

Transfusion Safety in Practice

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CANADA



- Nurses and Physicians at the bedside
- Blood Bank Medical Laboratory Technologists (MLT)
- Transfusion Medicine Physician
- Patient Blood Management Coordinator
- Transfusion Safety Officer/Nurse (TSO)

Transfusion Safety - Team Effort

- Explain the historical background for hemovigilance and the development of the TSO role in Canada
- Discuss how to train someone for the TSO role
- Illustrate how the TSO Role promotes transfusion safety and quality

Objectives

- **1325 bed hospital – 3 sites**
 - Teaching hospital affiliated with University of Toronto faculty of medicine
 - Adult and newborns
- **1.2 million patient visits per year**
 - Largest Trauma Centre in Canada
 - Largest Maternity Hospital
- **Strong focus on cancer, cardiac and vascular disease, image guided brain therapies**
- **11,000 staff, physicians, volunteers, students**
 - 3500 Nurses
 - Transfusion Safety Nurse since 2000
 - Transfusion Error Surveillance System Analyst
 - Patient Blood Management Coordinator(s) since 2002

Introduction



- 1980s - Tainted blood tragedy
 - Over 30,000 cases of transfusion transmitted Hepatitis C and HIV
 - Loss of confidence in the blood system
 - Canadian Red Cross
- Krever Inquiry (1993-97) - 50 Recommendation Report
 - Compensation for victims
 - Precautionary measures
 - Before definitive scientific proof of harm
 - Governance
 - Reformed blood system at arm's length from governmental funders
 - Canadian Blood Services and Héma-Québec
 - Public Health recommendation
 - Active surveillance of transfusion related events
 - Provincial Blood Offices – Ministry of Health
 - TSO (Transfusion Safety Officer) role created
- 20 years later
 - Restored public confidence in blood safety



Historical

- 1999 Health Ministry of Québec implemented TSO positions in 20 hospitals identified as Designated Transfusion Centres
 - Clinical TSO (Nurse) and Technical TSO (medical laboratory technologist- MLT)
 - Working together to ensure surveillance of all transfusion events – Blood Transfusion Laboratory and Clinical areas
 - Formal training in transfusion practices and reactions
- Slowly TSO positions began to be created across Canada but usually funded by individual hospitals
 - At Sunnybrook – 2000
- Provincial Blood Offices have begun incorporating a Transfusion Safety Nurse/Officer as part of their team

Hemovigilance in Canada

- **MLT**

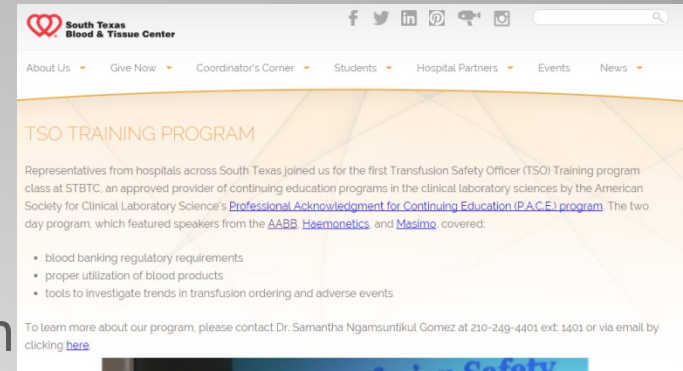
- Experience with all blood products
- Understanding of technical aspects of storage, testing and issuing of blood products
- Awareness of indications for appropriate use
- Knowledge of accreditation standards and regulatory requirements
- Existing relationship with hospital Blood Transfusion Laboratory and blood supplier
- Limited knowledge of clinical aspects of patient care, clinical documentation and transfusion practice

- **Nurse**

- Expertise in patient care and clinical areas
- Knowledge of bedside transfusion practice
- Understanding of competing pressures at the bedside
- Better able to instruct in a format most helpful to nurses
- Existing relationship with nursing and medical staff

TSO - Nurse or MLT

- International
 - USA - South Texas 2 day training course
 - southtexasblood.org
 - Australia - BloodSafe eLearning
 - bloodsafelearning.org.au
 - Graduate Certificate in Transfusion Practice



