UNIVERSITY HOSPITAL FRANKFURT
GOETHE UNIVERSITY

Practical Implementation of PBM in Frankfurt/Main, Germany

Dr. Markus M. Mueller, M.D.

Institute for Transfusion Medicine and Immunohematology
GRC Blood Transfusion Service Baden-Württemberg – Hessen
Director: Prof. Dr. Dr. Erhard Seifried

Department of Anesthesiology, Intensive Care Medicine and Pain Therapy
Director: Prof. Dr. Dr. Kai Zacharowski, FRCA

The TRICC Trial

The New England Journal of Medicine

VOLUME 340 FEBRUARY 11, 1999 NUMBER 6

A MULTICENTER, RANDOMIZED, CONTROLLED CLINICAL TRIAL OF TRANSFUSION REQUIREMENTS IN CRITICAL CARE

PAUL C. HÉBERT, M.D., GEORGE WELLS, PH.D., MORRIS A. BLAJCHMAN, M.D., JOHN MARSHALL, M.D., CLAUDIO MARTIN, M.D., GIUSEPPE PAGLIARELLO, M.D., MARTIN TWEEDDALE, M.D., PH.D., IRWIN SCHWEITZER, M.SC., ELIZABETH YETISIR, M.SC., AND THE TRANSFUSION REQUIREMENTS IN CRITICAL CARE INVESTIGATORS FOR THE CANADIAN CRITICAL CARE TRIALS GROUP*

TRICC

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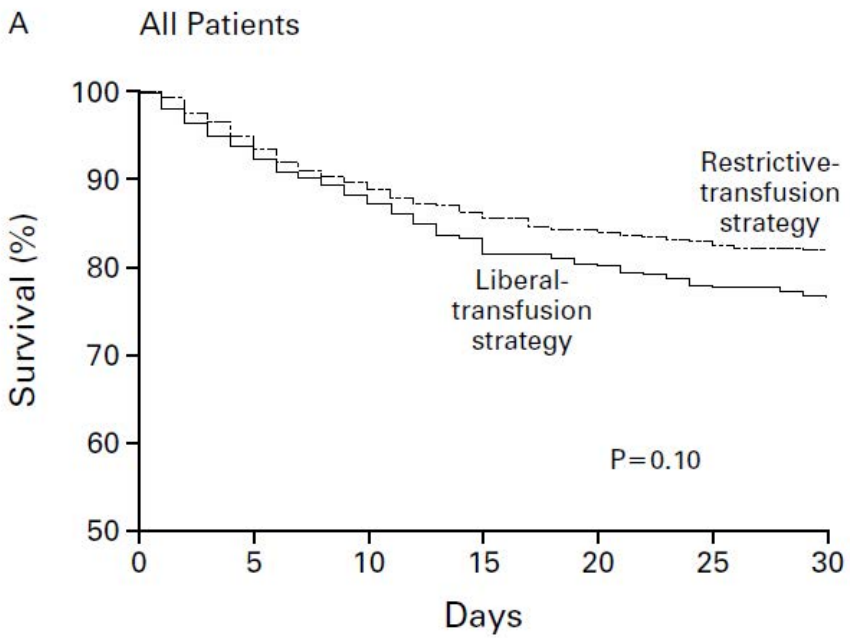
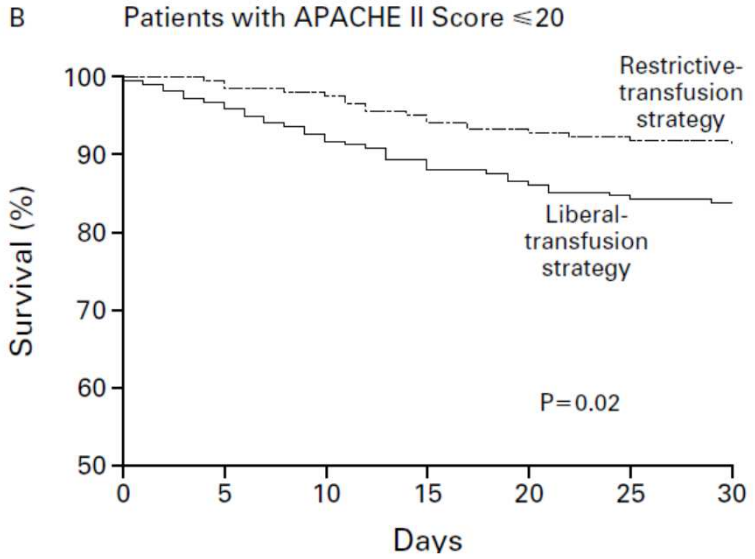
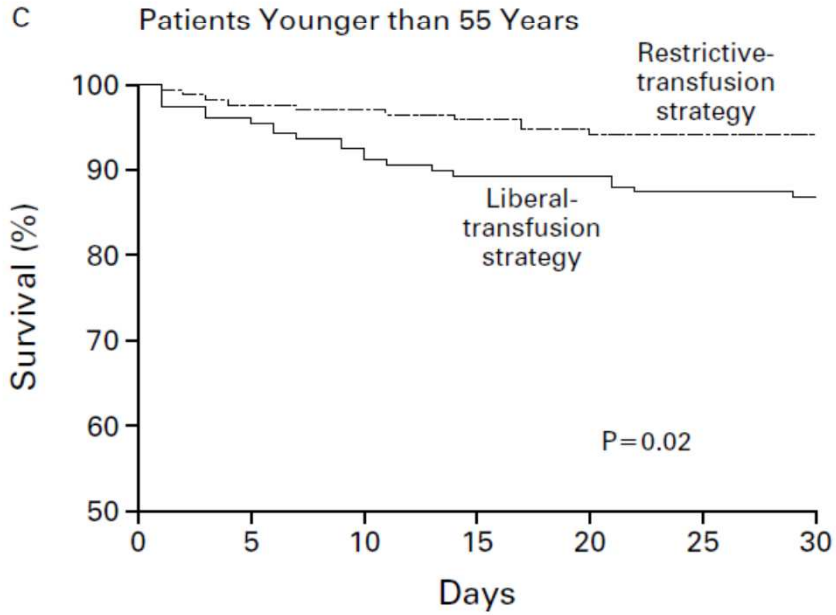
TRICC Trial (Hebert et al., 1999)







The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 29, 2011 VOL. 365 NO. 26

Liberal or Restrictive Transfusion in High-Risk Patients after Hip Surgery

Jeffrey L. Carson, M.D., Michael L. Terrin, M.D., M.P.H., Helaine Noveck, M.P.H., David W. Sanders, M.D., Bernard R. Chaitman, M.D., George G. Rhoads, M.D., M.P.H., George Nemo, Ph.D., Karen Dragert, R.N., Lauren Beaupre, P.T., Ph.D., Kevin Hildebrand, M.D., William Macaulay, M.D., Courtland Lewis, M.D., Donald Richard Cook, B.M.Sc., M.D., Gwendolyn Dobbin, C.C.R.P., Khwaja J. Zakriya, M.D., Fred S. Apple, Ph.D., Rebecca A. Horney, B.A., and Jay Magaziner, Ph.D., M.S.Hyg., for the FOCUS Investigators*

FOCUS

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FOCUS

The NEW ENGL
JOURNAL of MEI

ESTABLISHED IN 1812 DECEMBER 29, 2011

Liberal or Restrictive Transfusion in
after Hip Surgery

Jeffrey L. Carson, M.D., Michael L. Terrin, M.D., M.P.H., Helaine Nov
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Donald Richard Cook, B.M.Sc., M.D., Gwendolyn Dobbin, C.C.R.P., Khwa
Rebecca A. Horney, B.A., and Jay Magaziner, Ph.D., M.S.Hyg.,

CONCLUSIONS

A liberal transfusion strategy, as compared with a restrictive strategy, did not reduce rates of death or inability to walk independently on 60-day follow-up or reduce in-hospital morbidity in elderly patients at high cardiovascular risk. (Funded by the National Heart, Lung, and Blood Institute; FOCUS ClinicalTrials.gov number, NCT00071032.)

TRIM: Transfusion Related Immunomodulation

Liberal versus restrictive blood transfusion strategy: 3-year survival and cause of death results from the FOCUS randomised controlled trial

FOCUS

Jeffrey L Carson, Frederick Sieber, Donald Richard Cook, Donald R Hoover, Helaine Noveck, Bernard R Chaitman, Lee Fleisher, Lauren Beaupre, William Macaulay, George G Rhoads, Barbara Paris, Aleksandra Zagorin, David W Sanders, Khwaja J Zakriya, Jay Magaziner

Source: Lancet 2015;385:1183-9

Summary

Background Blood transfusion might affect long-term mortality by changing immune function and thus potentially increasing the risk of subsequent infections and cancer recurrence. Compared with a restrictive transfusion strategy, a more liberal strategy could reduce cardiac complications by lowering myocardial damage, thereby reducing future deaths from cardiovascular disease. We aimed to establish the effect of a liberal transfusion strategy on long-term survival compared with a restrictive transfusion strategy.

Findings Between July 19, 2004, and Feb 28, 2009, 2016 patients were enrolled and randomly assigned to the two treatment groups: 1007 to the liberal transfusion strategy and 1009 to the restrictive transfusion strategy. The median duration of follow-up was 3·1 years (IQR 2·4–4·1 years), during which 841 (42%) patients died. Long-term mortality did not differ significantly between the liberal transfusion strategy (432 deaths) and the restrictive transfusion strategy (409 deaths) (hazard ratio 1·09 [95% CI 0·95–1·25]; p=0·21).

Interpretation Liberal blood transfusion did not affect mortality compared with a restrictive transfusion strategy in a high-risk group of elderly patients with underlying cardiovascular disease or risk factors. The underlying causes of death did not differ between the trial groups. These findings do not support hypotheses that blood transfusion leads to long-term immunosuppression that is severe enough to affect long-term mortality rate by more than 20–25% or cause of death.

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Coronary Artery Disease **MINT**

Liberal versus restrictive transfusion thresholds for patients with symptomatic coronary artery disease

Jeffrey L. Carson, MD,[a] Maria Mori Brooks, PhD,[b] J. Dawn Abbott, MD,[c] Bernard Chaitman, MD,[d] Sheryl F. Kelsey, PhD,[b] Darrell J. Triulzi, MD,[e] Vankeepuram Srinivas, MD,[f] Mark A. Menegus, MD,[f] Oscar C. Marroquin, MD,[g] Sunil V. Rao, MD,[h] Helaine Noveck, MPH,[a] Elizabeth Passano, MS,[b] Regina M. Hardison, MS,[b] Thomas Smitherman, MD,[g] Tudor Vagaonescu, MD,[i] Neil J. Wimmer, MD,[j] and David O. Williams, MD[j] *New Brunswick, NJ; Pittsburgh, PA; Providence, RI; Saint Louis, MO; New York, NY; Durham, NC; and Boston, MA*

Results Baseline characteristics were similar between groups except age (liberal, 67.3; restrictive, 74.3). The mean number of units transfused was 1.6 in the liberal group and 0.6 in the restrictive group. The primary outcome occurred in 6 patients (10.9%) in the liberal group and 14 (25.5%) in the restrictive group (risk difference = 15.0%; 95% confidence interval of difference 0.7% to 29.3%; $P = .054$ and adjusted for age $P = .076$). Death at 30 days was less frequent in liberal group (n = 1, 1.8%) compared to restrictive group (n = 7, 13.0%; $P = .032$).

Conclusions The liberal transfusion strategy was associated with a trend for fewer major cardiac events and deaths than a more restrictive strategy. These results support the feasibility of and the need for a definitive trial. (Am Heart J 2013;165:964-971.e1.)

Pilot study: n= 110 patients with symptomatic ACS or stable angina prior to cardiac cath. procedure

The NEW ENGLAND JOURNAL of MEDICINE

TITRe2

ESTABLISHED IN 1812 MARCH 12, 2015

N Engl J Med 2015;372:997-1008.
DOI: 10.1056/NEJMoa1403612

Liberal or Restrictive Transfusion after Cardiac Surgery

RESULTS

CONCLUSIONS

A restrictive transfusion threshold after cardiac surgery was not superior to a liberal threshold with respect to morbidity or health care costs. (Funded by the National Institute for Health Research Health Technology Assessment program; Current Controlled Trials number, ISRCTN70923932.)

ratio, 1.11; 95% confidence interval [CI], 0.91 to 1.34; P=0.30); there was no indication of heterogeneity according to subgroup. There were more deaths in the restrictive-threshold group than in the liberal-threshold group (4.2% vs. 2.6%; hazard ratio, 1.64; 95% CI, 1.00 to 2.67; P=0.045). Serious postoperative complications, excluding primary-outcome events, occurred in 35.7% of participants in the restrictive-threshold group and 34.2% of participants in the liberal-threshold group. Total costs did not differ significantly between the groups.

