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PEARLS OF LABORATORY MEDICINE

# Blood Utilization and Transfusion Committee

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CCTC Clinical Chemistry Trainee Council

# Purpose and Background

- Transfusion is a high volume activity that interfaces with many hospital services and thus has many stakeholders
- Blood transfusion is not without risk
- Ultimate purpose of a Hospital Transfusion Committee (HTC) is to monitor transfusion practices and adverse events to improve quality and patient safety
- HTC helps meet regulatory and accrediting body requirements

# Regulations and Accrediting Body Requirements

- Code of Federal Regulations (CFR)
- Centers for Medicare & Medicaid Services (CMS)

- College of American Pathologists (CAP)
- AABB
- The Joint Commission

# Meeting Charter, Standing

- Committee Name
- Purpose (see prior slide)
- Membership
- Quorum
- Frequency – usually monthly to quarterly
- Responsibilities & activities
- Authorities delegated
- Decision making – e.g. voting
- Outcome measures of success
- Charter approval & reporting

# Membership and Structure[1]

- Chair: **Transfusion medicine specialist** or other physician with knowledge in transfusion medicine
- Physician members: **Anesthesiologists**, **surgeons**, **transfusion medicine specialists**, hematologists, **critical care physicians**, **emergency physicians**, obstetricians
- Staff members: Nurses, transfusion service medical laboratory scientists
- Other members: Hospital administration, quality, and risk management representatives

**Bold = expert consensus**

# Activities Routinely Performed[1]

- Basic data review
  - Type & screens performed
  - Crossmatched/allocated, issued, and **transfused by component**
  - **Component wastage/expiry, lost components**
  - **Transfusion-related adverse events**
- Other quality metrics
  - **Rejected samples (e.g. mislabeled)**
  - Biological Product Deviations (BPDs)
  - **Turnaround times**
  - **Blood administration policy compliance**
  - Surgical blood ordering practices
  - Crossmatch:transfuse (C:T) and/or issue:transfuse (I:T) ratios
  - **Massive Transfusion Protocols (MTPs)**

**Bold = expert consensus**

# Basic HTC Dashboard Example

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annualized Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RBCs | | | | | | | | | | | | | |
| Transfused | | | | | | | | | | | | | |
| Discarded | | | | | | | | | | | | | |
| % Wasted | | | | | | | | | | | | | |
| C:T ratio | | | | | | | | | | | | | |
| Plasma | | | | | | | | | | | | | |
| Transfused | | | | | | | | | | | | | |
| Discarded | | | | | | | | | | | | | |
| % Wasted | | | | | | | | | | | | | |
| Platelets | | | | | | | | | | | | | |
| Transfused | | | | | | | | | | | | | |
| Discarded | | | | | | | | | | | | | |
| % Wasted | | | | | | | | | | | | | |
| Cryoprecipitate | | | | | | | | | | | | | |
| Transfused | | | | | | | | | | | | | |
| Discarded | | | | | | | | | | | | | |
| % Wasted | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Type & Screens | | | | | | | | | | | | | |
| Rejected Specimens | | | | | | | | | | | | | |
| Transfusion Reactions | | | | | | | | | | | | | |
| Massive Transfusion Protocols | | | | | | | | | | | | | |

# Institutional Policies: Awareness and Compliance[2]

- Consent
- Blood refusal
- Procedure for ordering pretransfusion testing and blood components
- Blood administration policy
- Massive transfusion protocol (MTP)
- Institutional transfusion guidelines
  - Indications and triggers for transfusion
  - Indications for special needs/attributes
- Blood ordering turnaround times based on level of urgency
  - Service Level Agreement (CAP requirement)

# Development and Review of Other Patient Blood Management (PBM) Activities[4]

- Examples
  - Utilization management: clinical decision support or concurrent audits and interventions
  - Preoperative anemia clinic
  - Cell salvage practices
  - Manage coagulopathy of bleeding patients
  - Other quality metrics/benchmarks

