NKR9_PICO 1_Blodtransfusion til kredsløbsstabile patienter med anæmi

Characteristics of studies

Characteristics of included studies

Bergamin 2014

Methods	See Fominskiy 2015
Participants	
Interventions	
Outcomes	
Notes	Fominskiy, E., et al. "Liberal transfusion strategy improves survival in perioperative but not in critically ill patients. A meta-analysis of randomised trials." *BJA: British Journal of Anaesthesia* 115.4 (2015): 511-519.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Only an abstract
Allocation concealment (selection bias)	Unclear risk	Only an abstract
Blinding of participants and personnel (performance bias)	Unclear risk	Only an abstract
Blinding of outcome assessment (detection bias)	Unclear risk	Only an abstract
Incomplete outcome data (attrition bias)	Unclear risk	Only an abstract
Selective reporting (reporting bias)	Unclear risk	Only an abstract
Other bias	Unclear risk	Only an abstract

Blandfort 2017

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age*: 86.5 mean ● *% male*: 25% Control ● *Age*: 88.7 mean ● *% male*: 25% **Included criteria:** Patients admitted from nursing homes for unilateral hip fracture surgery, with postoperative Hb between 9.7 and 11.3 g/dl, on at least one of the first six postoperative. **Excluded criteria:** Active cancer; pathological fractures and inability to understand or speak danish, refusal of RBC transfusion, fluid overload, irregular erythrocyte antibodies or previous enrolement in the trial **Pretreatment:** The two groups were well-balanced
Interventions	**Intervention Characteristics** Intervention 1 ● *Transfusion threshold*: ≥ 9.7 g/dL ● *Longest follow-up*: 90 Control ● *Transfusion threshold*: ≥ 11.3 g/dL ● *Longest follow-up*: 90
Outcomes	*Infection (pneumonia or wound infection)* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Direction**: Lower is better ● **Data value**: Endpoint ● **Notes**: Infections after surgery
Notes	**Country:** Denmark **Comments:** Study based on the TRIFE trial **Authors name:** Sif Blandfort **Institution:** Departments of Geriatrics, Aarhus University Hospital, Aarhus C., Denmark **Email:** sifbland@rm.dk **Address:** Dep. of Geriatrics, Aarhus University Hospital. Ørumsgade 11, 8000 Aarhus

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Judgement Comment: Central computer program.
Allocation concealment (selection bias)	High risk	Judgement Comment: Randomization was passed on to the hospital staff
Blinding of participants and personnel (performance bias)	Unclear risk	Judgement Comment: Personel was not blinded. Participants were blinded.
Blinding of outcome assessment (detection bias)	Low risk	Judgement Comment: Outcome assessors were blinded
Incomplete outcome data (attrition bias)	Low risk	Judgement Comment: Dropouts are accounted for
Selective reporting (reporting bias)	Low risk	Judgement Comment: No other apparent sources of bias
Other bias	Low risk	Judgement Comment: No other apparent sources of bias

de Almeida 2015

Methods	Randomised clinical trial
Participants	Adult participants who underwent a major surgical procedure for abdominal cancer and required postoperative care in the ICU • Liberal: n = 97; mean age (SD) = 64 (14) years • Restrictive: n = 101; mean age (SD) = 64 (12) years
Interventions	While in the ICU, the liberal transfusion group received transfusion when Hg
Outcomes	The primary outcome was a composite of all-cause mortality or severe clinical complications within 30 days. Severe clinical complications included major cardiovascular complications, septic shock, acute kidney injury requiring renal replacement therapy, ARDS, and reoperation
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	The chief statistician ensured random sequence generation
Allocation concealment (selection bias)	Low risk	The trial used opaque envelopes that were opened sequentially
Blinding of participants and personnel (performance bias)	Unclear risk	Clinicians or participants were not blinded
Blinding of outcome assessment (detection bias)	Low risk	The participants and the study investigators who classified outcomes and those who conducted the follow-up telephone assessments were blinded to the study-group assignments and had no access to transfusion data
Incomplete outcome data (attrition bias)	Low risk	No attrition bias was apparent.
Selective reporting (reporting bias)	Low risk	No reporting bias was apparent
Other bias	Low risk	No other biases identified