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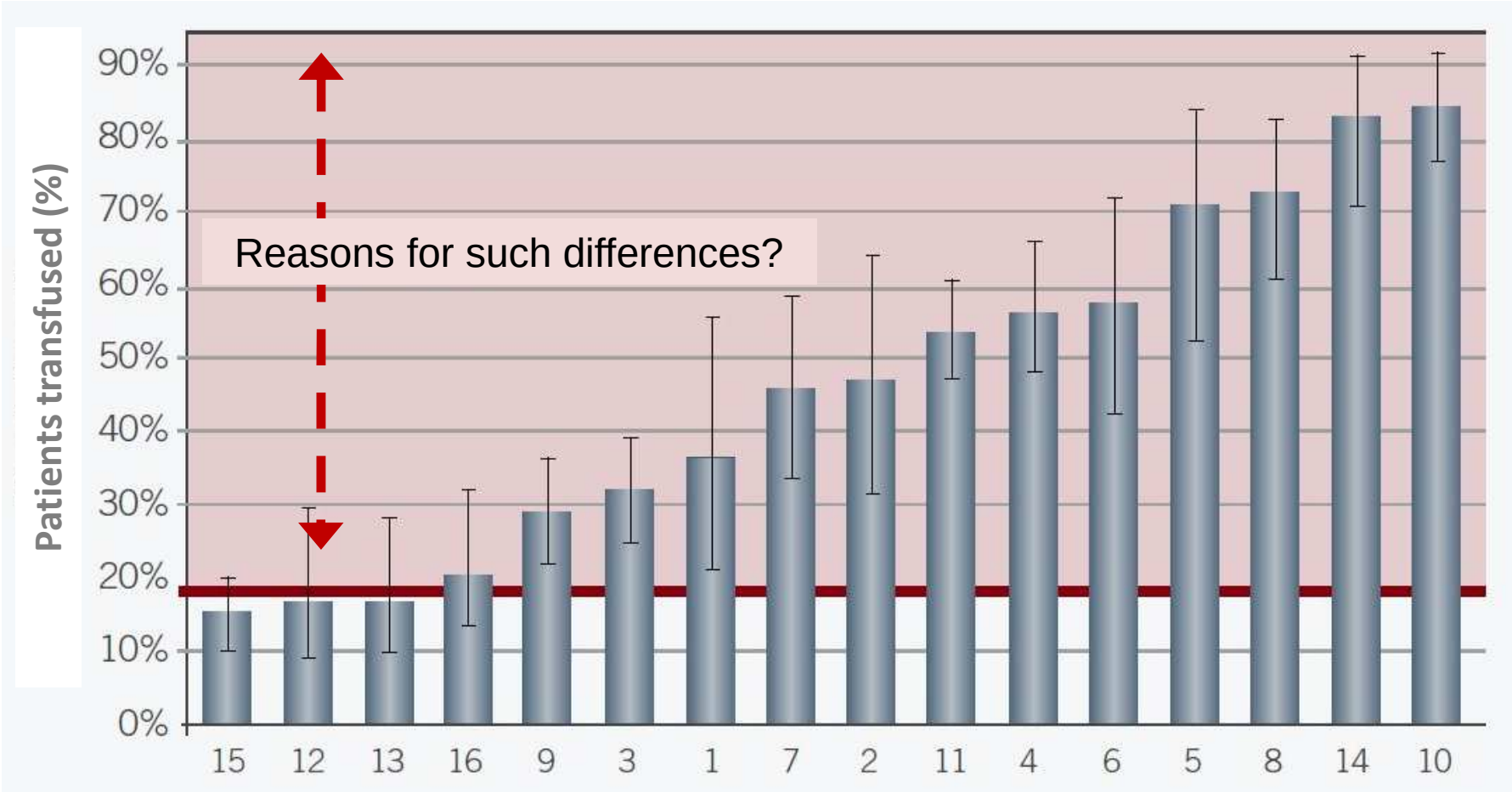
Once in the hospitals .....



Austrian Benchmark Study I: n=2.600 knee or hip surgery

Gombotz H et al. *Transfusion* 2007;47:1468-1480

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Problem: preoperative anemia

Preoperative anaemia and postoperative outcomes in non-cardiac surgery: a retrospective c

Khaled M Musallam, Hani M Tamim, Toby Richards, Donat R Spahn, Frits R Rosendaal, Aid
Kaivan Khavandi , Pierre M Sfeir, Assaad Soweid, Jamal J Hoballah, Ali T Taher, Faek R Jama

Lancet 2011; 378: 1396–407
Published Online October 6, 2011 DOI:10.1016/S0140-6736(11)61381-0

See Comment page 1362

Department of Internal Medicine (K M Musallam MD, H M Tamim PhD, A Soweid MD, Prof A T Taher MD), Department of Surgery (A Habbal BSN, M Khreiss MD, F S Dahdaleh MD, P M Sfeir MD, Prof J J Hoballah MD, F R Jamali MD), American University of Beirut Medical Center, Beirut, Lebanon; Angelo Bianchi Bonomi Haemophilia and Thrombosis Centre, Fondazione IRCCS Cà Granda, Ospedale Maggiore Policlinico, Milan, Italy (K M Musallam); College of Medicine, King Abdullah International Medical Research Center, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia (H M Tamim); Division of Surgery and Interventional Science, University College London Hospital, London, UK

Summary

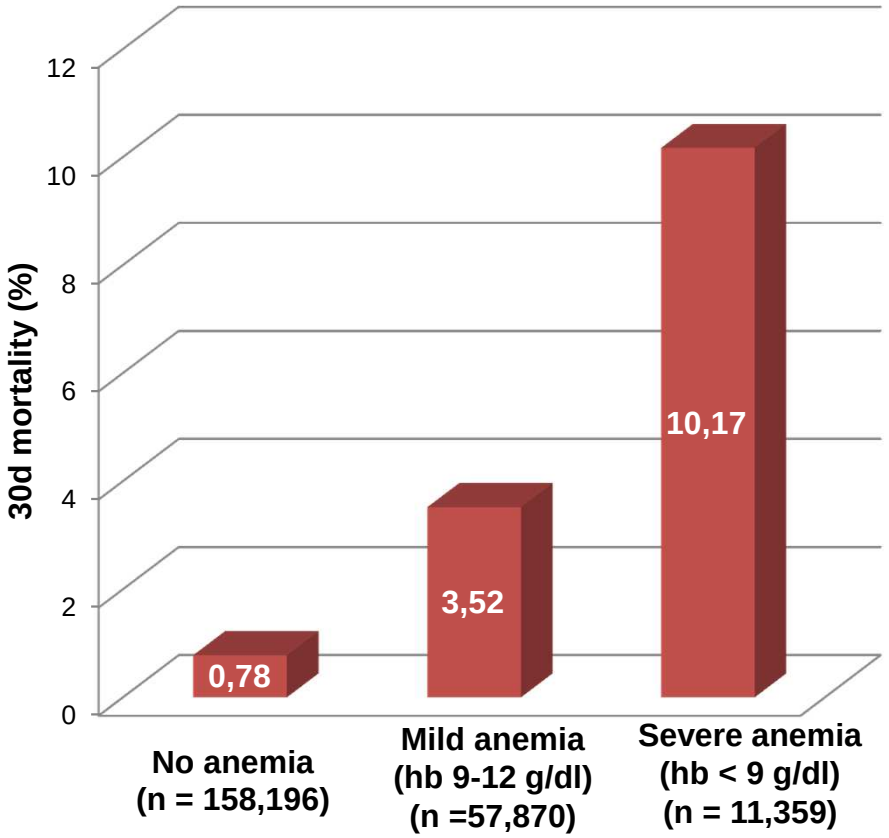
Background Preoperative anaemia is associated with adverse outcome non-cardiac surgery are not well established. We aimed to assess th postoperative morbidity and mortality in patients undergoing major nor

Methods We analysed data for patients undergoing major non-cardiac su Surgeons' National Surgical Quality Improvement Program database (a 211 hospitals worldwide in 2008). We obtained anonymised data fo respiratory, CNS, urinary tract, wound, sepsis, and venous thromb preoperative and perioperative risk factors. We used multivariate log modified (nine predefined risk factor subgroups) effect of anaemia, concentration >29–<39% in men and >29–<36% in women) or moder postoperative outcomes.

Findings We obtained data for 227 425 patients, of whom 69 229 (30·44%) postoperative mortality at 30 days was higher in patients with anaemia th 1·42, 95% CI 1·31–1·54); this difference was consistent in mild anaem anaemia (1·44, 1·29–1·60). Composite postoperative morbidity at 30 da than in those without anaemia (adjusted OR 1·35, 1·30–1·40), again co 1·26–1·36) and moderate-to-severe anaemia (1·56, 1·47–1·66). When c defined risk factor, patients with anaemia and most risk factors had a l morbidity than did patients with either anaemia or the risk factor alone.

Interpretation Preoperative anaemia, even to a mild degree, is indepe 30-day morbidity and mortality in patients undergoing major non-cardia

Funding Vifor Pharma.



- Musallam K et al. *Lancet 2011;378:1396-407*
- Retrospective, 227,425 patients

Evidence Based Medicine

Parachutes reduce the risk of injury after gravitational challenge, but their effectiveness has not been proved with randomised controlled trials

What is already known about this topic

Parachutes are widely used to prevent death and major injury after gravitational challenge

Parachute use is associated with adverse effects due to failure of the intervention and iatrogenic injury

Studies of free fall do not show 100% mortality

What this study adds

No randomised controlled trials of parachute use have been undertaken

The basis for parachute use is purely observational, and its apparent efficacy could potentially be explained by a "healthy cohort" effect

Individuals who insist that all interventions need to be validated by a randomised controlled trial need to come down to earth with a bump

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Klinikum der Goethe-Universität Frankfurt am Main
DRK-Blutspendedienst Baden-Württemberg - Hessen

BMJ

Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials

Gordon C S Smith and Jill P Pell

BMJ 2003;327:1459-1461
doi:10.1136/bmj.327.7429.1459

PBM in Frankfurt since 2013

Patient Blood Management

Clinical Project in Order to Improve

Patient Safety

Department of Anaesthesiology, Intensive Care Medicine and Pain Therapy

Institute for Transfusion Medicine and Immunohematology, German Red Cross Blood Transfusion Services

Patient Blood Management

a clinical project to improve patients´ safety

1. Screening, diagnosis and therapy of preoperative anemia prior to surgery with a high possibility of RBC transfusion (> 10%)

2. Restrictive use of RBC

3. Further blood-saving strategies

Restrictive blood sampling, Cell salvage, Temperature management, Point-of-care diagnostics, Coagulation management

