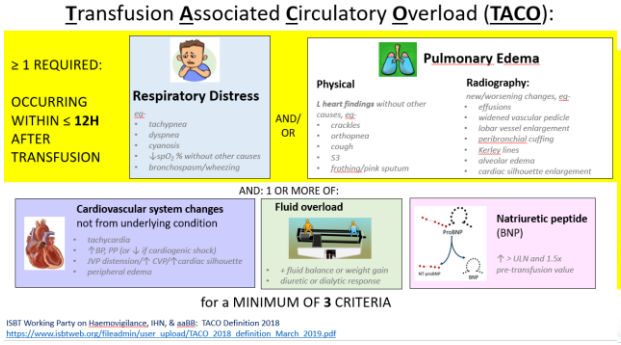
Dr. Christine Cserti-Gazdewich, Acute Non-Infectious Reactions

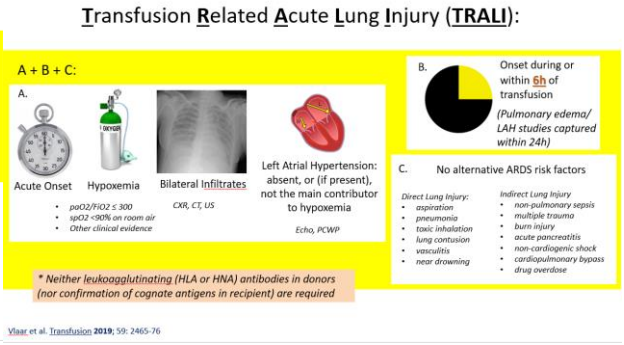
Minimum Disclosure Framework

in Layman's Terms & Logscale Frequencies

logscale		
1 2	**Common, minor events** (1 / 10^1-10^2)	non-serious **fever** non-serious **hives** make **antibodies** to donor antigens (RBC, HLA)
3 4 5	**Serious, potentially fatal events** (1 / 10^3-10^5)	**breathing trouble**: –volume-driven fluid excess –immune injury-driven fluid leaks –anaphylaxis / severe bronchospasm **bacterial contamination** of unit **botched process** (wrong sample or bag)
6	**Extremely rare events** (1 / 10^6 or less)	viral contamination of unit (**hepatitis, HIV**) **new** or **rare** (not tested-for) **bugs** fatal immune "take-over" by product

- Fever differential diagnosis
  - Low risk: FNHTR
  - High risk: bacterial contamination, bacterial sepsis, acute hemolytic transfusion reaction
- Dyspnea differential diagnosis: TACO, TRALI, Allergic, TAD





- Allergic reaction: ranges from cutaneous eruption to anaphylactic reaction
- Investigations:
  - Febriles: hemolysis, microbiology
  - Dyspneics: hemolysis, microbiology, CBS (donor ALA)
  - Hypotensives: hemolysis, microbiology
  - Anaphylactics: hemolysis, ?IgA/anti-IgA IgG
- Report all transfusion reactions to the blood bank and blood bank will report to outside channels (Canadian Blood Services, TTISS, Health Canada, etc.)

Dr. Marissa Laureano, Informed Consent

Key points

- Studies have shown that we can improve our informed consent process for transfusion.
- Obtaining informed consent for blood is crucial for multiple reasons:
  - **Ethical obligation**: We need to respect patient autonomy, allow patients to be involved in their care, and allow for discussion.
  - **Legal obligation**
  - **Standards**: Consent is required by the Canadian Standards Association and Canadian Society for Transfusion Medicine.
- There are **three key requirements of consent**:
  - It must be voluntary.
  - The patient must be properly informed.
  - The patient should have the capacity to make decisions.
- **Who should obtain consent?**
  - The most responsible physician, resident, fellow, or nurse practitioner ordering the transfusion.
- **Important elements of informed consent for blood**:
  - Patient or substitute decision maker (SDM) providing consent.
  - Indication for the transfusion.
  - Possible benefits and risks.
  - Potential consequences of not having the treatment.
  - Alternative treatments.
  - The choice made by the patient or SDM.
- **Discussing transfusion risks.**
  - The discussion should be tailored to the patient.
  - Explore common risks and risks that are uncommon but severe.
- **Informed consent must also be obtained for blood derivatives.**
  - Blood derivatives include: albumin, IVIG, prothrombin complex concentrate (PCC), fibrinogen concentrate, Rh immunoglobulin (RhIg), and plasma-derived factor concentrates.
- **The discussion between the patient and healthcare practitioner is one of the most important aspects of informed consent for blood.**

Reference: ORBCON informed consent pocket card
https://transfusionontario.org/wp-content/uploads/2020/06/InformedConsent2017.pdf

Dr. Jacob Pendergrast, Sickle Cell Disease – Perioperative and Acute Transfusion Management

Key Points

The "Rules" of transfusion differ significantly in sickle cell disease vs. other conditions.

- The benefit of transfusion in sickle cell disease comes more from decreasing the blood viscosity (ie., decreasing the HgbS%) than it does with increasing the oxygen carrying capacity (ie., the total Hgb).
- Because the viscosity of sickle cell blood is so high, transfusion may cause harm if it drives the total hemoglobin higher than 100 g/L, and in the absence of acute organ dysfunction is usually not required until the Hgb is less than 50 g/L.

Even with severe anemia, transfusion should be pursued cautiously.

- The conditions that can cause a patient with sickle cell disease to have a hemoglobin less than 50 g/L also increase the risk of adverse transfusion reactions.
    - Aplastic crisis: *hypoxia due to volume overload.*
    - Sequestration: *hyperviscosity due to autotransfusion.*
    - Hyperhemolysis: *worsening anemia due to bystander hemolysis.*

Most sickle cell patients requiring surgery should have a pre-op transfusion, but the type of transfusion will vary.

- Transfusions are usually not needed for low-risk patient (ie., no chronic organ dysfunction) with low risk procedure (ie., procedures on distal extremities or perineum).
- For everyone else, the choice of top-up vs exchange transfusion depends on patient comorbidity, their baseline hemoglobin, and whether the procedure is high-risk (ie., requiring a prolonged recovery period).

There is only weak evidence to guide transfusion support in pregnant sickle cell patients.

- Available evidence suggests transfusion is of more benefit for maternal well-being than the developing fetus, and therefore should be prescribed in absence of significant maternal symptoms.
- There may be exceptions, however (eg., signs of placental insufficiency, previous history of intra-uterine growth retardation).

There is a strong evidence for the benefit of transfusion to prevent stroke.

- Transfusion indicated for all children with high-risk transcranial doppler ultrasound and those with a history of symptomatic stroke; there is smaller value for children with silent cerebral infarcts, and transfusion decisions should be made for them on a case-by-case basis.
- There is limited evidence to inform transfusion for stroke prevention in adults, and causes other than sickle cell disease should be sought.
- Exchange transfusion should be initiated immediately in the setting of acute ischemic stroke, but should wait until bleeding has stopped in patients with hemorrhagic stroke.

Therapeutic transfusion is indicated for acute organ compromise but not uncomplicated vaso-occlusive crisis.

- Although little evidence, consensus supports transfusion as first line therapy for for acute stroke, acute chest syndrome, and sickle hepatopathy.
- Other situations (eg., malleolar ulcers, pulmonary hypertension), transfusion can be considered if other treatments have failed.

Selection of RBCs must be done with care.

- Sickle cell patients are at higher risk of alloimmunization, and delayed hemolytic transfusion reactions can be deadly.
- Extended antigen matching is therefore very important, which requires ensuring the blood bank knows your patient has sickle cell disease and their full transfusion history.