports 1996/7-2014



Increased reporting over time has been associated with a reduction in the proportion of deaths and major morbidity (Fig 1) and some interventions at blood centres have reduced other complications (e.g. infection, TRALI).

However, SHOT reporting (cumulative data 14,822 reports: Fig 2) has demonstrated that 78% of incidents are caused by human error, and this proportion has not reduced over time despite introduction of protocols, guidelines, and transfusion training. Adverse incidents caused by error should be completely preventable, but other reactions are idiosyncratic and not easily prevented, particularly acute allergic, hypotensive or febrile (ATR).

Strategy: The SHOT scheme is targeted at all hospitals in the UK where transfusion of blood or its components occurs. In 1996, the first year, only 22% of hospitals responded. Reporting is confidential, patient identity details are not collected, and hospitals are not identified. Participation is now almost universal. In 2014, UK hospitals made a total of 3668 reports. The definitions of what to report have been modified over the years, and now include 'near miss' events. An annual report is published each July, see www.shotuk.org

Figure 2: SHOT reports 1996-2014 cumulative data

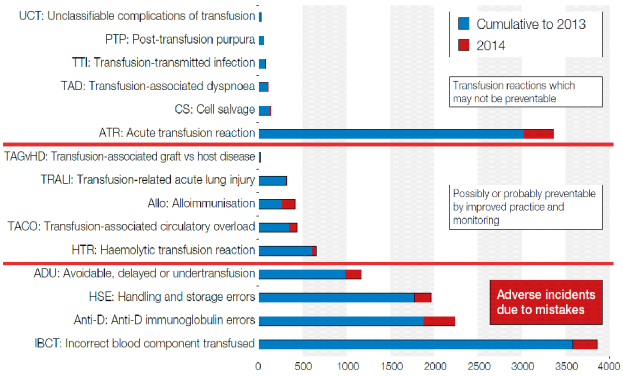
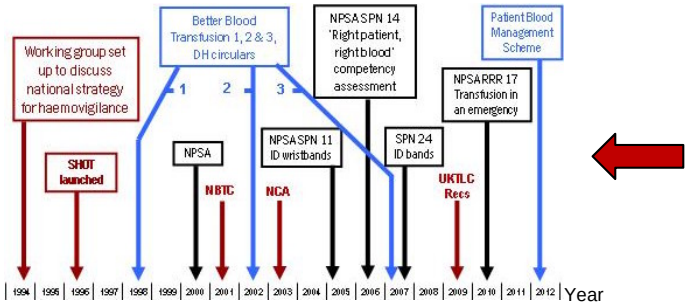


Figure 3: Transfusion patient safety initiatives



SHOT findings contributed to 3 Department of Health transfusion safety initiatives 'Better Blood Transfusion' (1998, 2002 and 2007), the formation of a national blood transfusion committee (NBTC), the development of a national comparative audit programme (Fig 3), and changes in transfusion practice to increase safety. In common with other areas of medicine, more work is needed to reduce errors which are compounded by poor communication, shifts, rushing and understaffing.

Action required

Human factors are now recognised as having a significant impact on patient safety and more work is required to minimise their impact, including introduction of checklists