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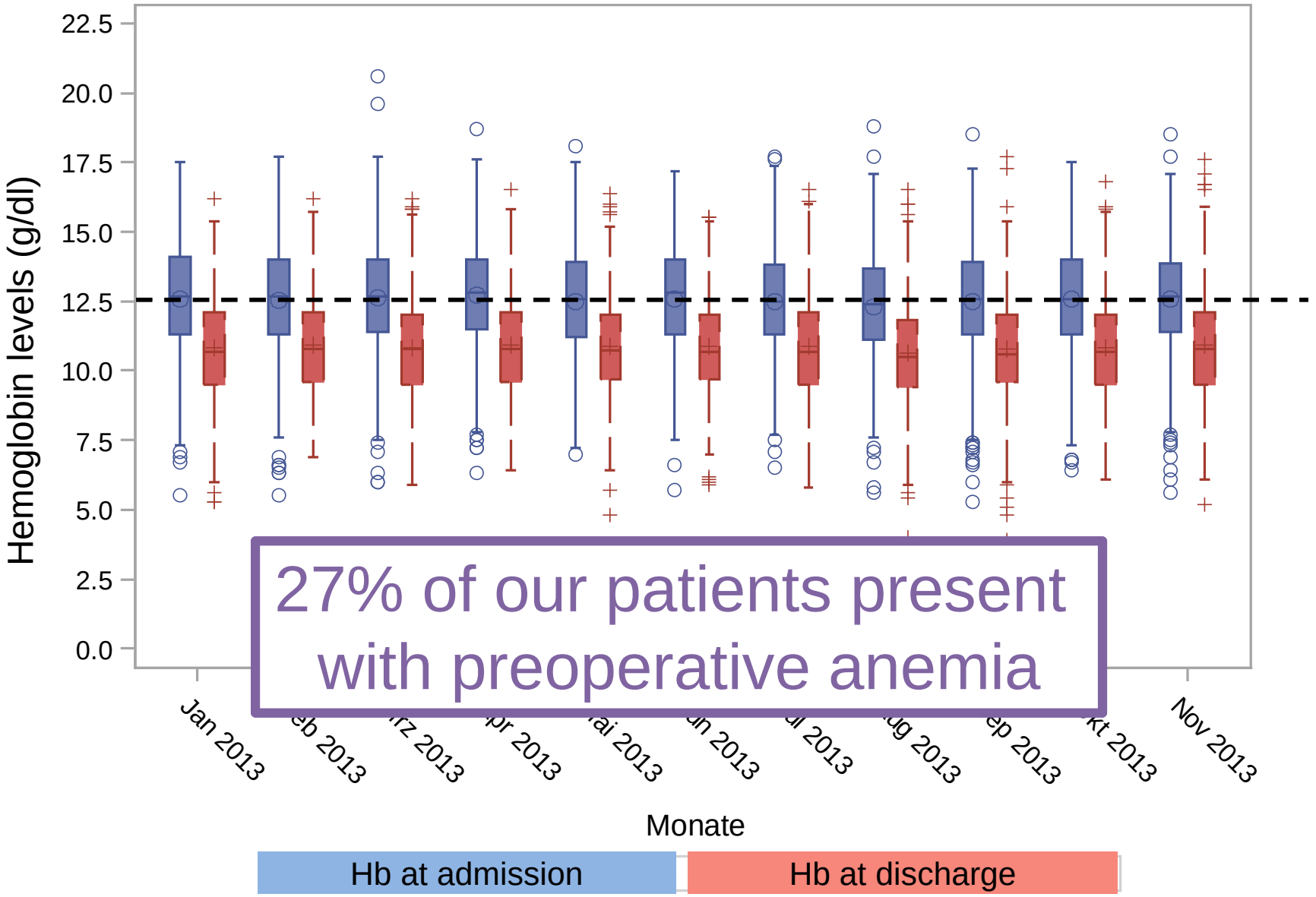
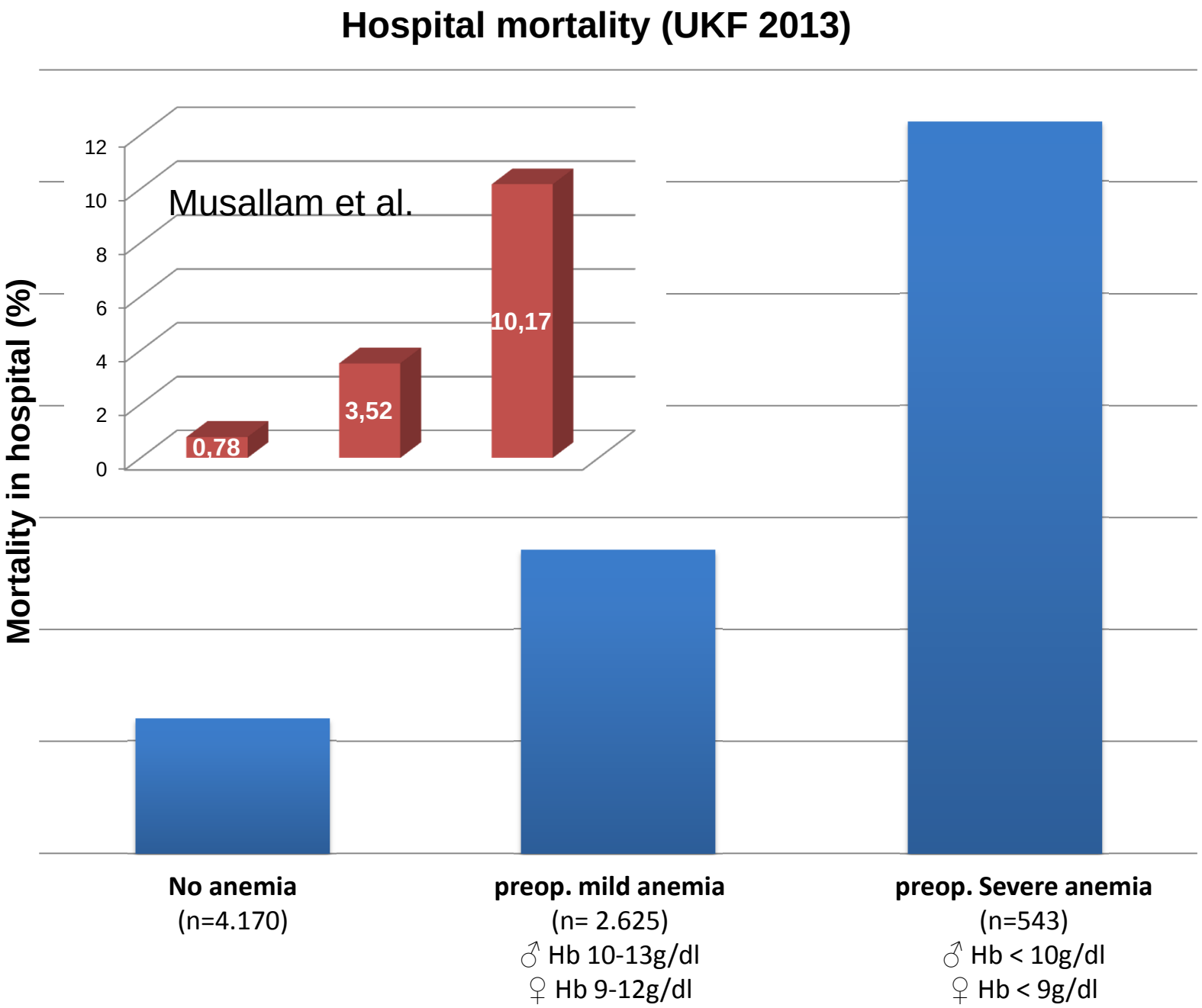
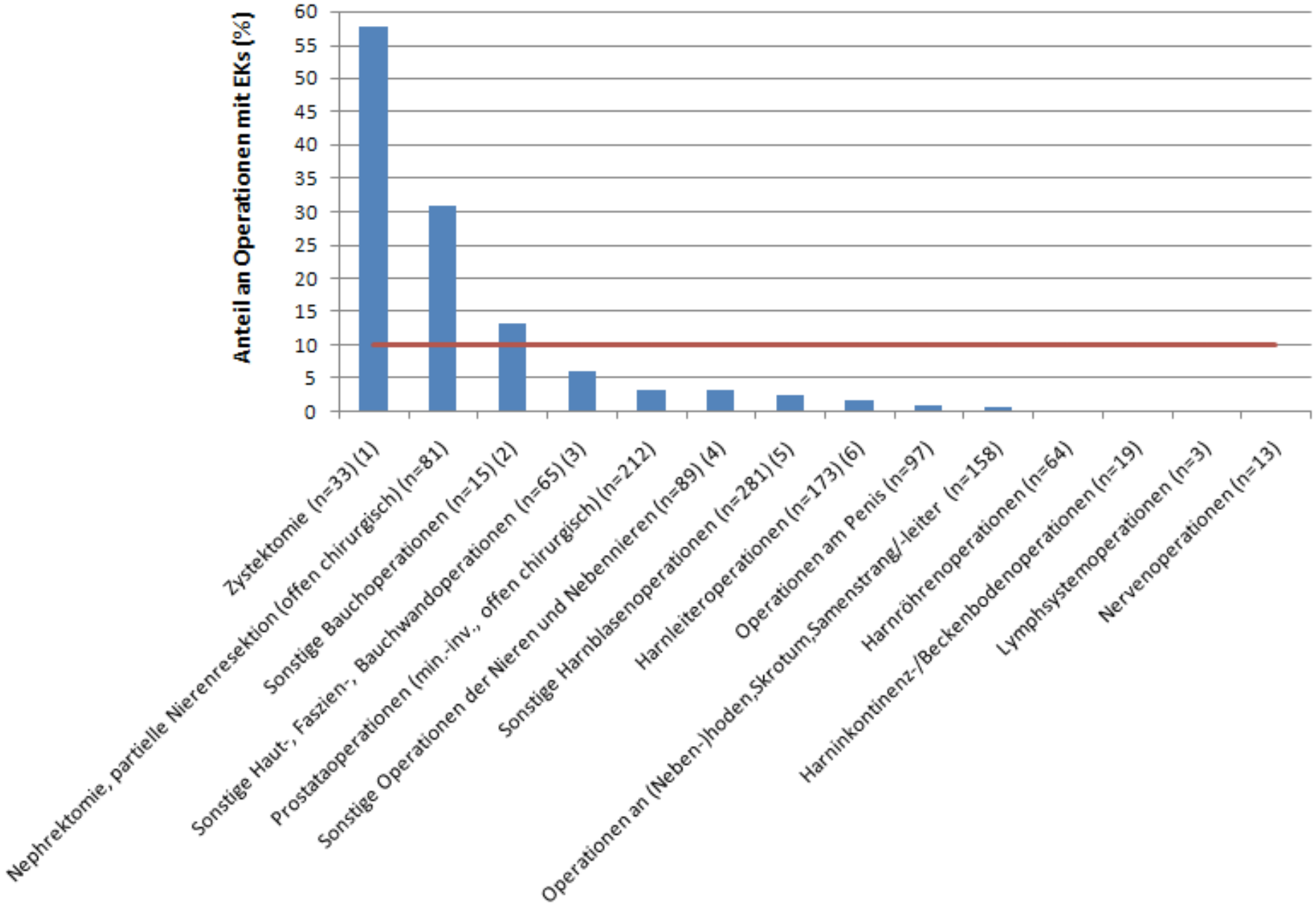
Prevalence of anemia in Frankfurt



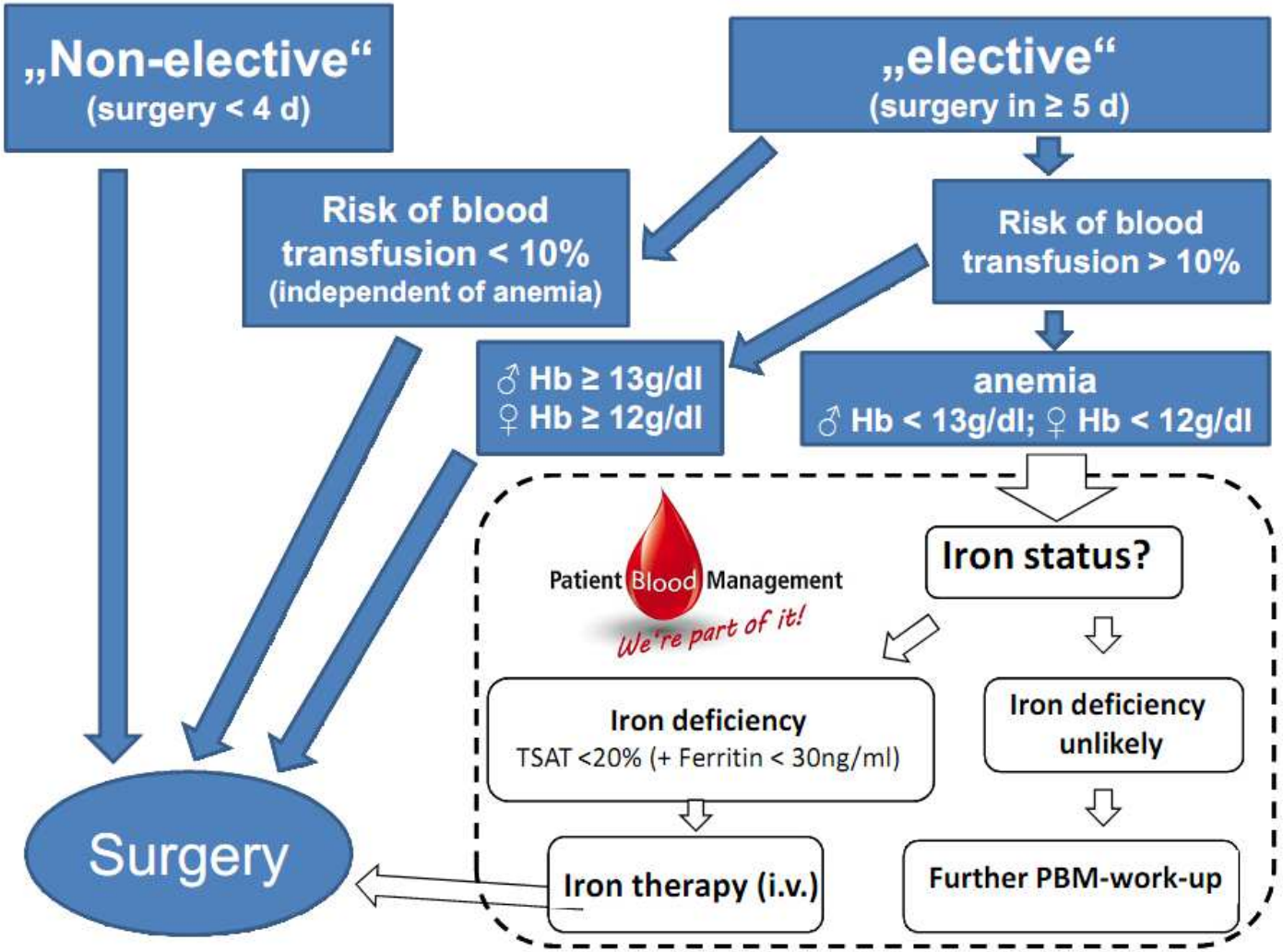
27% of our patients present with preoperative anemia


Hospital mortality (UKF 2013)
Mortality in hospital (%)
Musallam et al.
0,78
3,52
10,17
No anemia
(n=4.170)
preop. mild anemia
(n= 2.625)
♂ Hb 10-13g/dl
♀ Hb 9-12g/dl
preop. Severe anemia
(n=543)
♂ Hb < 10g/dl
♀ Hb < 9g/dl