- Canadian
 - CSTM website
 - transfusion.ca
 - Ontario
 - transfusionontario.org
 - TSO Resource Manual
 - Bloody Easy Lite eLearning
 - Bloody Easy 4, Coagulation Simplified handbooks



TSO Training

Table 6-2. TSO Training Methods Identified by Survey Respondents⁴

Training Methods Experienced by Respondents	Response Percent	Response Count
Initial training in nursing or laboratory science PLUS years of experience in transfusion service/ blood management	65%	62
Formal TSO orientation program	8%	8
Attendance at national meetings such as AABB, SABM	40%	38
Networking with other TSO/blood management managers	53%	50
Other (eg, self-study, on-the-job training)	22%	21
answered question		95
skipped question		13



TSO Role

What I do + ...

- Investigation of reactions, incidents and near misses
- Quality improvement
- Active surveillance of:
 - Patient identification
 - Appropriate orders
 - Sample labeling practices
 - Blood administration
- Education and training
- Creation of resource material for clinicians
- Patient blood management
- Participation in transfusion safety initiatives

**Improve transfusion safety
outside of the laboratory**

- Investigation

- Assess signs and symptoms, timing, underlying condition
- Review with Transfusion Medicine physician
- Classify
 - Reaction type or unrelated
 - Severity
 - Imputability
 - Outcome
- Report result to clinicians and document
- Recommendations for future transfusions

- Reporting

- Blood supplier if product quality/efficacy in question
- Governmental hemovigilance programs
- Hospital database
 - Present at Transfusion Committee
 - Useful for education



Transfusion Reactions

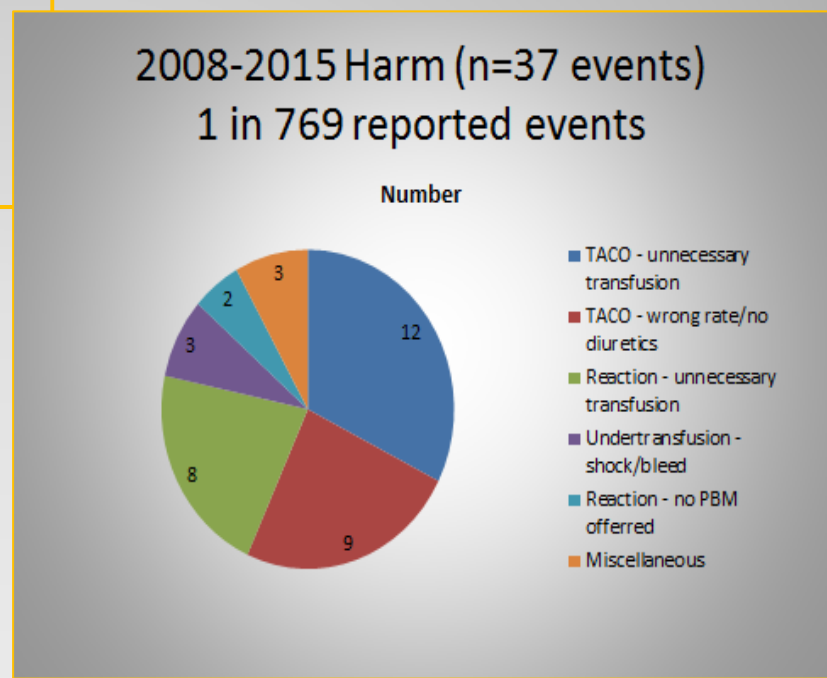
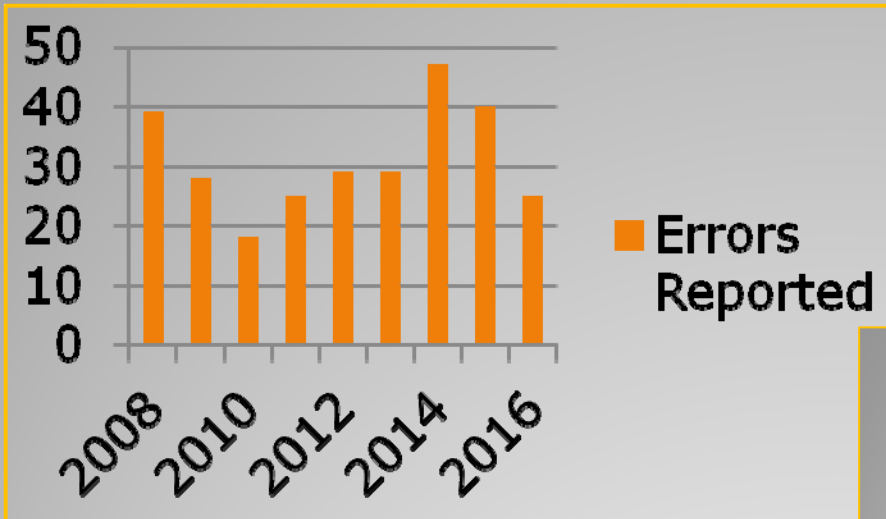
- **Investigation**

