APAGBI SURVEY AND AUDIT SUB-COMMITTEE

Survey Title:
Intra-operative over-transfusion of blood and blood products in infants and neonates

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Brief Description of Purpose:

A recent NPSA (http://www.nrls.npsa.nhs.uk) rapid response report "Prevention of over infusion of intravenous fluid and medicines in neonates" (NPSA2010/RRR/015) sets out actions required to avoid the inadvertent over infusion of fluids or medicines to neonates. This advice does not, however apply to the transfusion of blood or blood products. A common practice during neonatal and infant anaesthesia, when transfusion of blood or blood products is necessary, is to draw up an aliquot of fluid into a syringe attached to the blood product bag and the infant via a three-way tap. This is in keeping with the current British Committee for Standards in Haematology Guideline.
http://www.bcshguidelines.org/pdf/Admin_blood_components050110.pdf

There is however a possibility of inadvertent over infusion if the three-way tap is left open both to the blood product bag and the infant following the administration of an aliquot from the syringe. Two such events have recently been reported at our institution. The use of a two-way (or "L") tap rather than a three-way tap is a simple way to avoid this problem. The advantage of such a system is acknowledged in the supporting evidence to the NPSA report.

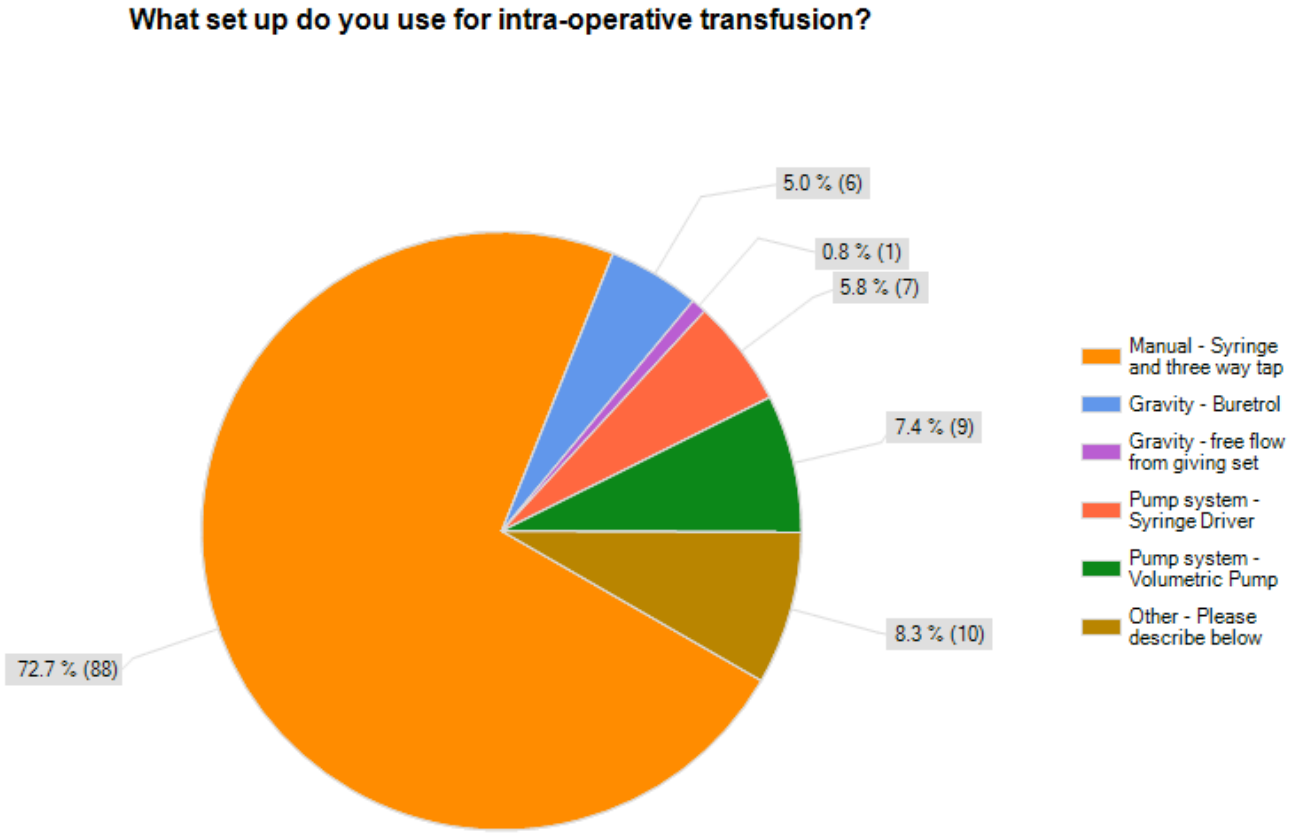
This short survey was sent to all APA members to define current practice, quantify accidental over-transfusion in this patient group and investigate interest in the development of a two-way "L" tap, which may be a simple solution to this problem. Further details about the L-Tap can be found at www.l-tap.org

