



A Study of Supply and Clinical Utilization of Blood Products in the Central Plateau, Haiti

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BACKGROUND

- The adequacy of the blood supply, transfusion practices, and associated clinical outcomes in Haiti are unknown
- Blood collection in Haiti is well below the recommended WHO collection rate
- Global Healing is a non-governmental organization with the goal of establishing a safe, sustainable and self-sufficient, modern transfusion program at the Hôpital Universitaire de Mirebalais (HUM), a 300 bed tertiary teaching hospital serving the Central Plateau that opened May 2013
- Prior to May 2013, Cange Hospital was the primary area treatment facility and blood center in this region
- Slow transition of inpatient care and blood collection duties from Cange to HUM was planned

PURPOSE

- Evaluate the blood supply
- Quantify the blood shortage reported by local physicians
- Study the clinical utilization of blood products
- Assess clinical outcomes of transfusion and shortages
- Develop a data collection tool to help better estimate future blood needs

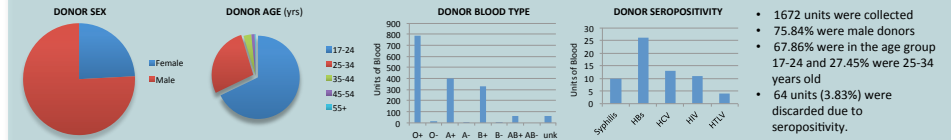
METHODS

- Data regarding blood utilization from Cange Hospital (January 1, 2012 to December 31, 2012) and HUM (May 29, 2013 to September 16, 2013) were obtained via chart review
- Evidence-based transfusion guidelines of patient blood management at the University of California San Francisco Medical Center were used to define the appropriateness of utilization

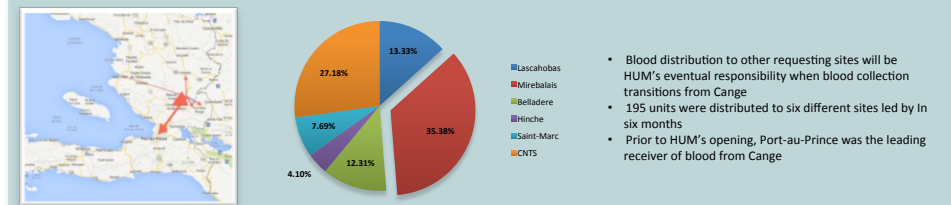
Indication For RBC transfusion

Appropriate	Controversial	Inappropriate
Hgb < 8 g/dL AND symptoms related to anemia OR acute bleeding likely resulting in symptomatic anemia	Maintaining hgb ≥ 10g/dL in "at-risk" patients (co-existing heart / lung disease, ischemic vascular disease)	<ul style="list-style-type: none"> Stable, asymptomatic anemia Medically correctable anemia (e.g., Iron, Vit. B12 deficiency with mild symptoms responsive to temporary decrease in physical activity while the anemia is being corrected)

BLOOD COLLECTION AND DONOR DEMOGRAPHICS AT CANGE



CANGE BLOOD DISTRIBUTION



BLOOD UTILIZATION AT CANGE

Units Requested by Dept	%	Units/request	Total Filled
ED	61	6.28%	2.10
Ped	136	13.99%	1.01
OBGYN	268	27.57%	2.18
Surg	168	17.28%	1.65
Int Med	339	34.88%	1.88
Overall	972		

Total Unit Demand	Total Units Delivered
1018	1016
	99.80%

- Since full clinical services were not yet open at HUM, a one year period of data was collected at Cange to better predict the amount of blood that will be requested once HUM is at full capacity
- Highest overall requester of blood was internal medicine
- OBGYN was the highest requester for whole blood (not shown, fractionated products are not available)
- Almost all units requested were fulfilled (99.8%)

BLOOD UTILIZATION AT HUM

Units Requested by Dept	%	Units/request	Units Filled	% of filled request	Units Unfilled
ED	96	27.99%	2.40	62	64.58%
Ped	5	1.46%	1.00	4	80.00%
OBGYN	141	41.11%	2.14	91	64.54%
Surg	87	25.36%	2.07	61	70.11%
Oncology	14	4.08%	3.50	6	42.86%
Overall	343				

Total Units Demand	Total Units Delivered
361	238
	65.93%

- 343 units were transfused
- OBGYN was the largest consumer of blood
- 65.93% of the units requested were filled
- Of the 165 requests for blood, 84 patients had recorded pre-transfusion hemoglobins, averaging 5.8
- All transfusions were appropriate according to guidelines
- Five patients who received blood products died during the study period, none directly related to unfulfilled blood requests or transfusion reactions



PROJECTED ANNUAL UTILIZATION

	Units
Daily projected need	3.27
Weekly projected need	22.87
Monthly projected need	99.09
Annual projected need	1189.07
+ Internal Medicine opening	1605.24
+ Area blood distribution	1995.24
+ Discarded	2095.00

343 units were used in 105 days at the opening of HUM averaging 3.27 units per day. Extrapolating to 1 year, 1189 units will be needed. Taking into account the full opening of internal medicine services, 1605 units will be needed. With HUM's future role as blood center, 1995 units will be needed. Given the studied discard rate, a total of 2095 units should be collected to match its needs.

METHODS

- Current rate of blood collection at Cange is insufficient for HUM's future needs
- Donation rates among females and older population (age 35+) are low and may represent targeted populations for donor recruitment
- According to utilization data at Cange, internal medicine is a significant consumer of blood products, which was not currently open during the data collection period at HUM
- Almost one third of units requested at HUM were not filled
- No recorded major transfusion reactions or mortalities resulted during the study period
- Current shortages will likely worsen within the first year of HUM opening as medical services fully open
- Further development of blood collection strategy and future analysis of transfusion data collected are needed to ensure adequate blood supply for this new tertiary hospital