Impact of the age of stored blood on trauma patient mortality: a systematic review

Background

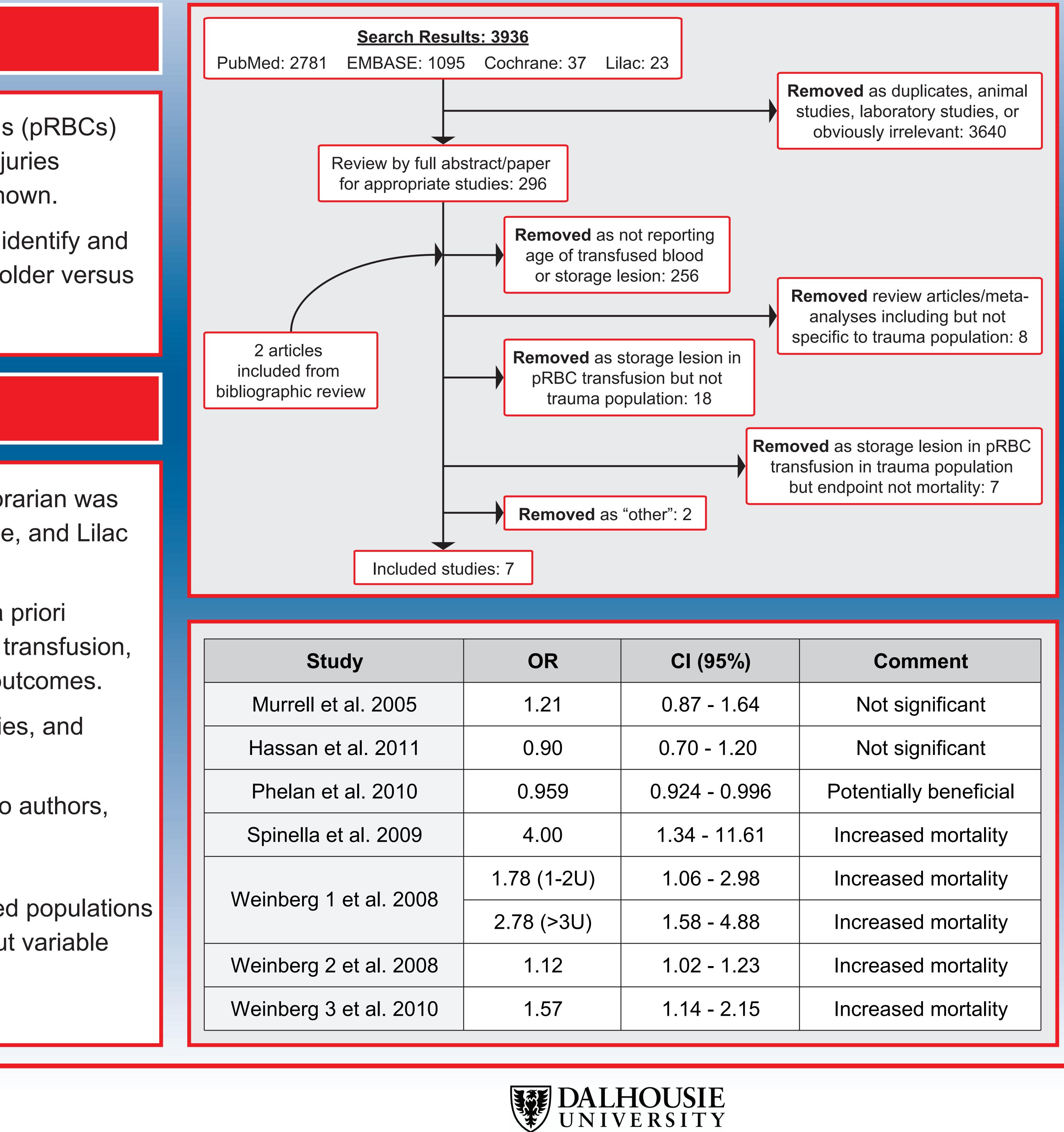
- The impact of the age of packed red blood cells (pRBCs) on mortality in patients sustaining traumatic injuries requiring transfusion of blood products is unknown.
- The objective of this systematic review was to identify and describe the available literature on the use of older versus newer blood in the trauma patient population.

Methods

- A systematic search developed with a MLS Librarian was conducted of the Medline, EMBASE, Cochrane, and Lilac databases.
- 3936 results were reviewed by title based on a priori criteria identifying: trauma populations, pRBC transfusion, storage lesion or age of blood, and mortality outcomes.
- Randomized controlled trials, case-control series, and cohort studies were included.
- 296 full abstracts/articles were reviewed by two authors, identifying:
 - 8 review papers/meta-analyses
 - 18 studies on pRBC storage lesion but varied populations
 - 7 studies on trauma/pRBC storage lesion but variable endpoints
 - 7 studies matching our inclusion criteria



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CI (95%)	Comment
0.87 - 1.64	Not significant
0.70 - 1.20	Not significant
0.924 - 0.996	Potentially beneficial
1.34 - 11.61	Increased mortality
1.06 - 2.98	Increased mortality
1.58 - 4.88	Increased mortality
1.02 - 1.23	Increased mortality
1.14 - 2.15	Increased mortality

Inspiring Minds

- database.
- (15-42 days) blood.

- increased mortality.

- is required.

Results

• 7 studies were identified totaling 6,780 patients. However, 3 studies (5,084 patients) appear to represent the same

 Inclusion criteria varied in minimum required transfusion (1-6 units) and definitions of "new" (1-27 days) and "old"

 Mechanism of injury (blunt ~80%) and ISS (average ~27 in 6 of 7 studies) were similar between studies.

 3 studies found no increased mortality to be associated with older versus newer blood.

 4 of 7 studies concluded that administering "older" blood was independently associated with increased mortality.

 One investigation determined that when controlling for other variables, older pRBCs in those patients who were administered at least 3 units or more was associated with

Discussion

 The data supporting the use of newer versus older blood for transfusing trauma patients is inconclusive.

Further establishment of definitions of old and new blood

