



**Population Health
Research Institute**
HEALTH THROUGH KNOWLEDGE

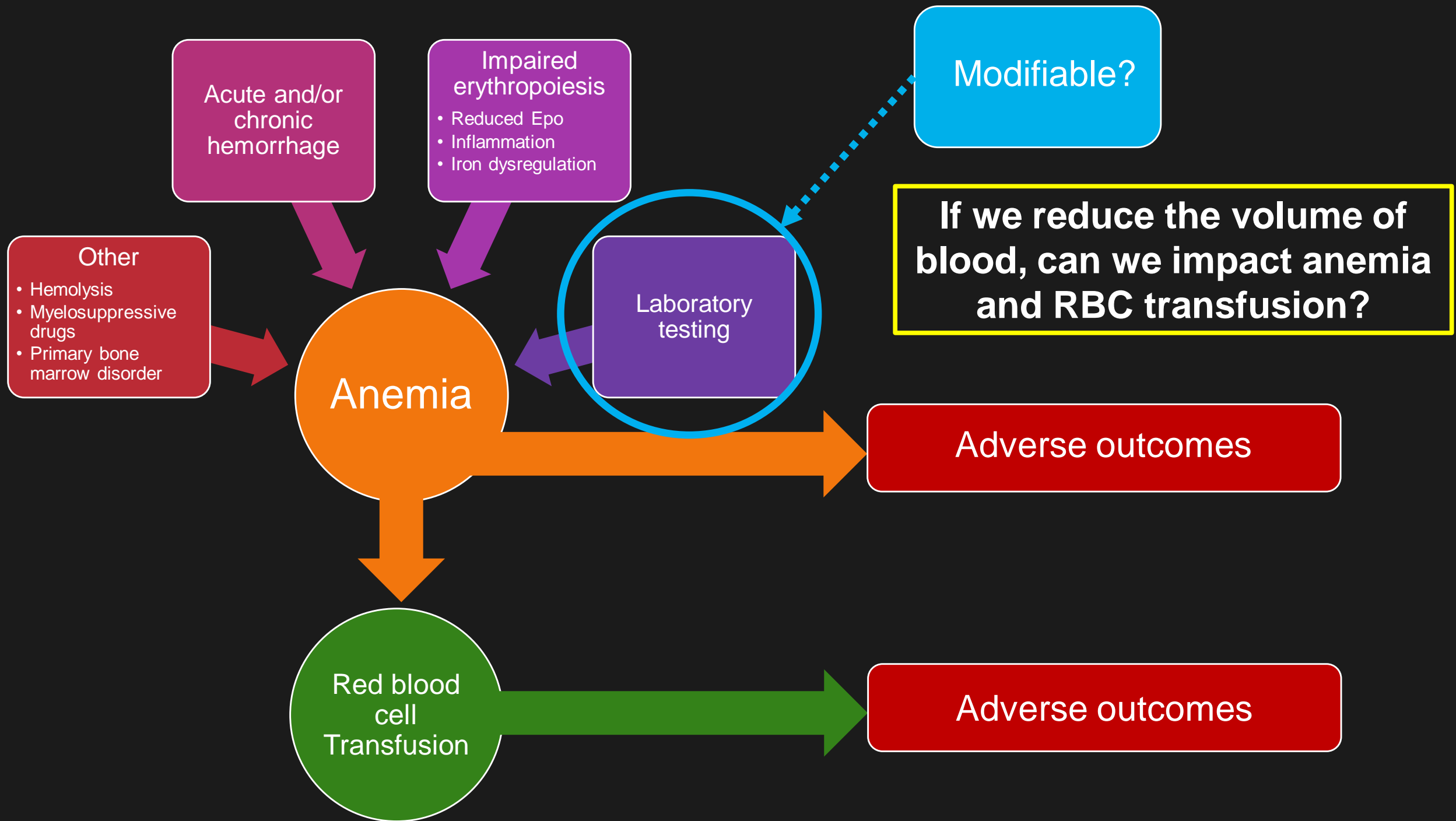


Small-Volume Tubes to Reduce Anemia and Transfusion (STRATUS): Stepped Wedge Cluster Randomized Trial

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Rationale for a Randomized Trial

