



# Denise Bäckström

- Överläkare i anesthesi- och intensivvård
- Medicinsk ledningsläkare för ambulans och akut  
Region Gävleborg
- Akutläkarbilen i Stockholm
- Disputerad inom trauma, forskar på skadade och svårt sjuka patienter prehospitalt på KMC



# Behövs det blod prehospitalt?



# Trauma och blödning

“Okontrollerad posttraumatisk blödning är fortfarande den främsta orsaken till död som går att förebygga hos skadade patienter”

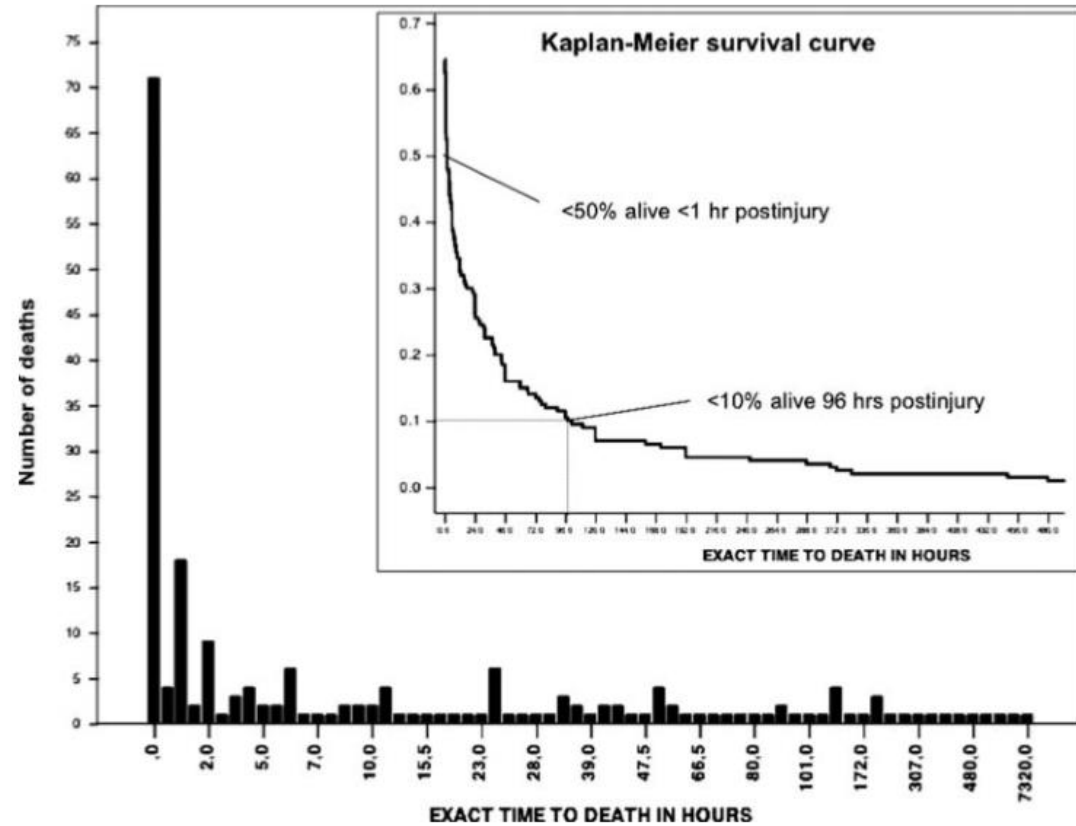
The European guideline on management of major bleeding and coagulopathy following trauma: fifth edition Donat R. Spahn et al.