Guideline AABB 2012

Methods	See Carson et al 2012
Participants	
Interventions	
Outcomes	
Notes	Carson, Jeffrey L., Paul A. Carless, and Paul C. Hebert. "Transfusion thresholds and other strategies for guiding allogeneic red blood cell transfusion." *Cochrane Database Syst Rev.* 4.1 (2012).

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Carson et al 2012
Allocation concealment (selection bias)	Unclear risk	See Carson et al 2012
Blinding of participants and personnel (performance bias)	Unclear risk	See Carson et al 2012
Blinding of outcome assessment (detection bias)	Unclear risk	See Carson et al 2012
Incomplete outcome data (attrition bias)	Unclear risk	See Carson et al 2012
Selective reporting (reporting bias)	Unclear risk	See Carson et al 2012
Other bias	Unclear risk	See Carson et al 2012

Holst 2014

Methods	Randomised clinical trial
Participants	Participants with septic shock and haemoglobin concentration less than 9 g/dL • Higher threshold: n = 496; age (interquartile range) = 67 (58 to 75) years • Lower threshold: n = 502; age (interquartile range) = 67 (57 to 73) years
Interventions	The intervention was single units of cross-matched, prestorage leukoreduced RBCs when the blood concentration of haemoglobin had decreased to the assigned transfusion threshold (≤ 7 g/dL (lower threshold) or ≤ 9 g/dL (higher threshold)). The intervention period was the entire ICU stay, to a maximum of 90 days after randomisation

Outcomes	The primary outcome was 90-day mortality.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A centralised computer generated the assignment sequence
Allocation concealment (selection bias)	Low risk	Use of a centralised computer ensured allocation concealment
Blinding of participants and personnel (performance bias)	Unclear risk	Clinicians were not blinded.
Blinding of outcome assessment (detection bias)	Low risk	The investigators assessing mortality (the DSMB) and the trial statistician were blinded
Incomplete outcome data (attrition bias)	Low risk	There was near-complete follow-up
Selective reporting (reporting bias)	Low risk	Reporting was comprehensive.
Other bias	Low risk	There were no other biases

Nielsen 2014

Methods	Randomised clinical trial
Participants	Participants were at least 18 years of age and scheduled for elective hip revision surgery • Liberal: n = 33; median age (5% to 95% range) = 72 (54 to 89) years • Restrictive: n = 33; median age (5% to 95% range) = 68 (43 to 86) years
Interventions	The participants were randomized to a restrictive strategy receiving transfusion of RBC at a Hb of 7.3 g/dL (4.5 mmol/L) or a liberal strategy receiving transfusion of RBC at a Hb of 8.9 g/dL (5.5 mmol/L). The target level of haemoglobin in the restrictive group was 7.3 g/dL to 8.9 g/dL and above 8.9 g/dL in the liberal group
Outcomes	The primary outcome was the 'Timed up and go' test. Other outcomes were pneumonia, wound infection, gastrointestinal complications, dizziness, hypotension, fatigue, deep vein thrombosis, and fall
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A dedicated computer program (Idefix) was used after entering participants' baseline data. The allocation was written on a form, which was kept in the investigator's office, and the allocation could only be accessed by the investigator in charge of administrating red blood cells
Allocation concealment (selection bias)	Low risk	Only 1 investigator had access to the programme. Investigators at the other hospital had to call this investigator to randomise
Blinding of participants and personnel (performance bias)	Unclear risk	The allocation and Hb during the testing period were concealed from the participants but the investigator, the staff in the operating room, and the staff at the ward could not be blinded
Blinding of outcome assessment (detection bias)	Unclear risk	The physiotherapist testing the participant was blinded, but it was not stated who reviewed medical records for other outcomes
Incomplete outcome data (attrition bias)	Low risk	No attrition bias was apparent
Selective reporting (reporting bias)	Low risk	No reporting bias was apparent
Other bias	Low risk	No other bias was apparent