Urologie


Anteil an Operationen mit EKs (%)
60
55
50
45
40
35
30
25
20
15
10
5
0
Zystektomie (n=33) (1)
Nephrektomie, partielle Nierenresektion (offen chirurgisch) (n=81)
Sonstige Bauchoperationen (n=15) (2)
Sonstige Haut-, Faszien-, Bauchwandoperationen (n=65) (3)
Prostataoperationen (min.-inv., offen chirurgisch) (n=212)
Sonstige Operationen der Nieren und Nebennieren (n=89) (4)
Sonstige Harnblasenoperationen (n=281) (5)
Harnleiteroperationen (n=173) (6)
Operationen am Penis (n=97)
Operationen an (Neben-)hoden,Skrotum,Samenstrang/-leiter (n=158)
Harnröhrenoperationen (n=64)
Harninkontinenz-/Beckenbodenoperationen (n=19)
Lymphsystemoperationen (n=3)
Nervenoperationen (n=13)

Preoperative SOP



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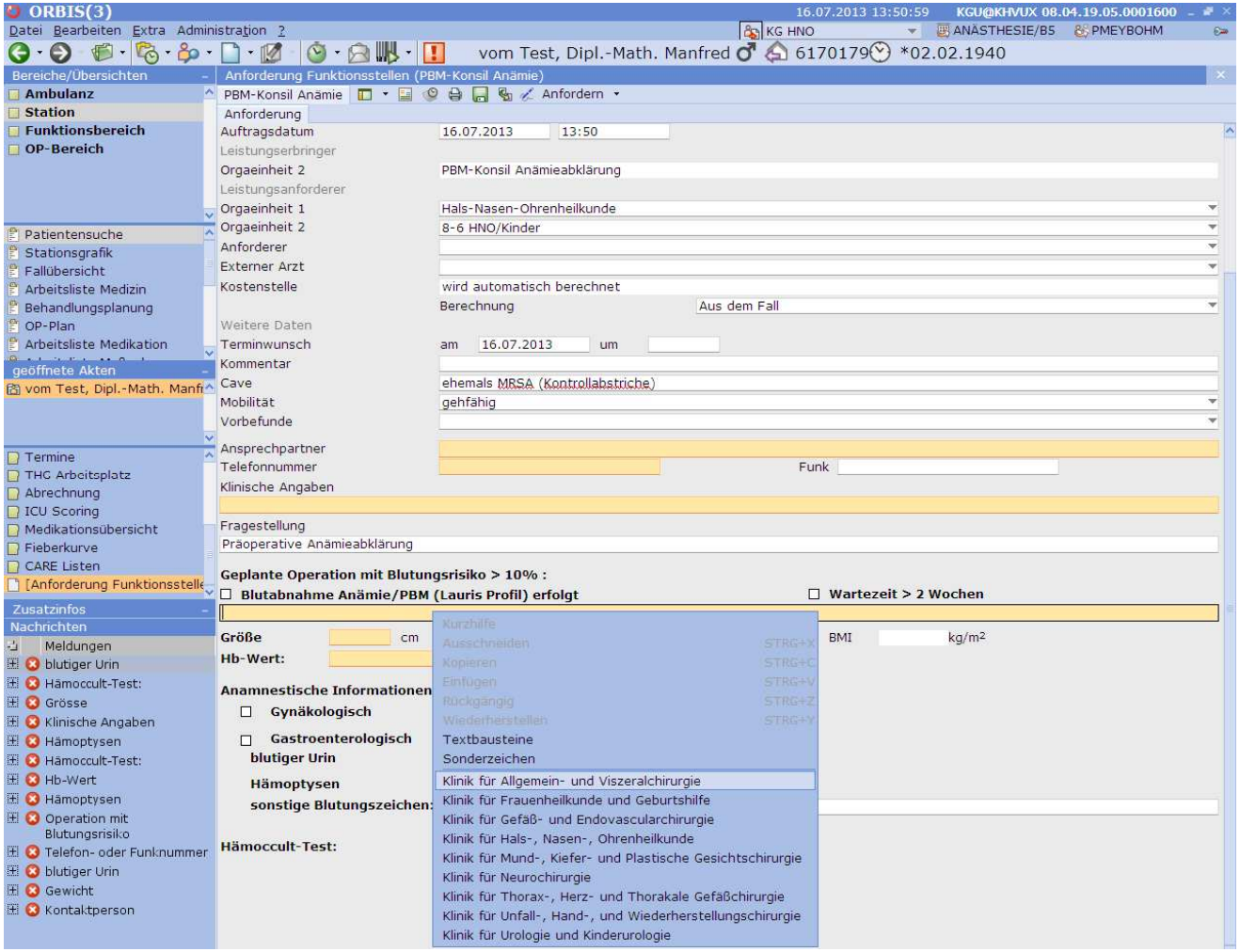
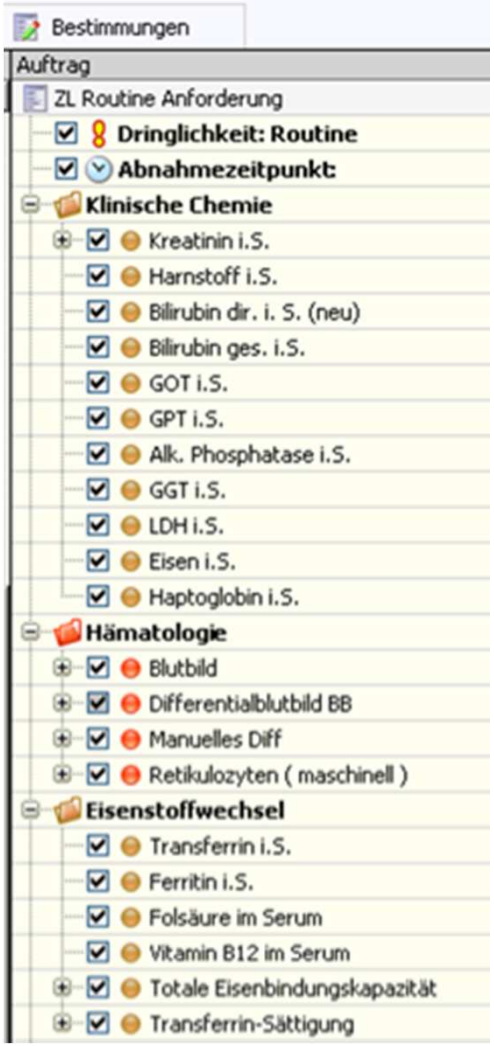
Make it simple: Diagnostic pathways





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PBM – out-patient clinics

- **male, 73 yrs., tentative dx: gastric cancer; no staging**
  - **PBM walk-in clinic: 09.07.2014**
    - **hemoglobin level 10.3 g/dl**
    - **ferritin 9 ng/ml; transferrin saturation: 5.9%**
  - **Iron i.v..: 500 mg 11.07.2014**
  - **Preoperative blood analysis: 11.08.2014**
    - **hemoglobin level 12.6 g/dl**
  - **blood loss during surgery: 150 ml 12.08.2014**

Case report by courtesy of Dr. Dania Fischer, M.D.

Patient Blood Management

a clinical project to improve patients´ safety

1. Screening, diagnosis and therapy of preoperative anemia prior to surgery with a high possibility of RBC transfusion (> 10%)

2. Restrictive use of RBC

3. Further blood-sparing strategies
Restrictive blood sampling, cell salvage, temperature management, Point-of-Care Diagnostics, coagulation management

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Recommendations for transfusion of packed red cells in patients with acute anemia (normovolemic patient)

Hemoglobin level / range	Compensation/ Risk factors	Transfusion: YES/NO	Recommendation
≤ 6 g/dL (≤ 3,7 mmol/L)	–	YES (in single cases lower hemoglobin levels tolerable)	1 C+
> 6 g/dL – 8 g/dL (> 3,7 – 5,0 mmol/L)	Good compensation / no risks	NO	1 C+
	Reduced compensation / risks identified	YES	1 C+
	Signs of anemic hypoxia	YES	1 C+
> 8 g/dL – 10 g/dL (> 5,0 – 6,2 mmol/L)	Signs of anemic hypoxia	YES	2 C
> 10 g/dL (> 6,2 mmol/L)	–	NO (in single cases transfusion even with hemoglobin levels > 10 g/dL)	1 A

Source: Cross-sectional guidelines for the therapy with blood components and plasma derivatives. Ed.: German Medical Association; 2009 (German National Guidelines)

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GOETHE-UNIVERSITÄT

Patient Blood Management
Wir sind dabei!

German National Guidelines
(identical transfusion triggers since 2008)

→ Guidelines of the **German Medical Association regarding the use of blood and blood components** 2014; 1-137

Transfusiontrigger-checklist

Hb < 6 g/dl

☐ Independent of compensational capacity

Hb 6 - 8 g/dl

☐ Signs for anaemic hypoxia

☐ risk factors for cardiopulmonary insufficiency

☐ other indication _____

RBC transfusion at hb > 8g/dl is associated with dubious risk-benefit balance

☐ Hb > 8 g/dl (low level of evidence **(2 C), only in individual cases**)

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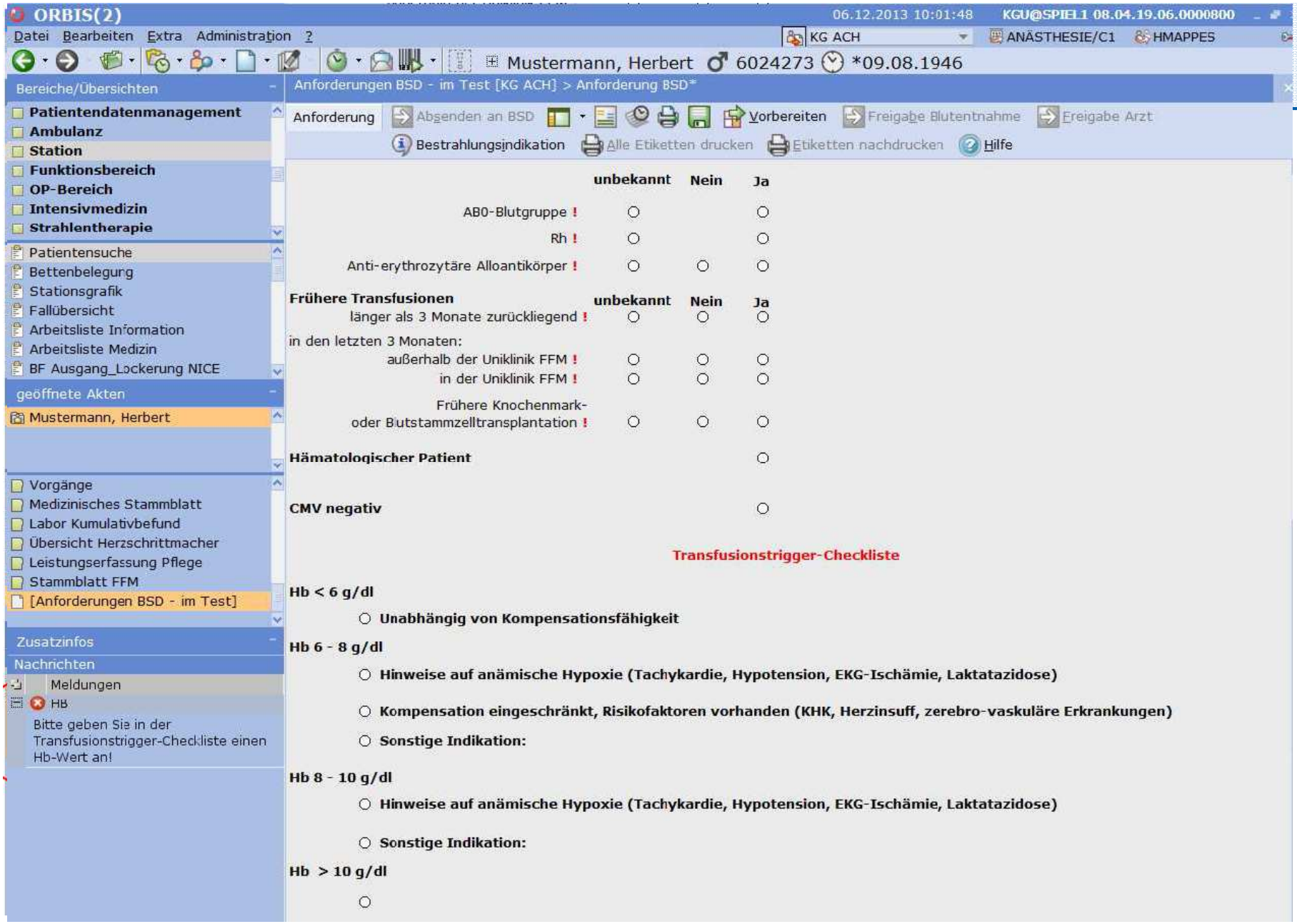