- Errors and incidents related to transfusion practice
- Root cause analysis
 - What the heck happened?
 - Why did it happen?
 - What can we do to prevent it from happening again?

- **Reporting**

- Make recommendations
- Hospital risk management
 - Incident/Error reporting
- Transfusion Committee, assess for trends
- Governmental authorities as required

Error and Incident Investigation



Effect of a TSO on Error Reporting



- Ensure compliance with Standards and Blood Regulations
 - Clinical areas outside Blood Bank
 - Personnel training
 - Consent, Order, Sampling, Transport, Transfusion
 - Equipment – tubing, infusion devices, warmers
 - Adverse reactions
- Serve on Transfusion Committee and others requiring transfusion medicine input
 - IV pump selection
 - Consent policy
 - Massive transfusion
- Participation in inspection or accreditation



Quality

- Audits – bedside and retrospective
 - Transfusion practice
 - Consent
 - Documentation
 - Audits as an opportunity for teaching
- Data analysis
 - Reporting of results to benchmark and improve practice
- Annual summary to Nursing and Medical Leadership and Risk Management

Audits



2016 - QUALITY TRANSFUSION AUDIT RESULTS

Please post for all staff to review

53 audits were conducted last year with an average score of 96%, again an improvement from last year!

- 31 audits (58%) had a perfect score – a ten percent increase from last year!!
 - Congratulations to C2, TMC, ED and Blood Bank for the most perfect audits
 - Other PCUs with perfect audits are B4, D2, D5, D6 and RTBC
- Only 2 audits had a score of 85% or less - this is down from 8 last year!

Serious Errors: 6 TESS (*Transfusion Errors Surveillance System*) events were reported and again an improvement from 10 last year;

- 1 case – **Transfusion order outside of hospital transfusion guidelines**
- 2 cases – **Blood not checked properly prior to transfusion**
 - Once away from the patient's bedside and once against an armband on the bed

Greatly improved

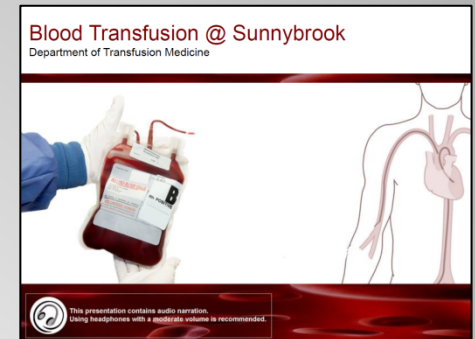
- Appropriate transfusion orders – **This is the most improved category!**
Good work ordering physicians and NPs
In the spirit of Choosing Wisely “**Why give 2 when 1 will do?**”
- Decrease of 40% in the number of serious errors

Audit Summary

- Participate in development of Clinical P&P
 - Transfusion policy
 - General and for unique areas (dialysis, NICU)
 - Product monographs
 - Reaction management
 - Transfusion consent
 - Use of infusion devices and blood warmers
 - Pre-transfusion blood sample collection
- Periodic review and revisions
 - Stakeholder consultation
 - Approval process
 - Posting and advertising