Palmieri 2017

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age*: 41 ● *% male*: 79.8% Control ● *Age*: 41 ● *% male*: 78.5% **Included criteria:** All patients admitted to a participating center were screenedfor enrollment. Patients were approached for enrollment if they wereadmitted to a participating burn center within 96 hours of injury witha burn injury of 20% or higher TBSA and need for burn excision andgrafting was anticipated. **Excluded criteria:** 18 years old; pregnant; unable or unwilling to receive blood products; chronically anemic; renal dialysis before injury; brain dead; insurvivable burn; acute AMI; preexsisting hematologica disorder; head injury with GSC 9. **Pretreatment:** The groups were comparable
Interventions	**Intervention Characteristics** Intervention 1 ● *Transfusion threshold*: Restrictive transfusion 7-8g/dl ● *Longest follow-up*: 30

	Control ● *Transfusion threshold*: Liberal transfusion 10-11g/dl ● *Longest follow-up*: 30
Outcomes	*30-days mortality, n* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Direction**: Lower is better ● **Data value**: Endpoint *Mean no. of units transfused, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Mean units pr. person ● **Direction**: Lower is better ● **Data value**: Endpoint *No. of patients that received transfusion, n* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Scale**: Total transfusions (RBS/PLT) ● **Direction**: Lower is better ● **Data value**: Endpoint ● **Notes**: Nonoperating room transfusion. *Infection (pneumonia or wound infection)* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Scale**: Wound infections ● **Direction**: Lower is better ● **Data value**: Endpoint
Notes	**Sponsorship source:** This study was supported by the American Burn Association and funded byUSAMRMC Award W81XWH-08-1-0760 with support from the NationalCenter for Research Resources, National Institutes of Health, through grantUL1 RR024146, the National Center for Advancing Translational Sciences,National Institutes of Health, through grant TR 000002, and the NationalCenter for Advancing Translational Sciences, National Institutes of Healththrough grant UL1 TR001860. **Country:** USA **Setting:** Multicenter **Comments:** Clinicaltrials.gov NCT01079247 **Authors name:** Tina L. Palmieri **Institution:** Department of Surgery, University of California Davis and Shriners Hospital for Children Northern California **Email:** tlpalmieri@ucdavis.edu **Address:** Dep. of surgery, University California. Davis and Shriners Hospital for Children Nothern California, 2425 Stockton Blvd Suite 718

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Judgement Comment: Each subject was randomised with a bias coin procedue.
Allocation concealment (selection bias)	Unclear risk	Judgement Comment: Open-label trial
Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: No blinding provided. Investigators were informed of treatment group by calling the randomization center
Blinding of outcome assessment (detection bias)	High risk	Judgement Comment: Investigators were informed of treatment group by calling the randomization center. No blinding provided.
Incomplete outcome data (attrition bias)	Low risk	Judgement Comment: lost to follow-up was described sufficiently
Selective reporting (reporting bias)	Low risk	Judgement Comment: Matches study protocol
Other bias	Low risk	Judgement Comment: No other apparent sources of bias