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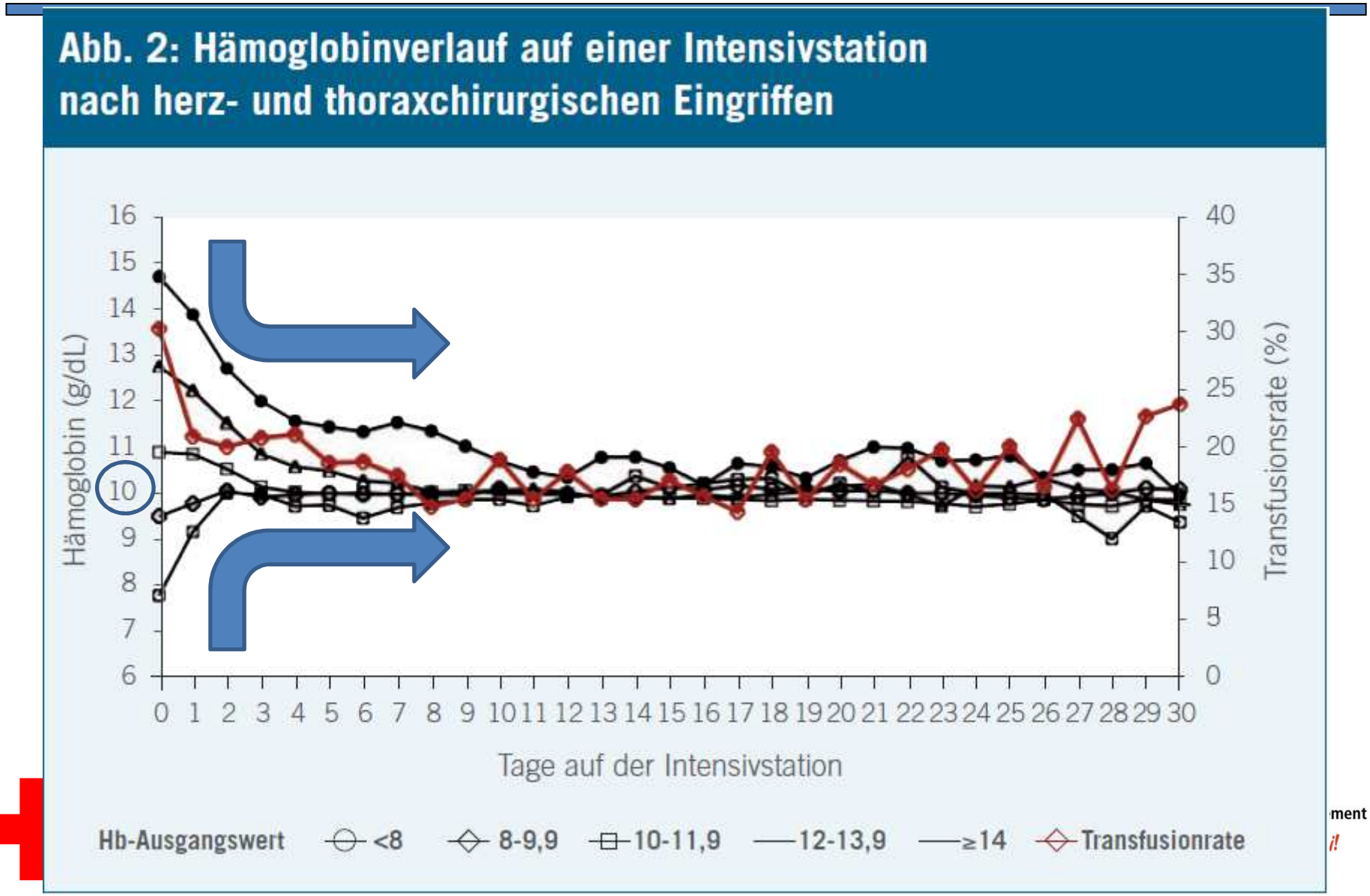
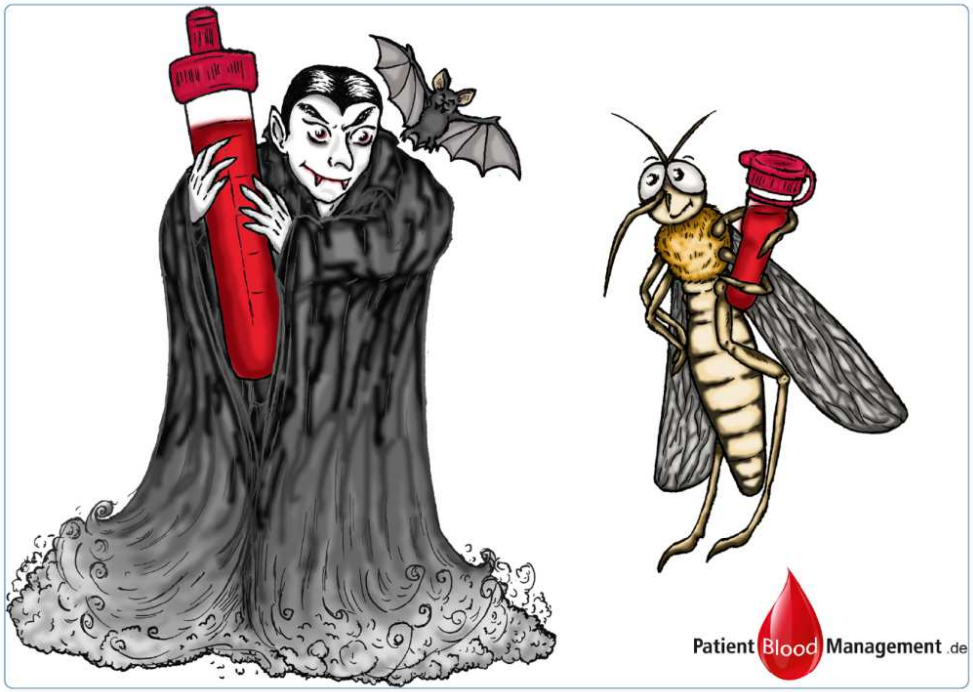
Univ.-Prof. Dr. Michael Hiesmayr, Dr. Arno Schiferer, Klinische Abteilung für Herz-Thorax-Gefäßchirurgische Anästhesie und Intensivmedizin,
Universitätsklinik für Anästhesie, Allgemeine Intensivmedizin und Schmerztherapie, Medizinische Universität Wien

3/2011 klinik

Hemoglobin Levels in ICU Patients After Heart and Chest Surgery (Vienna 2011)



sampling



Fischer D, et al. Crit Care. 2014

Savoring every drop – Vampire or Mosquito?

Fischer *et al.*

BioMed Central

Fischer *et al. Critical Care* 2014, 18:306
http://ccforum.com/content/18/3/306

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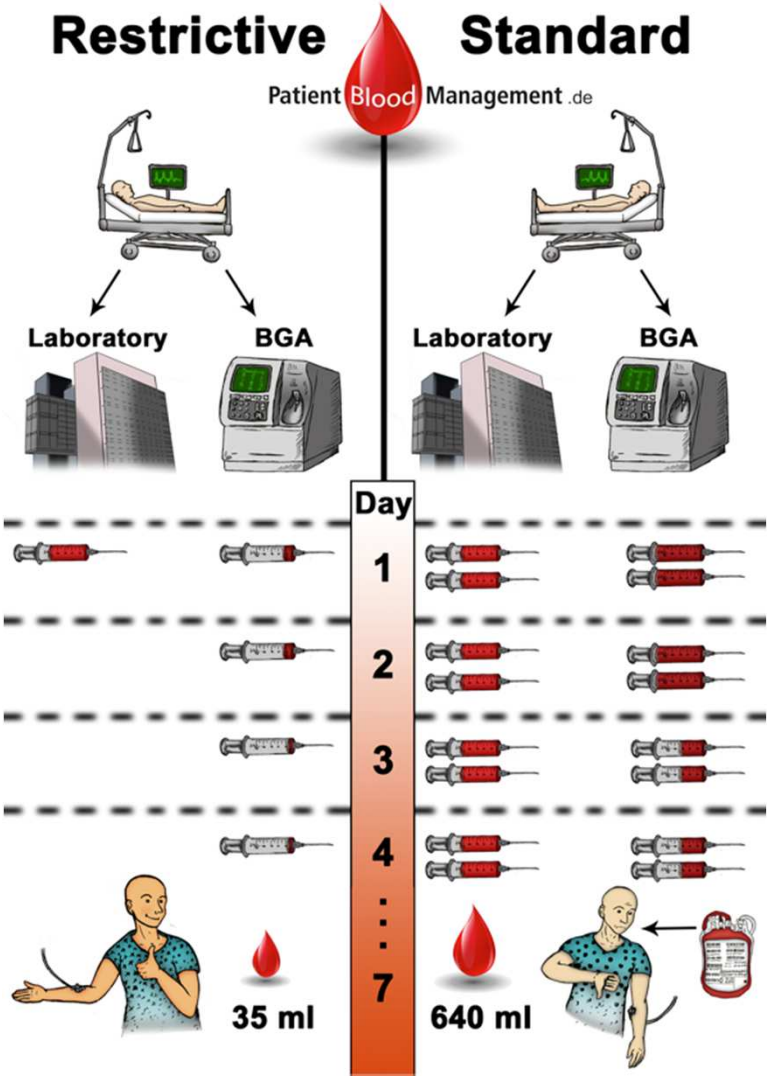
Director: Prof. Dr. Dr. Kai Zacharowski, FRCA

Restrictive Blood Sampling



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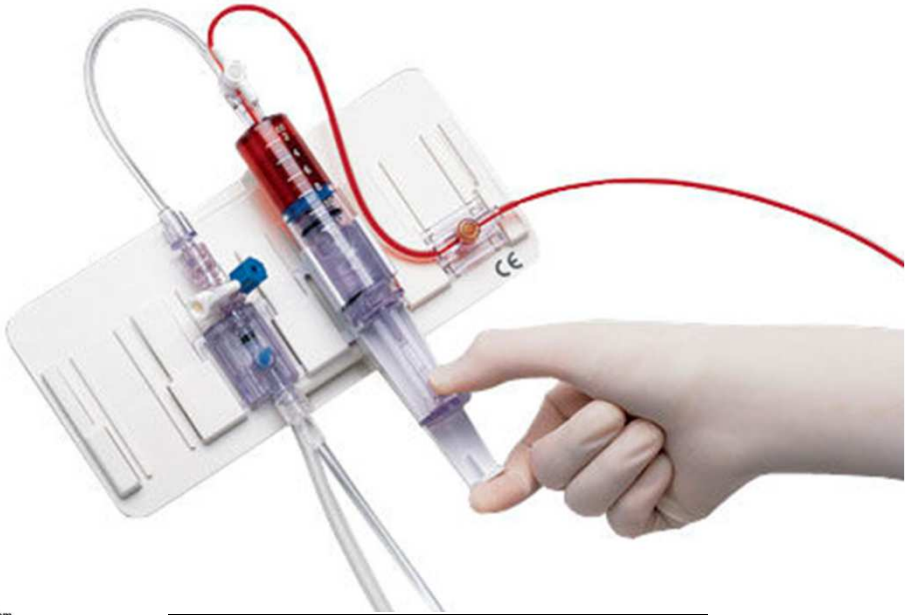
Up to ~1000L of patients´ blood saved per year…



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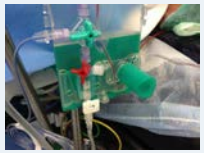

- [redacted]
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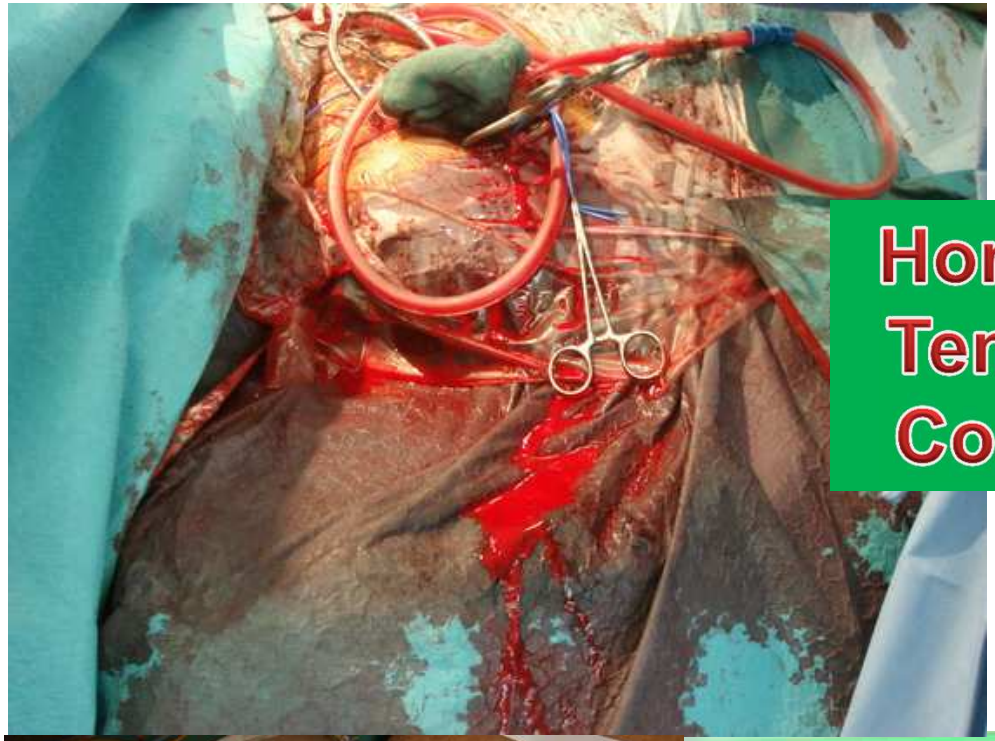
Institute for Transfusion Medicine and Immunohematology
GRC Blood Transfusion Service Baden-Württemberg – Hessen
Director: Prof. Dr. Dr. Erhard Seifried