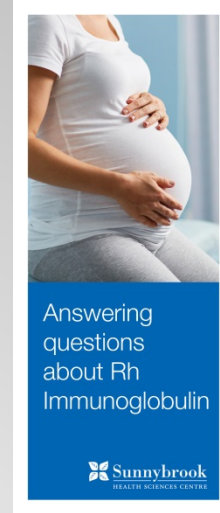
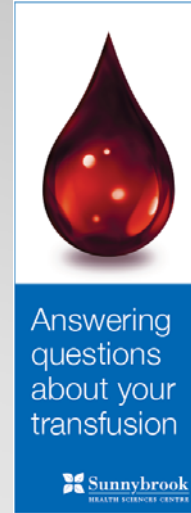
Policies and Procedure (P&P)

- Orientation of newly hired staff
- Training of staff for specialized areas/scenarios
 - ICU, NICU, Massive Transfusion protocol
- Develop and maintain a formal competency training program
 - eLearning module
 - Live sessions
- Training with new blood products, processes and equipment



Education and Training

- For Nurses and Physicians:
 - Reaction investigation guidelines
 - Guidelines for special patient populations
 - Product monographs
- For Patients:
 - Information pamphlets
 - Post transfusion reaction discharge instructions
- Posted on Blood Bank intranet page

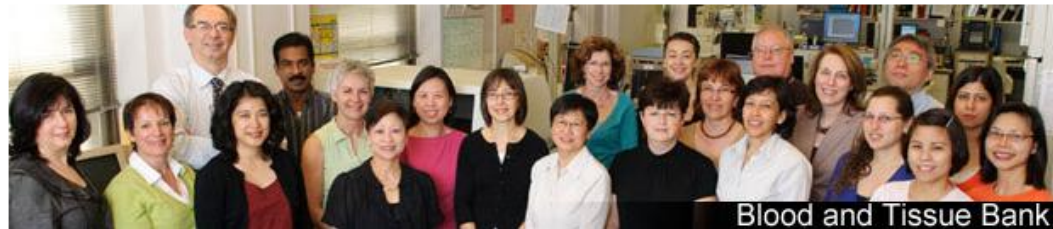


Resource Material

Home > Departments > Medical Departments > Laboratory Medicine > Blood & Tissue Bank



- Laboratory Medicine**
- [Lab Test Information Guide >](#)
- [Anatomic Pathology](#)
- [Blood & Tissue Bank >](#)
- Monographs - Blood & Tissue Products
- Patient Information >
- Transport during Transfusion
- Transfusion using Sapphire® IV Pump
- Transfusion Guidelines >
- Reactions >
- Policies & Standards >
- Contact Us
- Clinical Pathology - Integrated & Core Laboratories >**
- [Molecular Services >](#)
- [Laboratory Information Systems](#)
- [Lab Medicine Bulletin >](#)
- [Point of Care Testing >](#)



Blood and Tissue Bank

Blood & Tissue Bank

Click below for information on all products issued from the Blood & Tissue Bank:

[Monographs - Blood & Tissue Products](#)

[Patient Information](#)

[Transport during Transfusion](#)

[NEW - Transfusion using Sapphire® IV Pump](#)

[Blood Conservation](#)

[Transfusion Guidelines](#)

[Reactions](#)

[Policies & Standards](#)

Upcoming Inservices - no inservices scheduled

[Contact Us](#)

[Transfusion Medicine Committee Terms of Reference](#)

Announcements

bloody news

Posted: 14 September 2017

NEW

[Heading Home After A](#)

[Transfusion](#) - patient information sheet

[Rhlg FAQ for Obstetrical Clinicians](#) (link also available in Rhlg monograph)

