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HIV Genotyping Cost Analysis with Follow-up as an Indicator

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Introduction

HIV-1 genotype (GHIV), HIV-1 Integrase (HIV1I) and HIV-1 Trophile (HIV1T) assays are sendout tests that incur a significant financial burden on the laboratory when ordered on inpatients who do not receive follow-up clinic visits. For these assays to be utilized in guiding antiretroviral therapy, the patient must receive **follow-up**. It will reduce the sendout budget by restricting these tests to the outpatient clinic setting.

Methods

The number of GHIV, HIV1I and HIV1T tests ordered between 1/5/13 and 1/5/14 were collect. These data were then analyzed based on test, ordering provider specialty and post-inpatient follow-up. The data was organized into test type and further categorized by order setting (inpatient vs outpatient), and ordering clinician specialty. Clinical follow up was then analyzed for each of the categories.

Results

GHIV: There were 68 patients for which GHIV was ordered, 32% (n =23) of whom did not have follow-up. The specialty who had the largest percentage of un-followed up tests was Hospital Medicine with 63% of their ordered tests not having follow up (n=12). Of the 68 GHIV ordered, 46% were ordered in the inpatient setting with 60% of those orders not receiving follow-up and represent a total cost of $6,300 for the institution.

HIV1I: A total of 7 HIV1I tests were ordered during the time period examined. Of these 7 tests, only one was ordered as an inpatient. This one test was not appropriately followed up on and represented a net cost to the hospital of $725. Interestingly, this test had an overall follow up rate of 71% (n=5).

HIV1T: Of the 6 HIV1T tests ordered, only one of the tests was ordered inpatient, and all of the patients who had this test done received appropriate follow up. The one HIV1T assay ordered inpatient represented a cost of $3,055.

The total amount of money lost due to lack of clinic follow-up was $10,550 for the laboratory.

GHIV Follow Up by Ordering Specialty

Specialty	Follow Up	%	No Follow Up	%	Total
Infectious Disease	23	85%	4	15%	27
Emergency Medicine	3	50%	3	50%	6
Family Medicine	6	75%	2	25%	8
Medicine	7	37%	12	63%	19
Other	6	75%	2	25%	8

Table 1: GHIV orders by ordering specialty and follow up utilization.

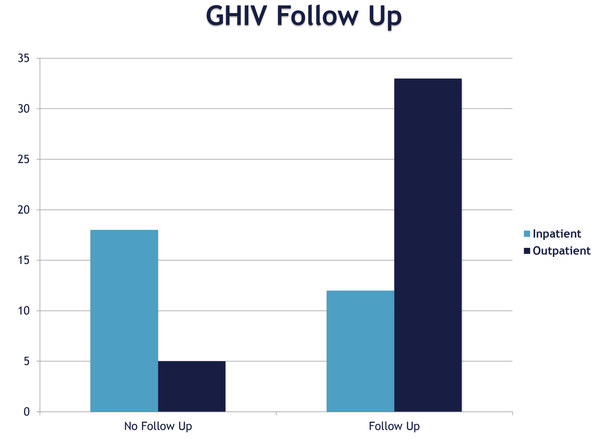

Fig 1: GHIV orders divided into patients who did receive follow up and those who did not receive follow up by ordering location (inpatient vs outpatient).

HIV1I Follow Up by Ordering Specialty

Specialty	Follow Up	%	No Follow Up	%	Total
Infectious Disease	4	80%	1	20%	5
Emergency Medicine	0	0%	1	100%	1
Family Medicine	1	100%	0	0%	1

Table 2: HIV1I orders by ordering specialty and follow up utilization.

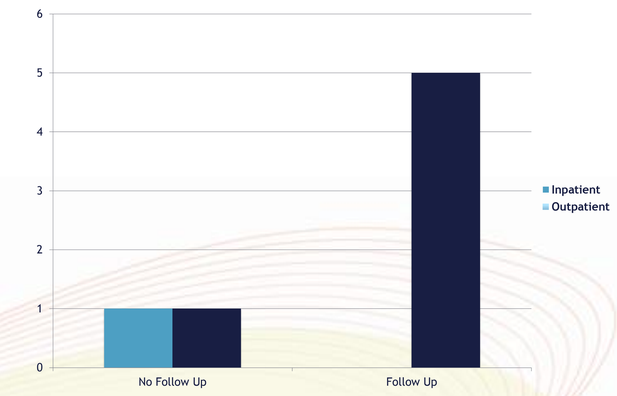

Fig 2: HIV1I orders divided into patients who did receive follow up and those who did not receive follow up by ordering location (inpatient vs outpatient).

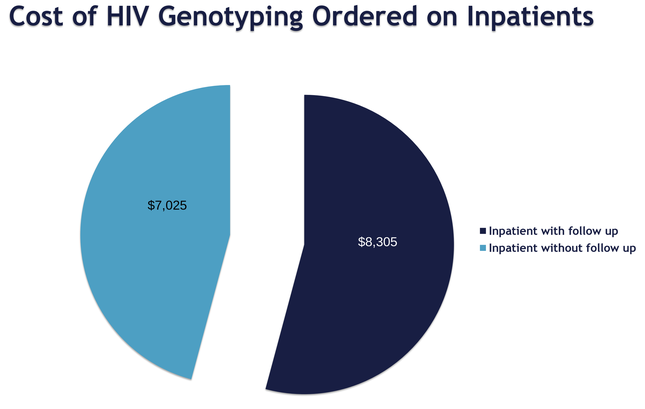

Fig 3: Total cost of HIV genotyping ordered inpatient divided by follow up.

Cost of HIV Genotyping Without Follow Up

	Inpatient	Outpatient	Total
GHIV	$7,350	$1,750	$9,100
HIV1I	$725	$725	$1,450
Total	$8,075	$2,475	$10,550

Table 3: Total cost of HIV genotyping (GHIV and HIV1I) lost to follow up by test type and ordering location (inpatient vs outpatient).

Conclusion

HIV genotyping represents a significant cost for the hospital, that is wasted if there is no follow up. Especially when ordered in the inpatient setting, the lack of follow up confers a significant cost to the institution. The total amount spent by the laboratory on genotyping assays which did not have follow-up during 12 months (inpatient and outpatient) was $10,550. If testing were to be restricted to the outpatient clinic setting there would be a savings of $15,330 annually. Based on this data, ordering of these tests should be at least restricted in the inpatient setting to those patients who are being followed by infectious disease in order to mitigate inappropriate ordering.