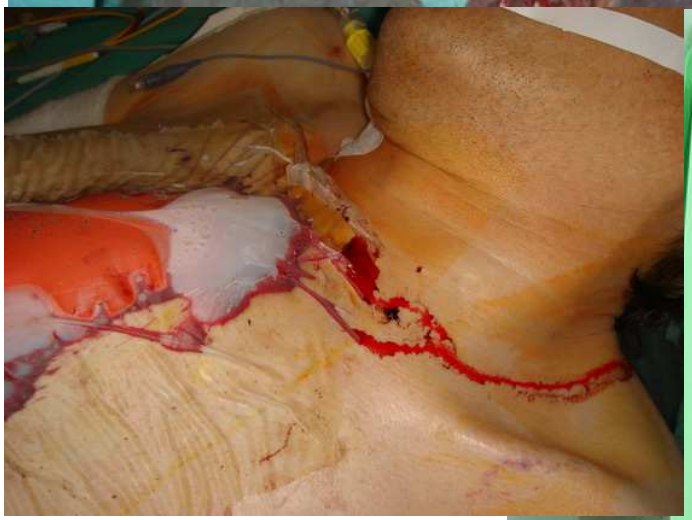
Department of Anesthesiology, Intensive Care Medicine and Pain Therapy
Director: Prof. Dr. Dr. Kai Zacharowski, FRCA

Patient Blood Management

Wir sind dabei!

Homeostasis Management
Temperature Management
Coagulation Management





Analysis of the Safety Database

ClinicalTrials.gov
A service of the U.S. National Institutes of Health

Example: "Heart attack" AND "Los Angeles"
Search for studies: Search
Advanced Search | Help | Studies by Topic | Glossary

Find Studies | About Clinical Studies | Submit Studies | Resources | About This Site

Home > Find Studies > Search Results > Study Record Detail Text Size

Trial record **3 of 7** for: zacharowski
◂ Previous Study | Return to List | Next Study ▸

Safety and Effectiveness of a Patient Blood Management (PBM) Program in Surgical Patients

This study is currently recruiting participants.

Verified March 2013 by Johann Wolfgang Goethe University Hospitals

Sponsor:
Johann Wolfgang Goethe University Hospitals

Collaborators:
University of Schleswig-Holstein
University Hospital, Bonn
University Hospital Muenster
Vifor Pharma
B. Braun Melsungen AG
CSL Behring
Fresenius Kabi

Information provided by (Responsible Party):
Professor Kai Zacharowski, M.D., Ph.D., FRCA, Johann Wolfgang Goethe University Hospitals

ClinicalTrials.gov Identifier:
NCT01820949

First received: March 19, 2013
Last updated: March 26, 2013
Last verified: March 2013
History of Changes

Full Text View | Tabular View | No Study Results Posted | Disclaimer | How to Read a Study Record

▶ Purpose

Institute for Transfusion Medicine and Immunohematology
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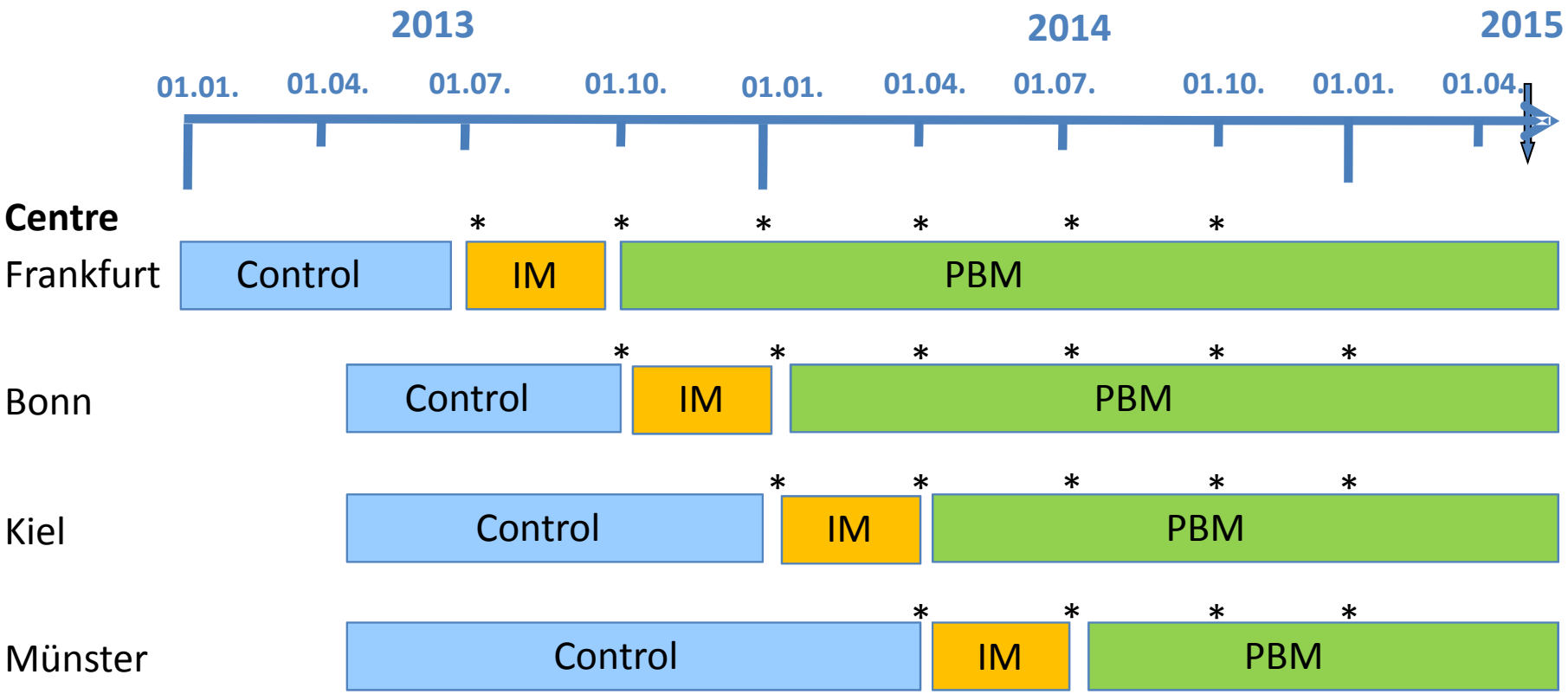
‚Safety of the Implementation of Patient Blood Management‘

(ClinicalTrials.gov: NCT01820949)



IM = Implementation 3 months each; * = teaching sessions (3 month interv.)

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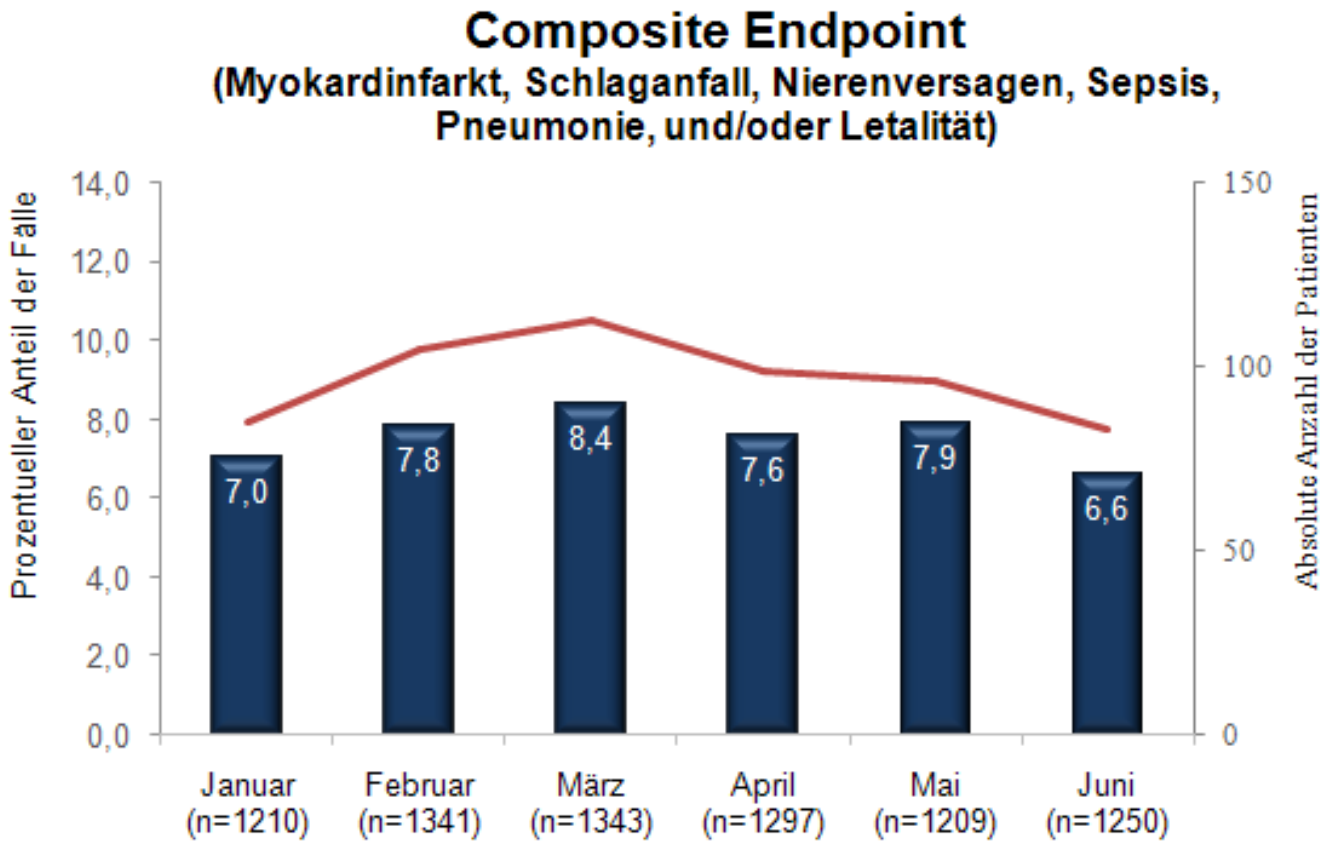
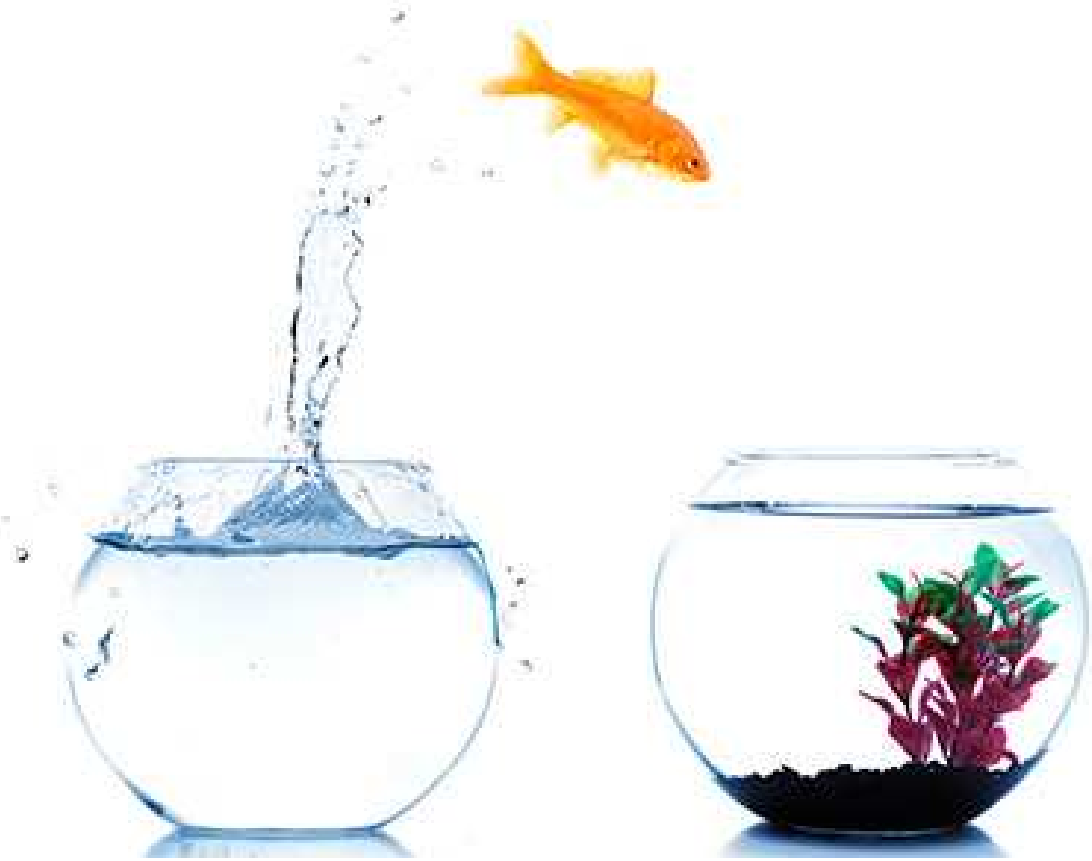
Primary Safety Endpoint
(Analysis from Agfa ORBIS)

Data from surgical In-patients
Test analysis Jan – June 2012
University Clinics Frankfurt



Change Management



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Perioperative checklist

Preoperative

- Transfusion risk > 10 %:
  - Detection, evaluation and management of anaemia
  - Crossmatch RBC units
- Discontinue anti-coagulation
- Discontinue antiplatelet drugs

Intraoperative

- Restrictive transfusion triggers
- Normothermia
- Coagulation management (pH > 7.2, Ca^{2+} > 1.2)
- Point-of-Care diagnostics: ROTEM, Multiplate
- Tranexamic acid, desmopressin
- Cell saver
- Normovolemia
- Optimize cardiac output
- Minimize blood samples
- Cardiac surgery: Hemokoncentration? Postfiltration?