Recent News -

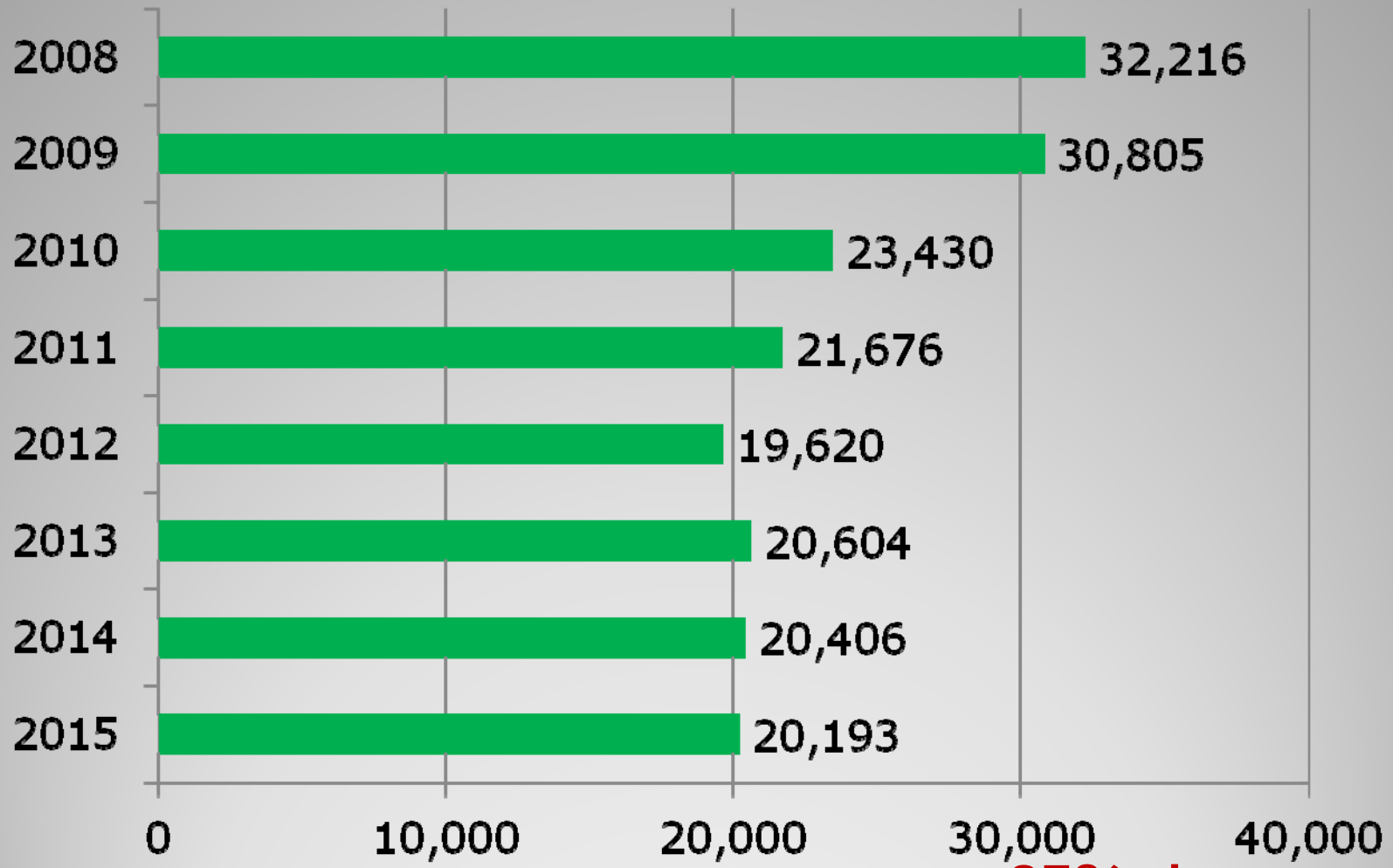
[Platelet](#), [Plasma](#) and [Rhlg](#) Adult monographs

[Transfusion Guidelines](#)

including updated risk table

- An evidence based, multidisciplinary approach to optimizing the care of patients who might need transfusion.
 - Treat anemia (iron deficiency, chronic disease)
 - Minimize blood loss (pre/intra/post-op strategies)
 - Appropriate use of blood
- Benefits include
 - Decreased transfusion rates, hospital length of stay
 - Increased patient satisfaction
- TSO may be involved in establishment of a PBM program