Parker 2013

Methods	Randomised clinical trial
Participants	Participants 60 years of age or older with hip fracture and whose postoperative haemoglobin level on postoperative days 1 or 2 was between 8.0 g/dL to 9.5 g/dL ● Liberal: n = 100; mean age (range) = 84.4 (60 to 104) years ● Symptomatic: n = 100; mean age (range) = 84.2 (60 to 97) years
Interventions	Liberal transfusion maintained haemoglobin > 10.0 g/dL, or the symptomatic group received transfusion for symptoms of anaemia. These included recurrent vaso-vagal episodes on mobilisation, chest pain of cardiac origin, congestive cardiac failure, unexplained tachycardia, hypotension or dyspnoea that was felt to be due to anaemia, decreased urine output that is unresponsive to fluid replacement, or symptoms felt appropriate by the medical staff
Outcomes	Mobility, mental agility, physical status using the American Society of Anesthesiologists grade
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	The random sequence generation was not documented.
Allocation concealment (selection bias)	Low risk	The trial used opaque numbered envelopes
Blinding of participants and personnel (performance bias)	Unclear risk	Blinding of participants and personnel was not addressed
Blinding of outcome assessment (detection bias)	Unclear risk	Blinding of outcome assessment was not addressed.
Incomplete outcome data (attrition bias)	Unclear risk	The mobility score was missing for 94 of 200 participants.
Selective reporting (reporting bias)	Low risk	No reporting bias was apparent.
Other bias	Low risk	No other biases were apparent.

Prick 2014

Methods	Randomised controlled trial, not blinded
Participants	Postpartum haemorrhage (blood loss of ≥ 1000 ml or a decrease in Hb concentration of ≥ 1.9 g/dL, or both) and had an Hb between 4.8 g/dL and 7.9 g/dL 12 to 24 hours after delivery • Liberal: n = 258; mean age (SD) = 30.7 (5.0) years • Non-intervention: n = 261; mean age (SD) = 30.9 (5.3) years
Interventions	In the liberal group, participants received at least 1 unit of red blood cells; the trialists aimed to reach an Hb concentration of at least 8.9 g/dL. In the restrictive group, participants received no transfusion
Outcomes	Primary outcome was physical fatigue 3 days postpartum using the Multidimensional Fatigue Inventory scale
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	The use of random sequence generation was not stated
Allocation concealment (selection bias)	Low risk	The trial used a web-based application with block randomisation of variable block size
Blinding of participants and personnel (performance bias)	Unclear risk	Participants were not blinded
Blinding of outcome assessment (detection bias)	High risk	The primary outcome was based on a questionnaire
Incomplete outcome data (attrition bias)	High risk	20% of data for the primary outcome was missing
Selective reporting (reporting bias)	Low risk	No reporting bias was apparent.
Other bias	Low risk	No other biases were apparent.

Robertson 2014

Methods	See Fominskiy 2015
Participants	
Interventions	
Outcomes	
Notes	Fominskiy, E., et al. "Liberal transfusion strategy improves survival in perioperative but not in critically ill patients. A meta-analysis of randomised trials." *BJA: British Journal of Anaesthesia* 115.4 (2015): 511-519.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	See Fominskiy 2015
Allocation concealment (selection bias)	Low risk	See Fominskiy 2015
Blinding of participants and personnel (performance bias)	Low risk	See Fominskiy 2015
Blinding of outcome assessment (detection bias)	Low risk	See Fominskiy 2015
Incomplete outcome data (attrition bias)	Low risk	See Fominskiy 2015
Selective reporting (reporting bias)	Low risk	See Fominskiy 2015
Other bias	Low risk	See Fominskiy 2015

So-Osman 2013

Methods	Randomised clinical trial
Participants	Elective orthopedic surgery • Liberal: n = 304; mean age (SD) = 70.7 (9.6) years • Restrictive: n = 299; mean age (SD) = 70.2 (10.3) years
Interventions	Restrictive transfusion was compared with liberal transfusion regimens
Outcomes	The primary outcome variable was RBC use. Secondary outcomes included postoperative complications and quality of life

Notes	We re-analysed the prior report (So-Osman 2010) comparing restrictive versus liberal transfusion

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	The trial provided a detailed description of statistical procedures
Allocation concealment (selection bias)	Low risk	A research nurse opened sealed opaque envelopes.
Blinding of participants and personnel (performance bias)	Unclear risk	Clinicians caring for the participants were aware of allocation status. There was no blinding information on participants
Blinding of outcome assessment (detection bias)	Unclear risk	The trial did not state who collected outcome dat
Incomplete outcome data (attrition bias)	Low risk	No attrition bias was apparent
Selective reporting (reporting bias)	Low risk	No reporting bias was apparent
Other bias	Low risk	No other biases were apparent