# Discuss Changes in Practice

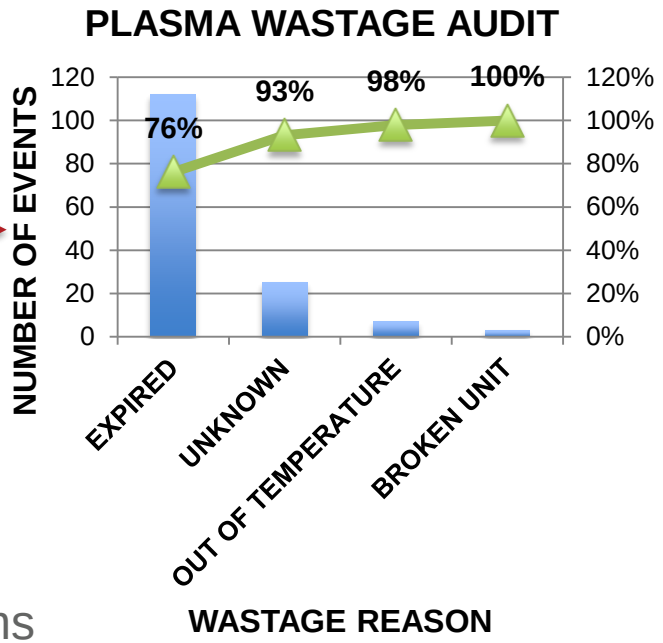
- Hospital transfusion policies & procedures
- Participation in development and implementation of protocols
  - E.g. cardiac surgery. Develop working group of key stakeholders that reports back to HTC.
- Pertinent newly approved drugs
  - E.g. antidote for direct thrombin inhibitor

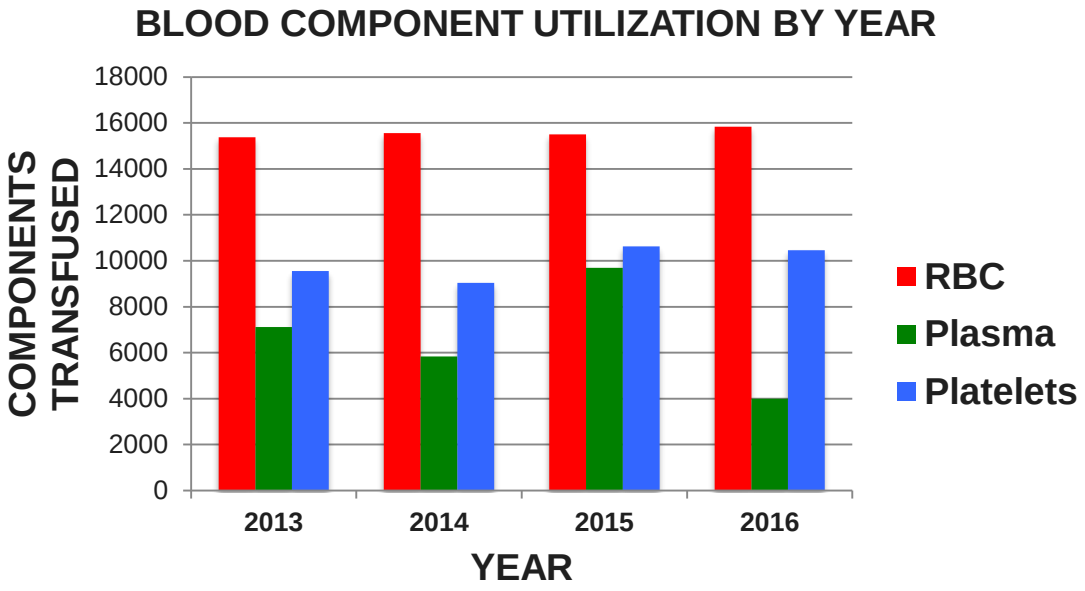
# How Would a Best-In-Class HTC Operate?[2]

- Multidisciplinary, active participation
- Protected, documented meeting minutes
- Excuse those who do not need to participate when liability issues arise
- Clear awareness of and compliance with policies & procedures
- Perform regular internal compliance audits
- Root Cause Analysis (RCA), Corrective Action & Preventive Action (CAPA)
- Data metrics presented in standardized format
- Process for effective training, performance improvement, and change control
- Detailed disaster plan