Postoperative

- Restrictive transfusion triggers
- Normothermia
- Coagulation management (pH > 7.2, Ca2+ > 1.2)
- Cell Saver
- Tranexamic acid, desmopressin
- Normovolemia
- Optimize cardiac output
- Minimize the frequency and volume of blood sampling for laboratory testing

Patient Blood Management
We're part of it!

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PBM outpatient walk-in-clinics

Patient Blood Management
Ambulanz

- Mo-Fr: 08:30-14:30h
- Contact: Rebecca Meier
- Tel.: (069) 6301 – 87461
- E-Mail: patientbloodmanagement@kgu.de

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PBM Homepage: www.patientbloodmanagement.de

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Marketing

A) Marketing / Information/ Publicity

- ✓ Logo, posters, displays, flyer
- ✓ Social networks: facebook ….
- ✓ Public marketing events (i.e. in the cafeteria)
- ✓ Ideas' competition among students
- ✓ Web: http://www.patientbloodmanagement.de/en
- ✓ Press releases (selection)
  - ✓ http://www.hr-online.de/website/archiv/hessenschau/hessenschau.jsp?t=20130801&type=v
  - ✓ http://www.aerzteblatt.de/nachrichten/55385/Patient-Blood-Management-Kluger-Umgang-mit-einer-wertvollen-Ressource
  - ✓ http://www.rheinmaintv.de/video/Patient-Blood-Management/5e4d7ca06b5b1c11121b3958b9af852d
  - ✓ http://www.fnp.de/rhein-main/frankfurt/Ein-ganz-besonderer-Saft;art675,591004
  - ✓ http://www.fr-online.de/frankfurt/bluttransfusion-uni-klinikum-sparsamer-umgang-mit-blut,1472798,23888414.html
  - ✓ Beitrag in der FAZ
  - ✓ PBM an der Uniklinik Bonn (WDR)
  - ✓ Pressemitteilung der Uniklinik Bonn
  - ✓ Pressemitteilung der Uniklinik Münster
  - ✓ Echo Online - Uniklinik Frankfurt führt Patientenblut-Management ein
  - ✓ Ärzteblatt - Patientenblut Management - Kluger Umgang mit einem wertvollen Gut

Publications 2014/15

Meybohm et al. BMC Health Services Research 2014, 14:576
http://www.biomedcentral.com/1472-6963/14/576

BMC Health Services Research

STUDY PROTOCOL Open Access

Safety and effectiveness of a Patient Blood Management (PBM) program in surgical patients - the study design for a multi-centre prospective epidemiologic non-inferiority trial

Patrick Meybohm[1†], Dania Patricia Fischer[1*†], Christof Geisen[3], Markus Matthias Müller[3], Christian Friedrich Weber[1], Eva Herrmann[2], Björn Steffen[4], Erhard Seifried[3], Kai Zacharowski[1], the German PBM Study Core Group

Transfusion Medicine and Hemotherapy

Transfus Med Hemother
DOI: 10.1159/000380868

Received: December 17, 2014
Accepted: February 12, 2015
Published online: March 12, 2015

Patient Blood Management Implementation Strategies and Their Effect on Physicians' Risk Perception, Clinical Knowledge and Perioperative Practice – the Frankfurt Experience

Dania P. Fischer[a] Kai D. Zacharowski[a] Markus M. Müller[b] Christof Geisen[b]
Erhard Seifried[b] Heiko Müller[a] Patrick Meybohm[a]

Patient Blood Management
Wie geht das praktisch? –
Die interdisziplinäre Zusammenarbeit

Markus M. Müller • Patrick Meybohm • Christof Geisen • Thomas Schmitz-Rixen
Hubert Serve • Erhard Seifried • Kai Zacharowski

Patient Blood Management
Der präoperative Patient

Markus M. Müller • Dania Fischer • Ulrich Stock • Christof Geisen
Björn Steffen • Judith Nussbaumer • Patrick Meybohm

CONTINUING MEDICAL EDUCATION

Transfusion of Packed Red Cells

Indications, Triggers and Adverse Events

Markus M. Müller, Christof Geisen, Kai Zacharowski, Torsten Tonn,
Erhard Seifried

Deutsches Ärzteblatt International | Dtsch Arztebl Int 2015; 112: 507–18

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National PBM Initiative (founded 03/2014)

German PBM Network

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First German PBM Symposium 2015

1. Deutsches Patient Blood Management Symposium

In Verbindung mit dem Jahrestreffen des Deutschen Patient Blood Management Netzwerkes

27. März 2015

Universitätsklinikums Frankfurt am Main
Hörsaalzentrum im Haus 22

Patient Blood Management
Wir sind dabei!

Sehr geehrte Damen und Herren,

die Sicherheit der Patienten und ein rationaler Umgang mit der kostbaren Ressource Blut stehen im Fokus des Patient Blood Management (PBM) Programms!

Am Universitätsklinikum Frankfurt begannen wir im Jahr 2013 mit der Einführung eines evidenzbasierten PBM-Programms, dessen Umsetzung von der WHO gefördert wird. Nach der Gründung des *Deutschen Patient Blood Management Netzwerks* im Jahre 2014 in Frankfurt bauen wir auf diesen Erfolg auf und laden Sie hiermit herzlich am 27. März 2015 zum 1. Deutschen PBM Symposium nach Frankfurt ein. Im Rahmen des Symposiums werden die verschiedensten Komponenten eines umfangreichen PBM-Konzepts durch zahlreiche Experten vorgestellt.

Mit freundlichen Grüßen

Prof. Dr. Meybohm,
Prof. Dr. Dr. Seifried,
Prof. Dr. Dr. Zacharowski
und das Frankfurter PBM-Team

15:00 Uhr | **Eröffnung**
Prof. Dr. Dr. Zacharowski & Prof. Dr. Dr. Seifried

1. Block: **Notwendigkeit und Potential von PBM**
Vorsitzender Prof. Dr. Gombotz (Linz)

15:10 Uhr | **Hintergrund: Demografie & Transfusionen**
Dr. Müller (Frankfurt)

15:30 Uhr | **Anforderung(en) an die moderne Transfusionsmedizin**
Dr. Grützner (Augsburg)

15:50 Uhr | **Was gehört zum PBM-Konzept – Ein Überblick**
PD Dr. Böhm (Bonn)

16:10 Uhr | **Diagnostik & Therapie der präoperativen Anämie**
Dr. Steinbicker (Münster)

16:25 Uhr | **Key note lecture I PBM in the United Kingdom**
Dr. Alwyn Kotzé (Leeds)

Pause

2. Block: **Der Patient im Krankenhaus**
Vorsitzender Prof. Dr. Baumgarten

17:20 Uhr | **Operative Techniken – Sicht des Chirurgen**
PD Dr. Schnitzbauer (Frankfurt)

17:40 Uhr | **Gerinnungsmanagement im OP**
Dr. Johanning (Hannover)

18:00 Uhr | **Maschinelle Autotransfusion**
PD Dr. Grünewald (Kiel)

18:20 Uhr | **Kampf der iatrogenen Anämie: Neue Konzepte der Labormediziner**
Dr. Hintereder (Frankfurt)

18:35 Uhr | **Key note lecture II PBM in the United States**
Dr. Marisa Marques (Alabama)

Pause

3. Block: **Tacheles**
Vorsitzender Prof. Dr. Dr. Zacharowski

19:25 Uhr | **Preisverleihung - innovative Ideen zu PBM**
Dr. Christoph Lohfert (Hamburg)

19:40 Uhr | **Deutsches PBM Netzwerk**
Prof. Dr. Meybohm (Frankfurt)

20:00 Uhr | Get-Together

Patient Blood Management fokussiert auf einen sorgsamen Umgang mit patienteneigenem Blut und Blutkonserven. In speziellen Situationen sind Blutkonserven aber weiterhin essenziell für lebensrettende Maßnahmen.
Vor diesem Hintergrund laden wir Sie am Tag des PBM-Symposiums ebenso herzlich zu unserer parallel stattfindenden Aktion
„Spende Blut - rette Leben!"
an unserem Universitätsklinikum ein.

Deutsches Rotes Kreuz
DRK-Blutspendedienst
Baden-Württemberg – Hessen
gemeinnützige GmbH

UNIVERSITÄTS KLINIKUM FRANKFURT
GOETHE-UNIVERSITÄT

CPA
Clinica Physiologica Anaesthesiologica e. V. Frankfurt a. M.

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Theodor-Stern-Kai 7, 60590 Frankfurt am Main
Tramlinien 12,15,21 (Universitätsklinikum)

patientbloodmanagement@kgu.de
Telefon (069) 6301 87461

Die Anmeldung für das Symposium erfolgt online unter www.patientbloodmanagement.de

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Implementation: Teamwork

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Patient Blood Management
We're part of it!

PBM - Newslet

od Management
sind dabei!

Qualit

LOHFERT-

Hamburg **nelia**
Prüfer-St **rliche**
Preisverle

Der Lohfe usern
und Klini hrige
Preisträge dem
Gesundheitswesen aus über 50 eingegangenen Bewerbungen ausgewählt.

Das Frankfurter PBM-Team bedankt sich bei allen Mitarbeitern des Universitätsklinikums Frankfurt für Ihre großartige Unterstützung des Projektes!!!

Die Anerkennung durch die Lohfert-Stiftung gebührt IHNEN, die SIE sich tagtäglich für unsere Patienten einsetzen!

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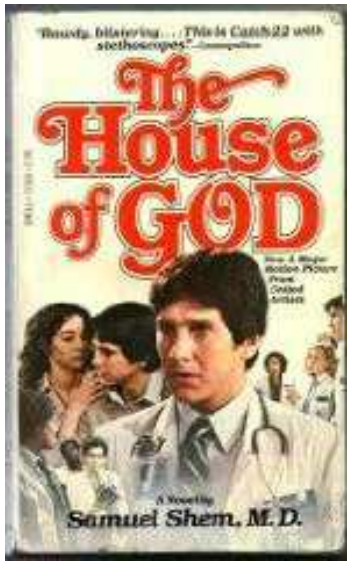
Thank You Very Much !

Patient Blood Management
We're part of it!

m.mueller@blutspende.de

Laws of the House of God

- XIII. The delivery of medicine is to do as much nothing as possible.



The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2007;356:1609-19. APRIL 19, 2007 VOL. 356 NO. 16

Transfusion Strategies for Patients in Pediatric Intensive Care Units

Jacques Lacroix, M.D., Paul C. Hébert, M.D., James S. Hutchison, M.D., Heather A. Hume, M.D., Marisa Tucci, M.D., Thierry Ducruet, M.Sc., France Gauvin, M.D., Jean-Paul Collet, M.D., Ph.D., Baruch J. Toledano, M.D., Pierre Robillard, M.D., Ari Joffe, M.D., Dominique Biarent, M.D., Kathleen Meert, M.D., and Mark J. Peters, M.D., for the TRIPICU Investigators,* the Canadian Critical Care Trials Group, and the Pediatric Acute Lung Injury and Sepsis Investigators Network

CONCLUSIONS

In stable, critically ill children a hemoglobin threshold of 7 g per deciliter for red-cell transfusion can decrease transfusion requirements without increasing adverse outcomes. (Controlled-trials.com number, ISRCTN37246456.)