Patient Blood Management



37% decrease

Blood Components Issued for Transfusion

- Implementation of changes in processes to improve transfusion safety

- Blood group check

- Trying to prevent wrong blood to patient

- Barcode technology

- Sample labeling
- Checking blood

- Massive Transfusion

- Nursing module



Initiatives to Improve Transfusion Safety

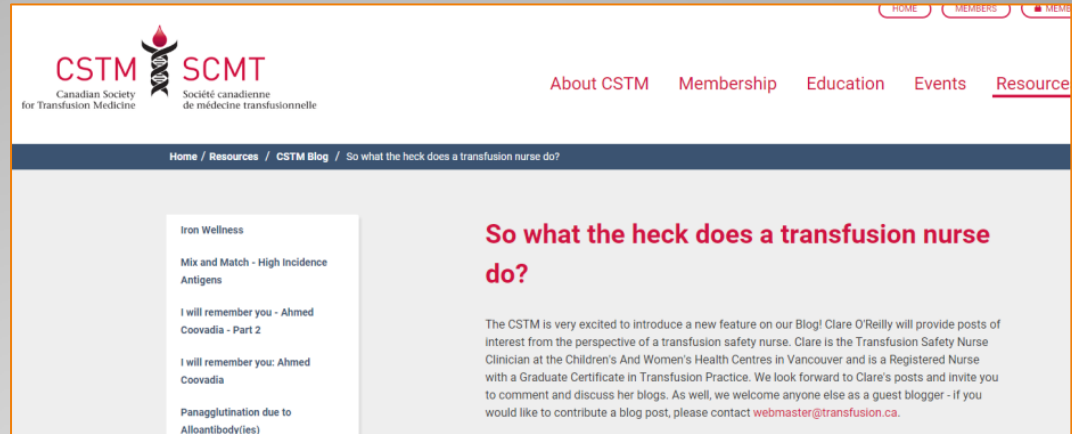
- Resource for clinical staff
 - *How do I...*
- Liaison between clinical staff and laboratory staff
 - Monkey in the middle
- Working with interdisciplinary team
 - Nurses, Doctors, Risk Management, Porters...
- Network with other TSOs
 - Resource
 - We learn from each other



- **CSTM Blog**

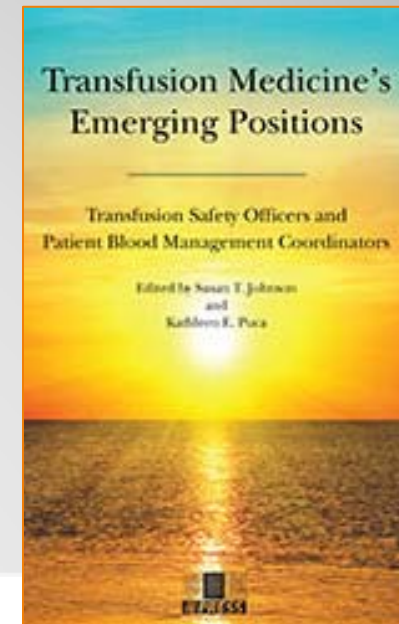
- transfusion.ca

- <http://www.transfusion.ca/Resources/CSTM-Blog/August-2016/So-what-the-heck-does-a-transfusion-nurse-do>



- **AABB** *Advancing Transfusion and Cellular Therapies Worldwide*

- aabb.org/programs/publications
 - Role of TSO and Patient Blood Management Coordinators



Further Reading

ORIGINAL ARTICLE

**Hospital-based transfusion error tracking from 2005 to 2010:
identifying the key errors threatening patient transfusion safety**

*Carolyn Maskens, Helen Downie, Alison Wendt, Ana Lima, Lisa Merkley, Yulia Lin, and
Jeannie Callum*

Transfusion. 2014

Jan;54(1):66-73. doi: 10.1111/trf.12240. Epub 2013 May 14

How do we utilize a transfusion safety officer?

[Dunbar NM](#), [Szczepiorkowski ZM](#).

Transfusion. 2015

Sep;55(9):2064-8. doi: 10.1111/trf.13184. Epub 2015 May 30

More Further Reading

- The Transfusion Safety Officer is an integral part of the team that promotes quality and safety in transfusion practice
- Key components of the role
 - Investigation of transfusion reactions and errors
 - Active surveillance of transfusion related events as mandated by Krever Commission
 - Promotion of quality and best practices in bedside transfusion practice

In Summary



TSO in her spare time...

Thank you for your attention