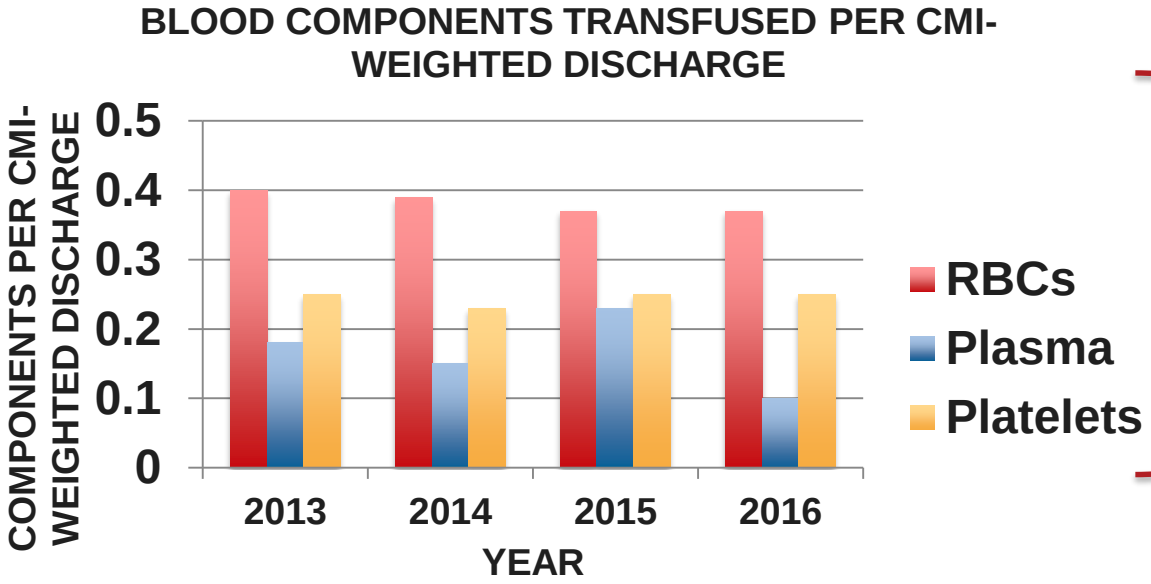
# How Would a Best-In-Class HTC Operate?[3]

- Six sigma philosophy: belief that it is possible to be error free
  - Quality management approach using established tools & techniques
    - Plan-Do-Check-Act (PDCA/PDSA) Cycle
    - Pareto charts
    - Cause-and-effect diagrams
    - Flowcharts and process mapping
    - Statistical process control charts
    - Scatter diagrams, histograms
    - Failure mode and effects analysis






One strategy is to simply track utilization per year




An alternative is to track utilization per year adjusted for any changes in patient volume and case mix

CMI = Case Mix Index

# Blood Administration Compliance Dashboard Example

| Unit | Transfusions (N) | Patients (N) | Start Time | Stop Time | Witness | Pre Vitals | 15min Vitals | Post Vitals | Provider Order | Vol Transfused | Transfusion Reaction | Consent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heme/Onc | | | | | | | | | | | | |
| Stem Cell | | | | | | | | | | | | |
| ICU | | | | | | | | | | | | |
| SICU | | | | | | | | | | | | |
| Obstetrics | | | | | | | | | | | | |
| Cardiology | | | | | | | | | | | | |

Green = Compliant
Yellow = Borderline
Red = Not compliant

# Summary

- HTCs are intended to improve transfusion safety in a collaborative manner
- HTCs should have a charter and be highly organized while encouraging active participation
- HTCs should be data-driven in monitoring transfusion practices
- Best-in-class HTCs will apply quality management principles and may use established quality tools

# References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3. Russel JP. The ASQ auditing handbook 2013;4th ed:184-264.
4. Meybohm P, Richards T, Isbister J, et al. Patient blood management bundles to facilitate implementation. Transfus Med Rev 2017;1:62-71.

# Disclosures/Potential Conflicts of Interest

*Upon Pearl submission, the presenter completed the Clinical Chemistry disclosure form. Disclosures and/or potential conflicts of interest:*

- **Employment or Leadership**: No disclosures
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