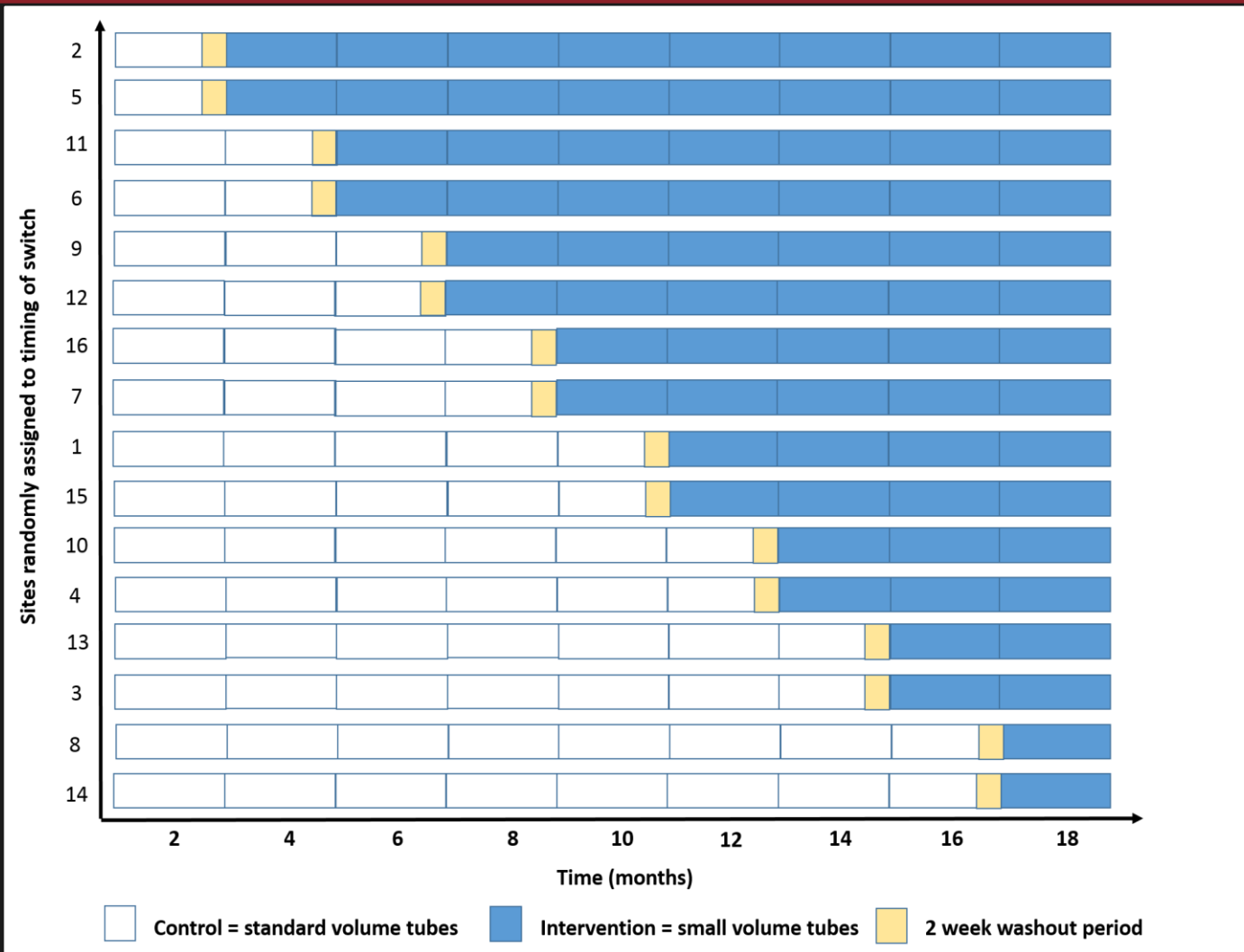
- ✓ Anemia and RBC transfusion are associated with adverse outcomes
- ✓ Blood sampling is a modifiable source of blood loss
- ✓ Small-volume tubes reduce blood loss
- ✓ Randomized trial with an important outcome is needed to change practice

Hypothesis



A policy of using small volume blood collection tubes will reduce the rate of transfusion in ICU patients

Stepped Wedge Cluster Randomized Trial



- 16 - 20 sites planned
- Total patients = 9223
- Patients/cluster = 580
- 63 weeks
- 90% power to detect difference of 7 units pRBCs per 100 patients

Site Eligibility



- Large size ICU (at least 14 level 3 ICU beds) with capacity for invasive mechanical ventilation
- Use BD Vacutainer[®] blood collection tubes
- Use standard-draw tubes for blood sampling in adults
- Electronic information available
 - Administrative data
 - Medical record data

Intervention: Small-Volume Tubes Routinely to Replace Current Care

Description	Standard-Draw (mL)	Soft-Draw or Reduced Volume (mL)
EDTA (lavender)	10.0, 6.0, 4.0, 3.0	2.0
Fluoride (grey)	6.0, 4.0	2.0
Serum (red)	4.0	3.0
Lithium/Sodium Heparin (green)	6.0, 4.0	2.0
Citrate (light blue)	4.5, 2.7	1.8
Serum separator (gold)	5.0	3.5

Primary Outcome

- Number of pRBC units transfused per patient during ICU admission (patients admitted to ICU for ≥ 48 hrs)

Secondary outcomes

- Number of pRBC units transfused per patient during ICU admission (all patients)
- Proportion of patients receiving RBC transfusion
- Change in Hb (adjusted for RBC transfusion)
- No. specimens with insufficient volume for testing
- ICU/hospital length of stay
- ICU and hospital mortality