# Epidemiology and Contemporary Patterns of Trauma Deaths: Changing Place, Similar Pace, Older Face

Söreide et al

**Fig. 4** Time distribution of deaths after injury. Deaths occur on a consecutive time-scale with an inverse, cumulative relationship to time as shown by the Kaplan-Meier survival curve (right upper square)



Stavanger 1996-2004, 260 döda





# Every minute counts: Time to delivery of initial massive transfusion cooler and its impact on mortality Meyer et al.

Längre tid till masstransfusion ökade mortaliteten

Varje minut ökade oddsen med 5%





# Association of Prehospital Blood Product Transfusion During Medical Evacuation of Combat Casualties in Afghanistan With Acute and 30-Day Survival

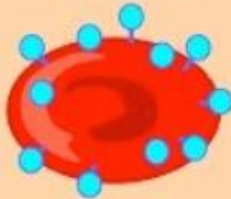


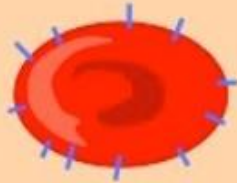


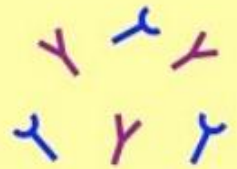
Shakelford et al.



# Vilka är utmaningarna med blod prehospitalt?





	Type A	Type B	Type AB	Type O
Antigen (on RBC)	Antigen A 	Antigen B 	Antigens A + B 	Neither A or B 
Antibody (in plasma)	Anti-B Antibody 	Anti-A Antibody 	Neither Antibody 	Both Antibodies 
Blood Donors	Cannot have B or AB blood  Can have A or O blood	Cannot have A or AB blood  Can have B or O blood	Can have any type of blood  Is the universal recipient	Can only have O blood  Is the universal donor



# Komponent terapi / helblod / frystorkad plasma

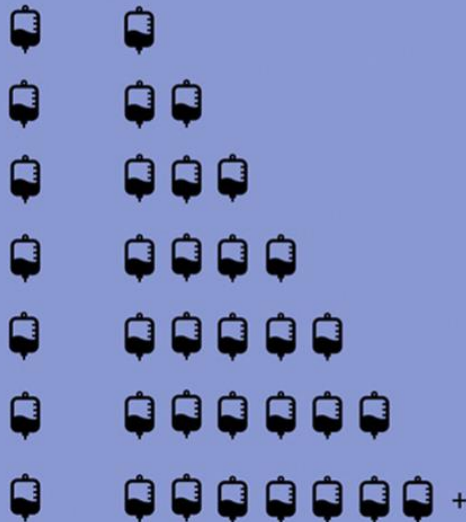
- Erythrocyter
- Plasma
- (Trombocyter)
  
- Helblod
  
  
  
  
  
  
- Frystorkad plasma



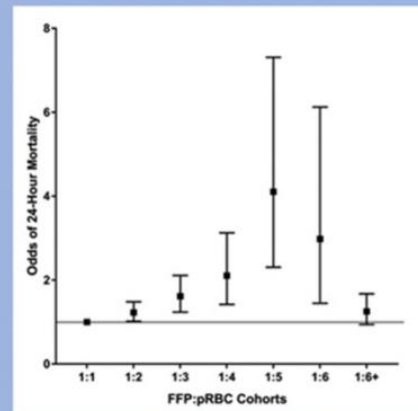
# Transfusionsstrategier

Fresh Frozen Plasma-To-Packed Red Blood Cell Ratio and Mortality in Traumatic Hemorrhage: Nationwide Analysis of 4,427 Patients

FFP : pRBC Ratio

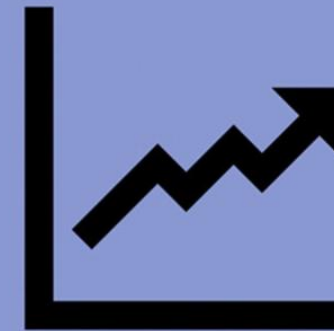


Primary Outcome  
24-Hour Mortality

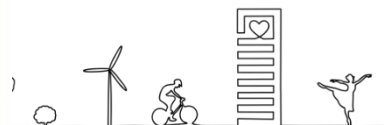


Adjusted Odds: 1:1 Lowest Mortality

Secondary Outcome  
Complications



Unadjusted Odds: 1:1 Most Complications  
Survivorship Bias?





# Framtiden

- Vill vi rädda liv  
behöver vi  
möjliggöra tillgång  
till blod  
/blodprodukter  
prehospitalt
- Helblod är ett sätt  
att få med alla  
komponenter i en  
påse





# Frågor?