Villanueva 2013

Methods	Randomised clinical trial
Participants	Participants older than 18 years of age who had haematemesis or melena, or both (due to upper GI bleeding) ● Liberal: n = 445; mean age (SD) = 64 (16) years ● Restrictive: n = 444; mean age (SD) = 66 (15) years
Interventions	The restrictive transfusion group was transfused for haemoglobin < 7 g/dL, and the liberal transfusion group was transfused when Hg was < 9 g/dL. In both groups, 1 unit of RBCs was transfused initially.
Outcomes	Death at 45 days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random sequence generation was computer generated.
Allocation concealment (selection bias)	Low risk	The trial used sealed consecutively numbered, opaque envelopes.
Blinding of participants and personnel (performance bias)	Unclear risk	Clinicians and participants were not blinded.
Blinding of outcome assessment (detection bias)	Low risk	Mortality was the primary outcome. Assessors of other outcomes were not documented to be blinded
Incomplete outcome data (attrition bias)	Low risk	The trial had good follow up.
Selective reporting (reporting bias)	Low risk	Reporting was complete.
Other bias	Low risk	No other biases were apparent.

Walsh 2013

Methods	Randomised clinical trial
Participants	See Carson 2016
Interventions	The restrictive transfusion group received transfusion with haemoglobin≤ 7.0g/dL and a target Hb concentration of 7.1 g/dL to 9.0g/dL, and the liberal transfusion group received transfusions with haemoglobin ≤ 9.0 g/dL and a target of 9.1 g/dL to 11.0 g/ dL during intervention
Outcomes	The primary feasibility outcome was the difference in mean Hb among groups. Clinical outcomes were assessed
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Minimisation by centre and the presence of IHD, including a random element, was used
Allocation concealment (selection bias)	Low risk	The trial used telephone randomisation
Blinding of participants and personnel (performance bias)	Unclear risk	Clinicians were not blinded. Most surviving participants stated that they were unaware of group allocation at 180 days (restrictive group: 67%; liberal group: 78%); 23% of participants in the restrictive group and 9% in the liberal group correctly stated their treatment group
Blinding of outcome assessment (detection bias)	Unclear risk	Researchers concealed from group allocation collected questionnaire-based measures at 60 and 180 days postrandomisation. Assessment of clinical outcomes was not documented to have been done blindly
Incomplete outcome data (attrition bias)	Low risk	There was good follow up.

Selective reporting (reporting bias)	Low risk	No reporting bias was apparent
Other bias	Low risk	No other biases were apparent.

Footnotes

Characteristics of excluded studies

Footnotes

Characteristics of studies awaiting classification

Footnotes

Characteristics of ongoing studies

Footnotes

Summary of findings tables

Additional tables

References to studies

Included studies

Bergamin 2014

[Empty]

Blandfort 2017

[Empty]

de Almeida 2015

[Empty]

Guideline AABB 2012

[Empty]

Holst 2014

[Empty]

Nielsen 2014

[Empty]

Palmieri 2017

[Empty]

Parker 2013

[Empty]

Prick 2014

[Empty]

Robertson 2014

[Empty]

So-Osman 2013

[Empty]

Villanueva 2013

Published and unpublished data

[Empty]

Walsh 2013

[Empty]

