

Maturity assessment model in PBM (MAPBM) to identify the variability of clinical transfusion and outcomes of the most relevant clinical processes

MAPBM WORKGROUP SPAIN :

E. Bisbe, C. Jericó, X. Soler, JM García Gala, C. Fernández, M. Barquero, L. Diez, V. Dueñas, A. Morales de la Paz, C. Basora, A.Peral, C. Casinello, A. Abad, V. Mazo, L. Olmedilla, A. Camino, P. Rico, D. Vilariño

HOSPITALS MAPBM 2016:

Hospital Parc Taulí,	Hospital Marina Salud de Denia	Hospital de Santiago
Hospital Clínic de Barcelona	Hospital Germans Trias i Pujol	Hospital Moisès Broggi
Hospital de Burgos	Centre medico Teknon	Hospital Miguel Servet
Hospital Puerta del Hierro	Hospital Gregorio Marañón	Hospital Central de Asturias (HUCA)
Hospital de Mataró (CS Maresme)	Hospital del Parc de Salut Mar	Hospital Universitario de Donostia
Hospital de Vic	Hospital de Torrejón	Hospital de Cabueñes
	Hospital Virgen de la Arrixaca	

INTRODUCTION

Transfusion is one of the most overused procedures with an important impact in outcomes. The clinical practice suffers from wide variability of results among hospitals for the same clinical process. Key performance indicators (KPIs) and benchmarking are extremely powerful tools to transform organizations. The aim of this study is to identify the transfusion variability and their influence in major outcomes using MAPBM tool.

METHODS

The proposed model is a maturity matrix structured in a form of a scorecard, containing the relevant dimensions of a PBM transformation process – organization, processes, training and information systems – and classified in four maturity levels (basic, initial, advanced, excellent)

A total of 18 hospitals and 1 year data from 2015 of the most blood consuming procedures (Hip and Knee arthroplasty, Colo-rectal cancer resection, Cardiac valve replacement, hip fracture surgery, acute digestive hemorrhage), were included in the study.

Transfusion, length of stay and morbi-mortality were obtained from hospitals database information. Transfusion results were, in turn, correlated to outcomes: in-hospital mortality, length of stay and complications adjusted by age, gender and comorbidity using the Elixhauser index.

RESULTS

Overall, 16.124 inpatient were included. Those admissions covered 100% of inpatient activity for this 6 specific procedures in 2015.

The mean patient age was 72 years and near 55% were women. Of these patients, **36.2%** received at least one unit of RBCs.

Patients undergoing primary unilateral total hip replacement (THR, n = 2191), primary unilateral knee replacement (TKR, n = 3434), open colorectal cancer surgery (OCRCS, n = 899) laparoscopic (LCRCS, n=662), cardiac valve replacement (CVR, n=1577), hip fractures (HF, n=3845) and acute gastrointestinal bleeding (AGIB, n=3516) were included.

There was a large inter-center variability in percentage of patients who received RBC transfusion (figure1)

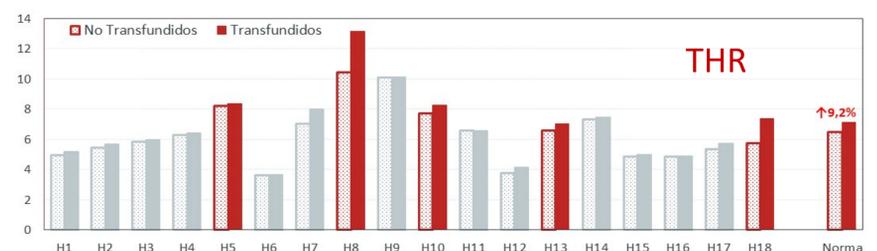
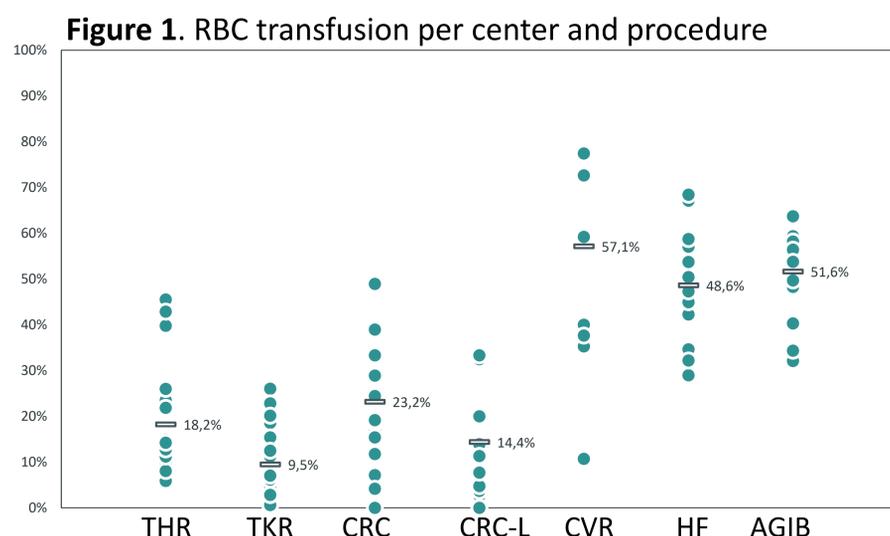


Figure 2: Length of stay and RBC transfusion

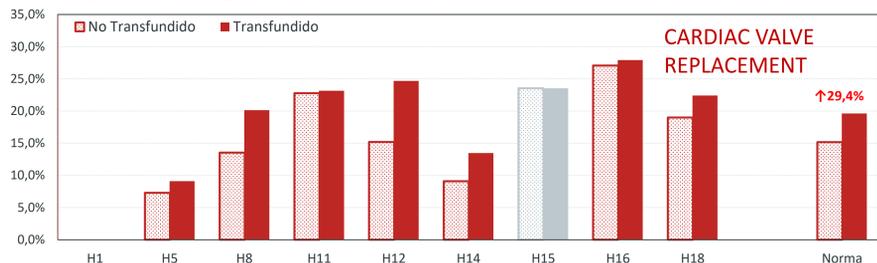


Figure 3: postoperative complications and RBC transfusion

The length of stay was significantly higher in transfused patients: 9.2% for THR (P=0.012), 4.3% in TKR (p=0.003), 33.8% in VCS patients (P= 0.000), 13.2% in HF (P=0.000) and 54.9% for acute gastrointestinal bleeding patients (P=0.000) (Figure 2).

Major complication were significantly higher in transfused cardiac valve replacement patients (29.4% P=0.01), transfused HF (54.3% P=0.01) and transfused gastrointestinal bleeding patients (32.9% P=0.01) (Figure3).

Conclusions

This work has demonstrated the feasibility of MAPBM tool to measure and risk-adjust benchmark the transfusion and outcomes results among hospitals. MAPBM has noted the high inter-center variability of RBC transfusion for the same procedure and its impact in the outcomes.

ACKNOWLEDGMENTS: to Vifor Pharma España® and IASIST