Qualitative Assessment of Blood Transfusion at a Regional Referral Hospital in Eastern Uganda

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Authors: L. Checkley¹, M. M. Ajiko², G. Motwani¹, O. Nwanna-nzewunwa¹, C. Juillard¹, R. Dicker¹; ¹San Francisco/US, ²Soroti/UG
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Background

- > 1 million people die annually from injury and 20 to 50 million more are injured or disabled\(^1\)
- 90% of these occur in low- and middle-income countries (LMIC)
- WHO blood unit standard: 10 units/1000 population\(^2\)
  - HICs: 33.4 units/1000 population
  - LICs: 4.6 units/1000 population
- Uganda is a LIC; nearly 20% of its population lives below the poverty line\(^3\)

- Lack of information:
  - provider allocation of available blood products
  - workarounds to address chronic blood shortages

Study Aims

This study aims to understand providers' perspectives regarding:

1. How limited blood transfusion resources are allocated
2. What workarounds are devised to overcome these obstacles
3. The specific needs for improving the blood transfusion system in a Ugandan Regional Referral Hospital
Methods

- We obtained a convenient sample of physicians and nurses at Soroti Regional Referral Hospital (SRRH), Uganda

- Using semi-structured qualitative interviews, we had seven questions exploring three constructs:
  
  1. Resource allocation
  2. Workarounds to address blood product scarcity
  3. Improvement opportunities for the blood transfusion/donation process

- Grounded theory framework was employed from which major themes were elicited

- Atlas.ti.1.6.0 was used to manage the data

Sample Interview Questions:

• How do you determine which patients should receive a blood transfusion?
• Describe what happens when blood is requested, but not available.
• How do you determine which patient has the strongest priority for transfusion?
Findings

Results

- Theoretical saturation was reached at interview 20

- Participants included nurses (n=2), attending physicians (n=4), and intern doctors (n=14) from any specialty

Theme 1: Transfusion Transmissible Infections (TTIs) [Fig. 1]

- Prolonged TTI screening for the 4 required infections: HIV, Hepatitis B and C, and Syphilis

- As a workaround for unavailable screening facilities, blood samples are screened at Mbale Regional Referral Hospital (MRRH, 100 km from Soroti)
  
  • this process can take hours to days

- Essential screening machines at MRRH often malfunction requiring blood to be sent to Nakasero National Blood Bank in Kampala, 8 hours away from Soroti

Theme 2: Indication for Transfusion [Fig. 2]

- The laboratory for blood investigations (Hb) is not always open or sufficiently staffed

- Due to the unavailability of hemoglobin investigations, most transfusions are indicated based on history or clinical signs such as:
  
  • Pallor - skin and mucous membranes
  • Acute bleeding
  • Past history of sickle cell disease

Theme 3: Criteria Prioritizing Patient Populations [Fig. 3]

- Children and pregnant mothers are prioritized in situations of limited blood availability
- Clinical severity is another criterion for prioritization - this is done on a case-by-case basis

- Older populations and patients with terminal illnesses such as cancer are generally considered lower priority

**Theme 4: Referral to Larger Hospital [Fig. 4]**

- MRRH houses the regional blood bank

- If blood is unavailable, patients are often referred to a larger hospital, usually MRRH

- Financial constraints prevent many patients from traveling to MRRH
Theme 1: Transfusion Transmissible Infections (TTIs)

“...we had numbers of patients...and they needed blood, but there was no blood in the hospital. Most of the blood was not screened, and the screening system from Mbale already failed and we were now sending our samples to Nakesero Kampala, we even lost some patients...”

Fig. 1

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Theme 2: Indication for Transfusion

“Most times we just do it clinically because most of the patients we receive them late in the night...if we see a patient is really paper white, or is very pale, we just take off a sample of blood to do our investigations the next day, but then we go ahead and transfuse these patients.”

Fig. 2

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Theme 3: Criteria Prioritizing Patient Populations

“…occasionally look at who is likely to benefit the blood transfusion more…Have a woman who is severely pale with severe malignancy. Then you have a baby who is severely pale from malaria. Benefits. I give blood here to this baby, she is likely to benefit from it. Someone who has a malignant process will likely have a recurrence or probably their prognosis is poor…”

Fig. 3

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Theme 4: Referral to Larger Hospital

“If I request for blood and there is no blood available in the blood bank, then there are 2 options…we contact the head of the blood bank in Soroti, ask them how soon do we hope to get blood [from Mbale]. If it is not within that day, then we shall request the mother to look for funds and take the child to Mbale where they can do the transfusion.”

Fig. 4

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Fig. 5

Soroti – Mbale: 103 Km
Soroti – Nakasero, Kampala: 292 Km

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Interpretation

Conclusions

- Blood units are present in the hospital, but cannot be used because they are unscreened.
- Providers rely on medical history and clinical signs as indicators for transfusion because lab tests are unavailable.
- These findings result in significant delays of treatment to patients who need blood transfusions.

Next Steps

Local TTI screening should be investigated further for feasibility and cost-effectiveness at Soroti Regional Referral Hospital.
References

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Short Bio (max. 150 words or less)

Laura Checkley is a second year medical student at University of California, San Francisco interested in the intersection of emergency medicine and global health.