Excluded studies

Studies awaiting classification

Ongoing studies

Other references

Additional references

Other published versions of this review

Classification pending references

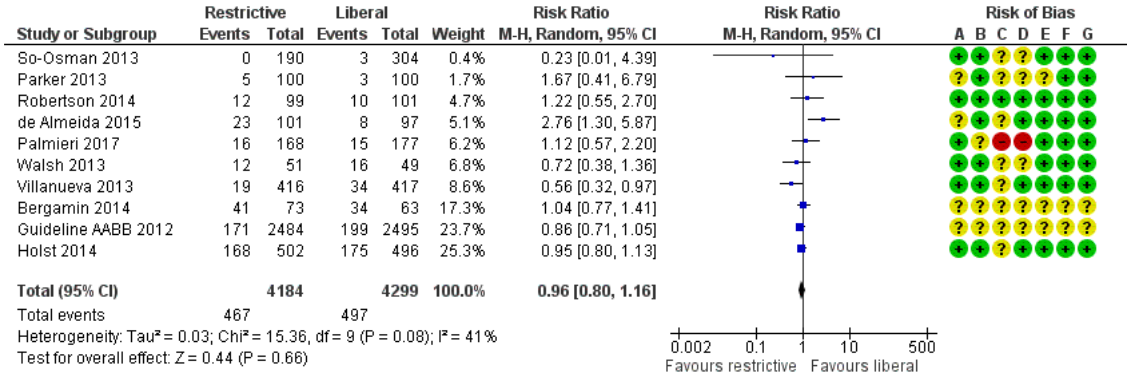
Data and analyses

1 Restrictive versus liberal transfusion

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Units of blood transfused	6		Mean Difference (IV, Random, 95% CI)	-2.41 [-3.73, -1.09]
1.3 28-30 day mortality	10	8483	Risk Ratio (M-H, Random, 95% CI)	0.96 [0.80, 1.16]
1.4 Participants exposed to blood transfusion	10	9637	Risk Ratio (M-H, Random, 95% CI)	0.52 [0.42, 0.65]
1.5 Congestive heart failure	5	5913	Risk Ratio (M-H, Random, 95% CI)	0.74 [0.55, 0.99]
1.6 Stroke	7	5324	Risk Ratio (M-H, Random, 95% CI)	0.68 [0.43, 1.08]
1.7 Myocardial infarction	6	6248	Risk Ratio (M-H, Random, 95% CI)	1.14 [0.81, 1.61]
1.9 Infection	5	5736	Risk Ratio (M-H, Random, 95% CI)	1.01 [0.87, 1.17]

Figures

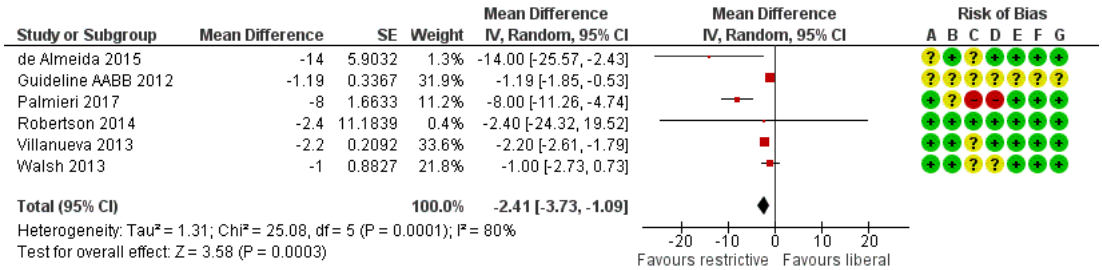
Figure 1 (Analysis 1.3)



Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.3 28-30 day mortality.