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JANUARY 3, 2013 VOL. 368 NO. 1

N Engl J Med 2013;368:11-21.
DOI: 10.1056/NEJMoa1211801

Transfusion Strategies for Acute Upper Gastrointestinal Bleeding

Càndid Villanueva, M.D., Alan Colomo, M.D., Alba Bosch, M.D., Mar Concepción, M.D., Virginia Hernandez-Gea, M.D., Carles Aracil, M.D., Isabel Graupera, M.D., María Poca, M.D., Cristina Alvarez-Urturi, M.D., Jordi Gordillo, M.D., Carlos Guarner-Argente, M.D., Miquel Santaló, M.D., Eduardo Muñiz, M.D., and Carlos Guarner, M.D.

CONCLUSIONS

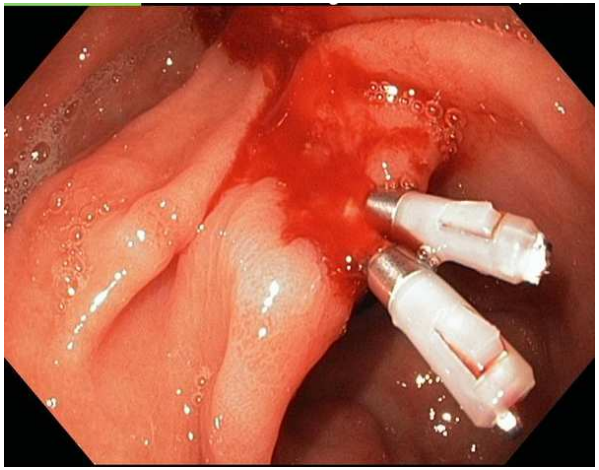
As compared with a liberal transfusion strategy, a restrictive strategy significantly improved outcomes in patients with acute upper gastrointestinal bleeding. (Funded by Fundació Investigació Sant Pau; ClinicalTrials.gov number, NCT00414713.)

Internistische Patienten

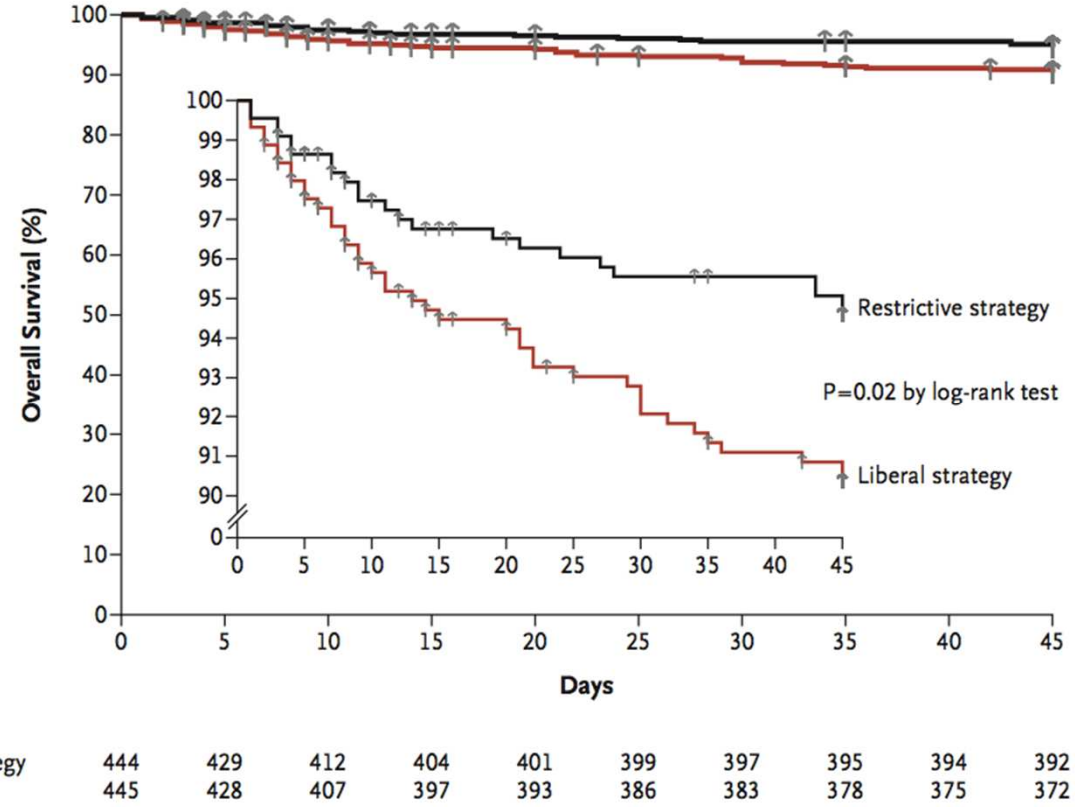
Transfusion Strategies for Acute Upper Gastrointestinal Bleeding

Càndid Villanueva, M.D., Alan Colomo, M.D., Alba Bosch, M.D., Mar Concepción, M.D., Virginia Hernandez-Gea, M.D., Carles Aracil, M.D., Isabel Graupera, M.D., María Poca, M.D., Cristina Alvarez-Urturi, M.D., Jordi Gordillo, M.D., Carlos Guarner-Argente, M.D., Miquel Santaló, M.D., Eduardo Muñiz, M.D., and Carlos Guarner, M.D.

Villanueva C et al. *N Engl J Med* 2013;368:11-21.



RCT 921 Patienten;
restriktiv (EK wenn Hb<7g/dl) vs.
liberal (EK wenn Hb<9g/dl)



The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2014;371:1381-91.
DOI: 10.1056/NEJMoa1406617

ESTABLISHED IN 1812 OCTOBER 9, 2014 VOL. 371 NO. 15

TRISS

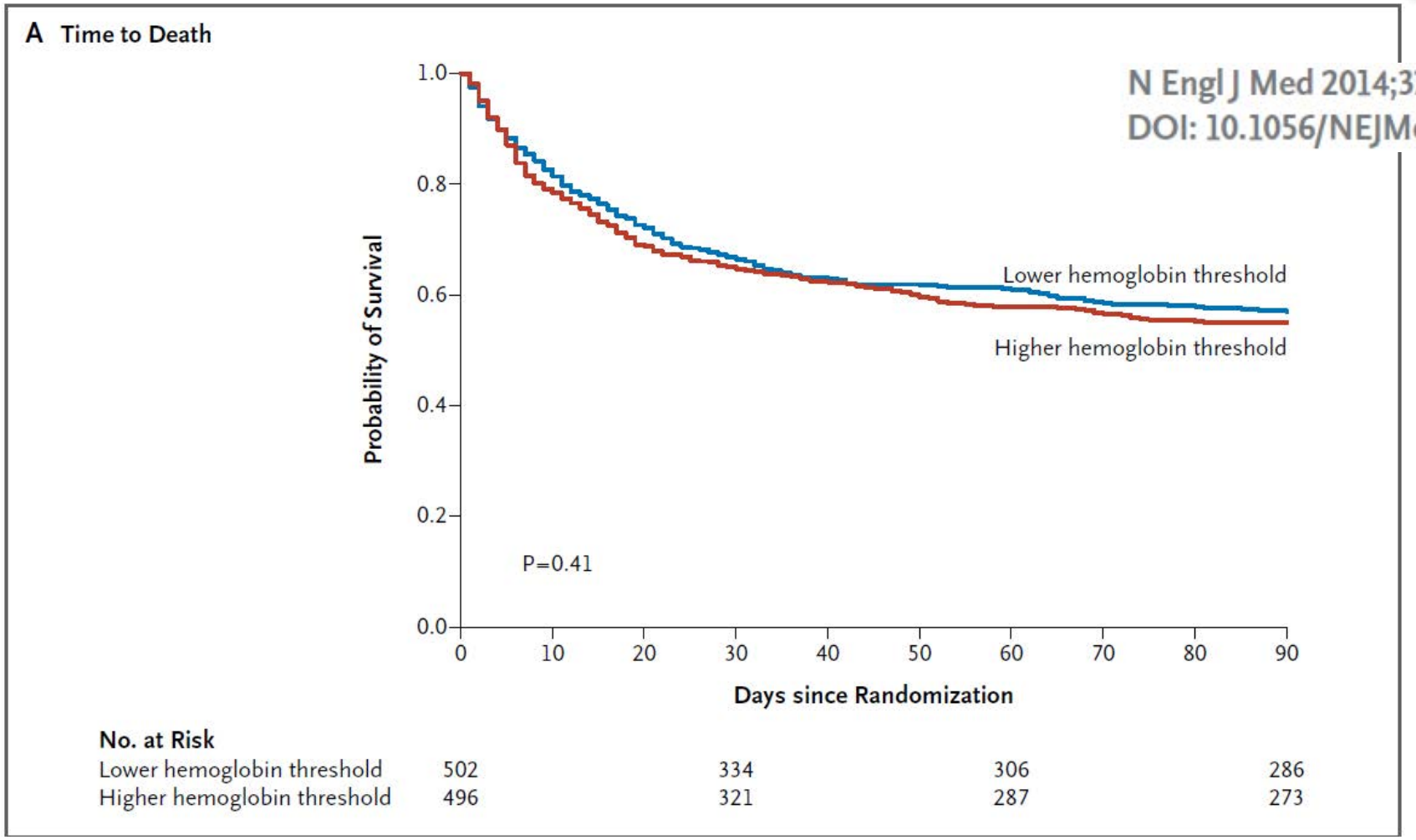
Lower versus Higher Hemoglobin Threshold for Transfusion in Septic Shock

Lars B. Holst, M.D., Nicolai Haase, M.D., Ph.D., Jørn Wetterslev, M.D., Ph.D., Jan Wernerman, M.D., Ph.D., Anne B. Guttormsen, M.D., Ph.D., Sari Karlsson, M.D., Ph.D., Pär I. Johansson, M.D., Ph.D., Anders Åneman, M.D., Ph.D., Marianne L. Vang, M.D., Robert Winding, M.D., Lars Nebrich, M.D., Helle L. Nibro, M.D., Ph.D., Bodil S. Rasmussen, M.D., Ph.D., Johnny R.M. Lauridsen, M.D., Jane S. Nielsen, M.D., Anders Oldner, M.D., Ph.D., Ville Pettilä, M.D., Ph.D., Maria B. Cronhjort, M.D., Lasse H. Andersen, M.D., Ulf G. Pedersen M.D., Nanna Reiter, M.D., Jørgen Wiis, M.D., Jonathan O. White, M.D., Lene Russell, M.D., Klaus J. Thornberg, M.D., Peter B. Hjortrup, M.D., Rasmus G. Müller, M.D., Morten H. Møller, M.D., Ph.D., Morten Steensen, M.D., Inga Tjäder, M.D., Ph.D., Kristina Kilsand, R.N., Suzanne Odeberg-Wernerman, M.D., Ph.D., Brit Sjøbø, R.N., Helle Bundgaard, M.D., Ph.D., Maria A. Thyø, M.D., David Lodahl, M.D., Rikke Mærkedahl, M.D., Carsten Albeck, M.D., Dorte Illum, M.D., Mary Kruse, M.D., Per Winkel, M.D., D.M.Sci., and Anders Perner, M.D., Ph.D., for the TRISS Trial Group* and the Scandinavian Critical Care Trials Group

CONCLUSIONS

Among patients with septic shock, mortality at 90 days and rates of ischemic events and use of life support were similar among those assigned to blood transfusion at a higher hemoglobin threshold and those assigned to blood transfusion at a lower threshold; the latter group received fewer transfusions. (Funded by the Danish Strategic Research Council and others; TRISS ClinicalTrials.gov number, NCT01485315.)

TRISS Results



Restrictive versus liberal transfusion strategy for red blood cell transfusion: systematic review of randomised trials with meta-analysis and trial sequential analysis

Lars B Holst,[1] Marie W Petersen,[1] Nicolai Haase,[1] Anders Perner,[1] Jørn Wetterslev[2]

OBJECTIVE

To compare the benefit and harm of restrictive versus

CONCLUSIONS

egies, restrictive
associated with a
red blood cell units
patients being transfused,
dity, and myocardial
altered. Restrictive
afe in most clinical
n strategies have not been
it to patients.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Red blood cells are commonly used in the treatment of haemorrhage and anaemia, but recent trials have shown potential harm with this intervention

Recent meta-analysis indicates no harm with the use of a restrictive transfusion strategy

WHAT THIS STUDY ADDS

This review includes new data from five recently published randomised trials of restrictive versus liberal transfusion strategies and includes data from more than 9000 patients

Pooled analyses did not show harm with restrictive transfusion strategies (no increased risk of mortality, overall morbidity, or acute myocardial infarction) but the number of units and number of patients transfused were reduced compared with liberal strategies

Liberal strategies have possible associations with harm (risk of infectious complications)

Further large trials with lower risk of bias are needed to establish firm evidence to guide transfusion in subgroups of patients

72.

this as: *BMJ* 2015;350:h1354
10.1136/bmj.h1354

The NEW ENGLAND JOURNAL of MEDICINE

EDITORIAL

Transfusion Threshold of 7 g per Deciliter — The New Normal

Paul C. Hébert, M.D., and Jeffrey L. Carson, M.D.

N ENGL J MED 371;15 [illegible] OCTOBER 9, 2014

?

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