Category of Membership Surveyed: All

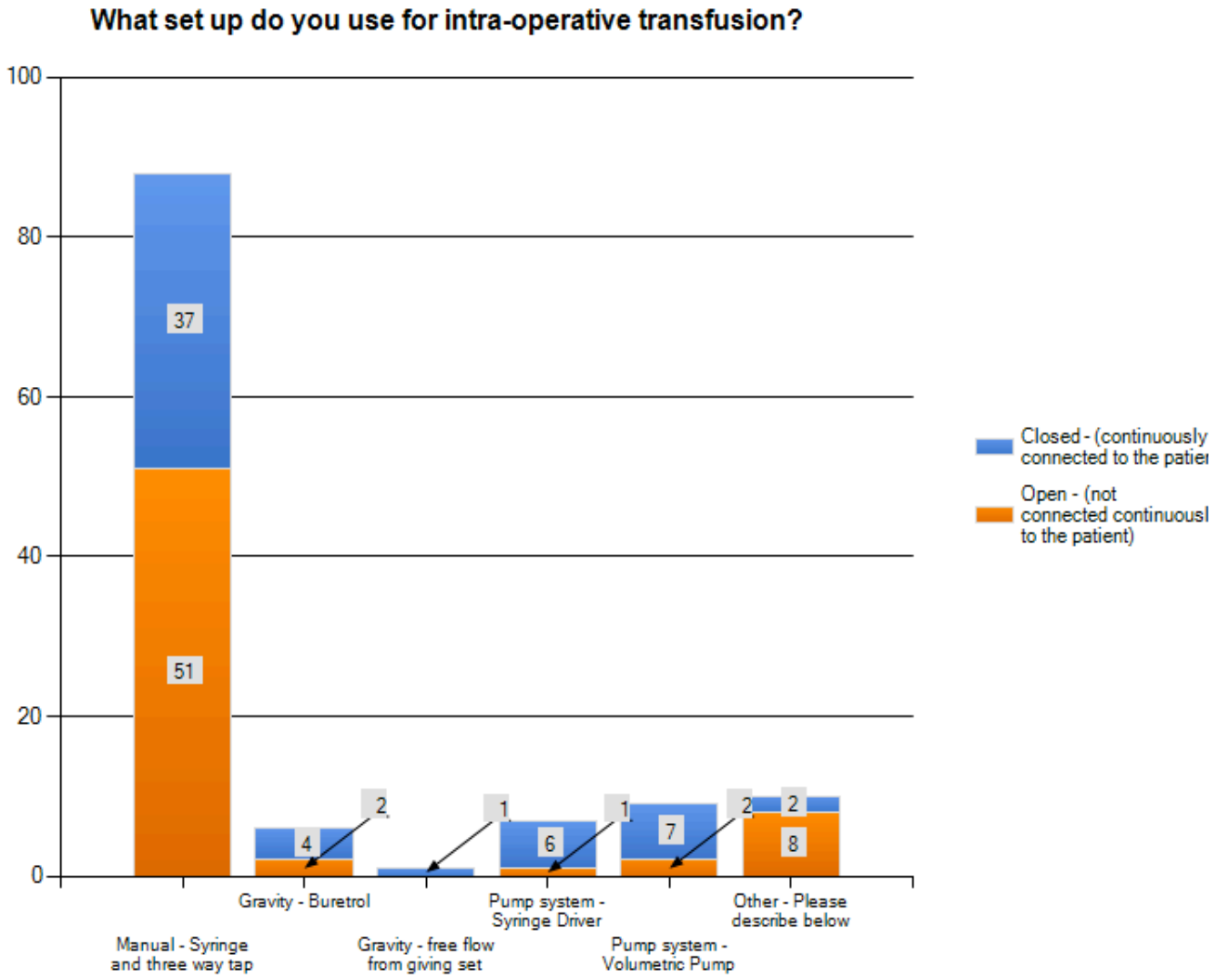
Dates of Survey:
October 2011 – May 2012

Number of Responses:
121

Outline Findings of Survey



Most often used (72.7%) was the syringe and three way tap.
In the category 'Other ' all referred to the drawing up blood separately from a bag (open system).



Every set-up, apart from gravity- free flow, was used either as a closed or as an open system. The open system was more often used 64 (52.9%) in comparison with the closed system 57 (47.1%).

38 (31.4%) thought the system they currently use carries a risk of over-transfusion.
78 (64.5 %) think that over-transfusion is a clinically significant problem in this patient group.
98 (81%) take measures to avoid over-transfusion. Most often mentioned (26) is the use of an open system instead of a closed system. Extra vigilance, Hb monitoring, more three way taps in row, use of burette, volume pump or syringe are the other measures mentioned.

Accidental over-transfusion seems to be a problem as 16.5% (20) have encountered it. In 5 cases (4%) this over-transfusion was clinically significant and in 1 case potentially. In 4 cases the three-way tap was used in a closed system and once the buretrol was used. Measures implemented to prevent recurrence are the change from closed to open system, 3 three-way taps in row, and the use of volumetric pumps, extra vigilance and better education.
66.9 % (81) thought that the introduction of a two-way ("L") tap would be useful for the administration of blood products to neonates and infants.

Conclusion:
Different systems are used for blood transfusion in neonates and infants with a preference for the use of a syringe and three-way tap system in which the blood is manually given. The above-mentioned system is most often used as an open system even though a closed system would be preferable in keeping with the current British Committee for standards in Haematology Guideline. The open system is preferred as it is recognised to create less risk of over-transfusion in neonates and infants, which is seen by 64.5% as a clinically significant problem. Hb measurements, volumetric pumps, burettes, syringe and extra vigilance are also mentioned as measures to decrease risk for over-transfusion. The use of a two-way ("L") tap would be helpful to decrease the risk of over-transfusion in a closed system and 66.9 % think it will be useful for administration of blood products to neonates and infants.

Intended Publication: In process of being submitted to Paediatric Anaesthesia

Date Submitted to Survey Lead: 23-5-2012

Submitted by: Lonneke Bergmans