“Coagulopathy, Massive Transfusion, and Hemostatic Resuscitation in Pediatric Trauma: Who, Why, Where, When and How”
A Blood Bank Perspective

Denise M. Malicki, MD PhD
Rady Children’s Hospital San Diego – Pediatric Pathology,
Blood Bank Medical Director
Clinical Professor, UCSD – Departments of Pathology and Pediatrics
524 bed facility

FY2019
20,277 inpatient admissions
96,006 emergency care visits
20,152 surgeries
Blood Bank CY2018

• Total transfusions: 8991 (Inpatient 7136, Outpatient 1855)

• ED/Trauma: 10 pRBCs to 7 patients (822 Trauma patients) = 0.1% of all transfusions
Limitations of LTOWB
(Low Titer (Anti-A) O Whole Blood)

• Donor
  – ~19% of donor population
  – Universal donor
  – Reduces component availability
    • Donate whole blood every 8 weeks – vs- platelets every 7 days (up to 24 times a year)
Limitations of LTOWB
(Low Titer (Anti-A) O Whole Blood)

• Recipient
  – Risk of hemolytic transfusion reaction if non-O*
  – Wait to give type-specific pRBCs if non-O**
  – Risk of Rh-sensitization if O+ to Rh-

“The person who takes medicine must recover twice, once from the disease and once from the medicine.”

-Sir William Osler
RCHSD Emergency Release

- 4 u O-neg pRBCs
RCHSD Massive Transfusion Protocol

• Infants with est. weight < 20 kg
  – 1 u pRBCs, 1 FFP* <200 ml, 60 cc platelets pheresis (PPH)

• Children with est. weight 20-49 kg
  – 2 u pRBCs, 2 FFP*, ½ u PPH (~110 ml)

• Children and adolescents with est. weight >50 kg
  – 4 u pRBCs, 4 FFP*, 1 PPH
*FFP takes 40 minutes to thaw
Solutions

• Liquid plasma
• Thawed plasma
Summary –
Trauma Component Therapy

- Fast
- Safe
- Effective
- Sustainable