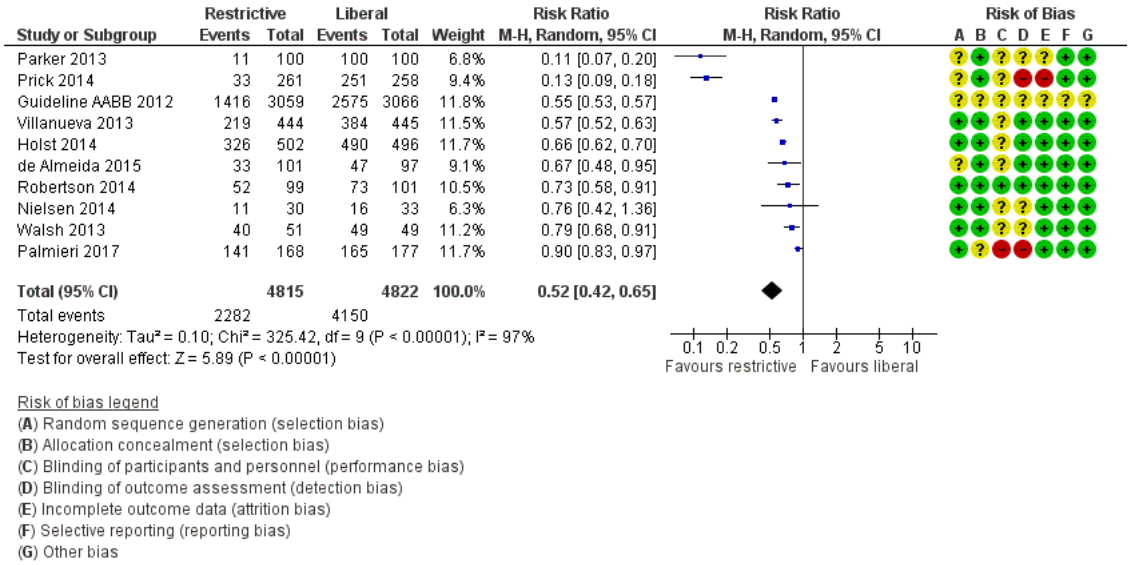
Figure 2 (Analysis 1.1)



Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.1 Units of blood transfused.

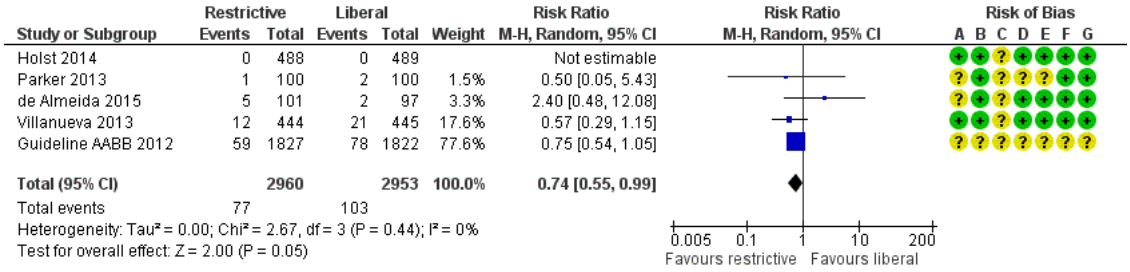
Figure 3 (Analysis 1.4)



Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.4 Participants exposed to blood transfusion.

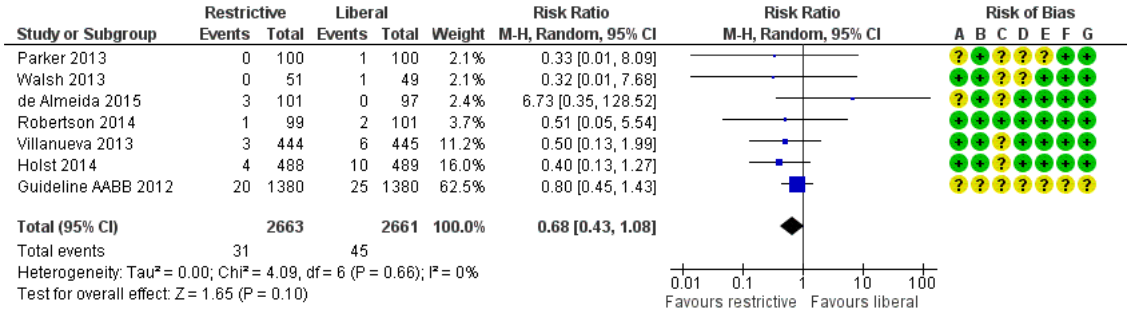
Figure 4 (Analysis 1.5)



Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.5 Congestive heart failure.

