Intravenous Iron is effective in reducing the need for blood transfusion in Acute Medical Settings

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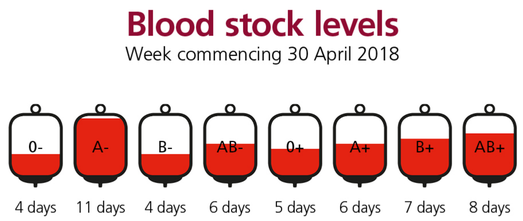
INTRODUCTION

Blood transfusions are necessary for patients with **significant symptomatic anaemia** in acute medical settings. NHS England issues approximately **1.5 million units** of packed red cells per year accounting for a need of 31 units per thousand population (1). However given the **attendant risks** of blood transfusions, coupled with **supply shortages** we aimed to evaluate whether the increasing use and availability of **intravenous (IV) iron** in these patients may reduce the need and frequency for blood transfusions.



METHODS

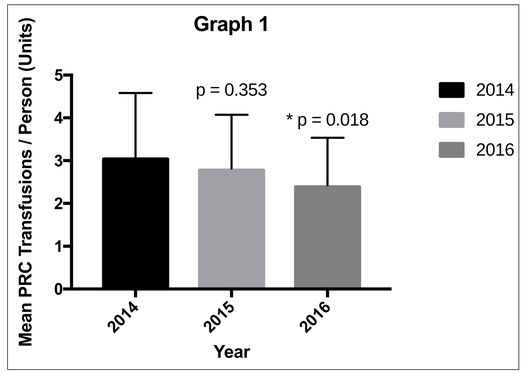
The following IT systems were interrogated: Electronic Patient Record, Integrated Clinical Environment (requests and results) and E-Prescribing and Medicines Administration.

A list of inpatient episodes was generated for the years 2014 - 2016 whose discharge summaries included one of the following coded diagnoses: anaemia, menorrhagia or gastrointestinal bleeding (using respective anatomical terms). These records were then reviewed to identify those who received packed red cell (PRC) transfusions. Those who did not receive PRC transfusions or were transfused as outpatients or a semi-elective day case setting were excluded. Pharmacy supply and distribution records for IV iron (Cosmofer or Ferinject) were obtained and were then cross-compared with those receiving PRC transfusions.

GraphPad Prism was used to generate graphs and statistical analysis (unpaired t-test).

RESULTS

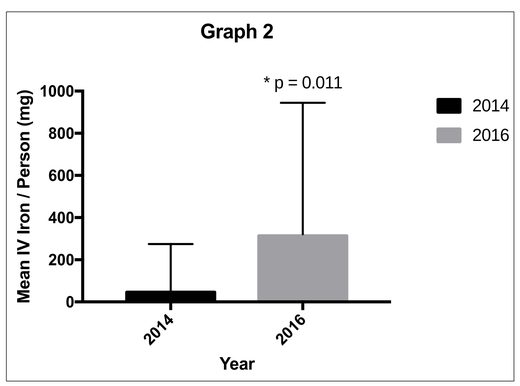
321 of 770 episodes received PRC transfusion. The overall units transfused were: 468 in 2014, 334 in 2015 and 309 in 2016; equating to an equivalent of 93,600mg, 66,800mg and 61,800mg of elemental iron (200mg/unit). For those coded with **anaemia (n=137),** there was a **significant reduction** in the **mean PRCs transfused** in **2016** compared to **2014** (Graph 1).



With regards to **IV iron preparations** the following table displays the raw data for all patients from 2014 - 2016:

Year	Total Elemental Iron (mg)	Mean Dose / Administration (mg)	Ferinject 500mg Doses	Ferinject 1000mg Doses	Cosmofer 100 - 1600mg (Variable Doses)
2014	168,400	923	10	87	86
2015	229,000	970	14	222	0
2016	387,500	969	25	375	0

Using the same sample population as Graph 1 (those coded with **anaemia**), we note a **significant increase** in the **mean amount of IV iron administered** in **2016** compared to **2014** (Graph 2).



CONCLUSIONS

Over three consecutive years, this retrospective study demonstrates an **overall reduction in the number of PRC transfusions** given to inpatients with anaemia, GIB, or menorrhagia, and **an increase in IV iron (mg) administered**. Furthermore, for patients coded with **anaemia** in **2014** and **2016**, the data indicates a **significant change** in administration of both PRCs and IV iron.

This **correlative data** is suggestive that the **increased utilisation of IV iron contributes to a reduction in PRC transfusions.** This is particularly evident in those patients with **anaemia as opposed to overt bleeding**.

The primary reasons for our findings include: the increased availability of parenteral iron, promulgation of a lower haemoglobin level at which to transfuse and the increased availability of elective day-case management of patients requiring transfusion.

This growing change in practice to use **IV iron instead of PRC transfusions** in anaemic patients in acute medical settings is likely to result in **safer patient care** and help **alleviate the ever growing demand** for both blood products and their respective donors within the UK.

REFERENCES

(1) **NHS Blood and Transplant.** *Blood 2020: A strategy for the blood supply in England and North Wales* : NHS England, 2014.

ACKNOWLEDGEMENTS

These presenters have the following declarations of relationship with industry: None