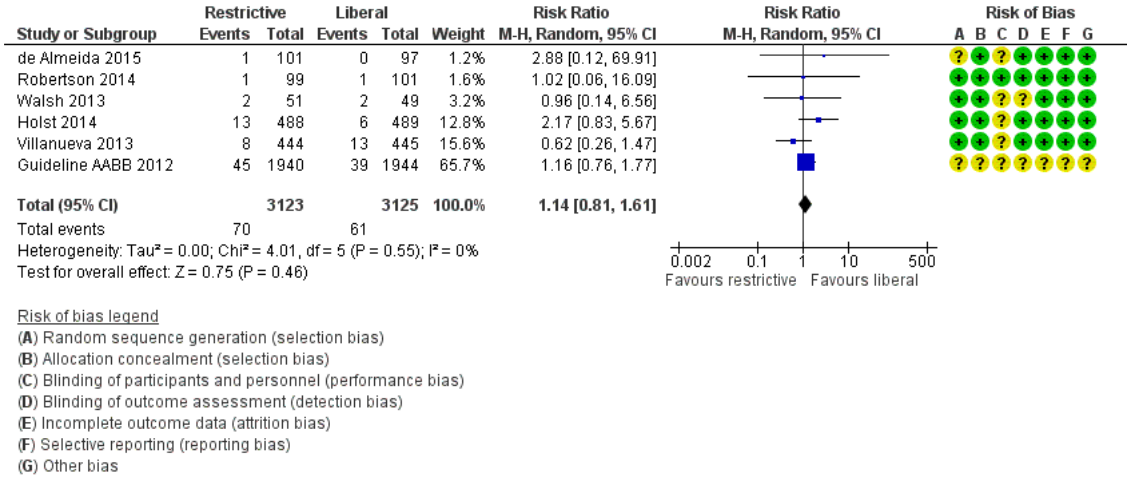
Figure 5 (Analysis 1.6)



Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

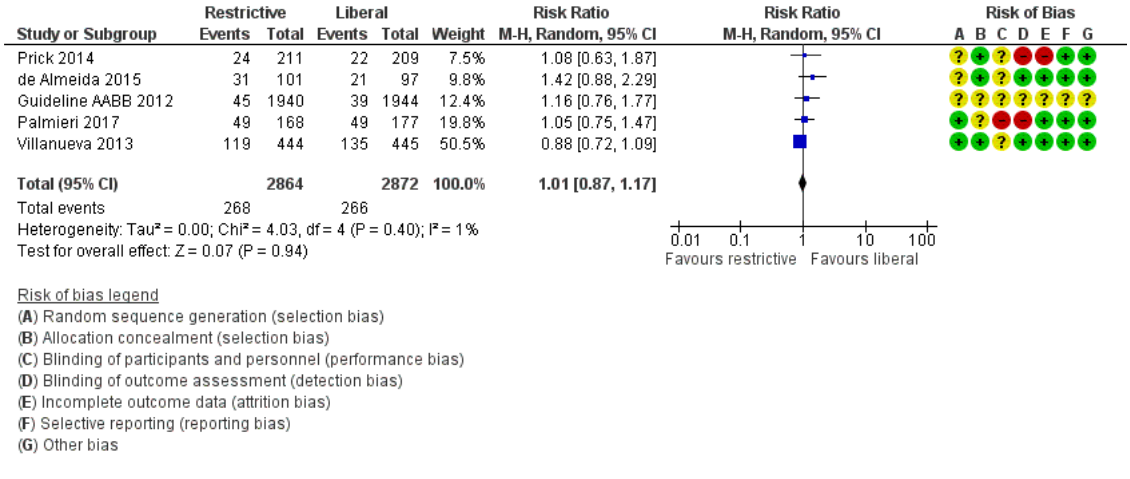
Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.6 Stroke.

Figure 6 (Analysis 1.7)



Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.7 Myocardial infarction.

Figure 7 (Analysis 1.9)



Forest plot of comparison: 1 Restrictive versus liberal transfusion, outcome: 1.9 Infection.