

Building capacity in laboratory medicine in Africa by increasing physician involvement: A laboratory medicine course for clinicians

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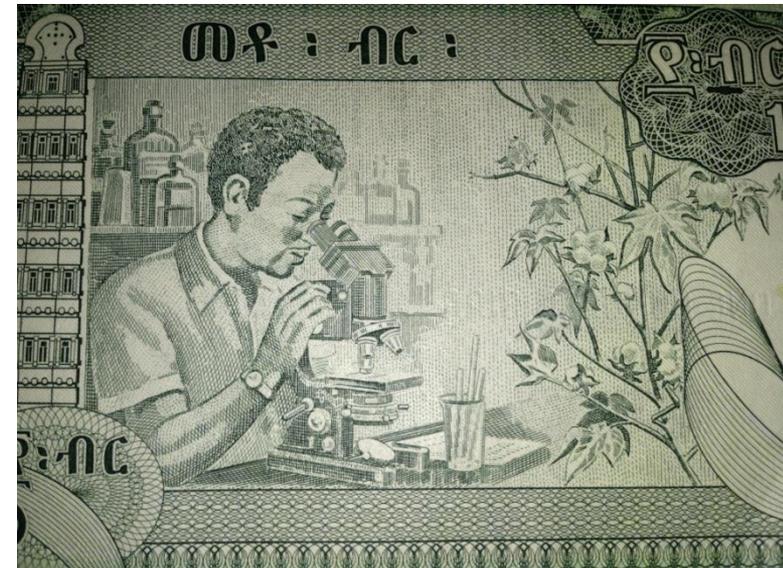
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100 Bir bill~ \$5 USD

Introduction

- Previous work: many laboratories used by sub-Saharan African (SSA) communities are of low quality and clinically unreliable.
- Physicians in SSA have a tendency to ignore test results in favor of clinical intuition: syndromic diagnosis.
- One way to counter this lack of trust and improve engagement is to educate clinicians about clinical laboratory.

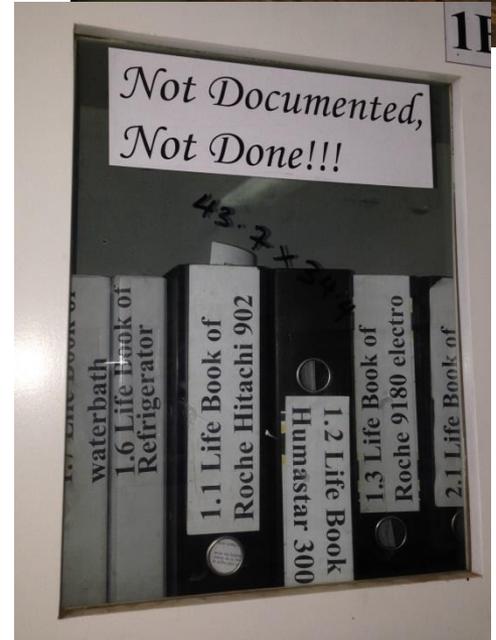
Objective

- Using the ACLPS published proposed curriculum delineating what medical students should know about laboratory medicine, we created and evaluated a 4-day laboratory medicine course for clinicians given at Addis Ababa University, Ethiopia.
- Smith B, et al. Educating medical students in laboratory medicine: A proposed curriculum. *Am J Clin Pathol*. 2010;133:533-542.
- Structure based on a CAPSTONE course that is performed yearly at Emory University Medical School.
- Molinaro R, et al. Teaching laboratory medicine to medical students: Implementation and evaluation. *Arch Pathol Lab Med*. 2012;136:1423-1429.

BLACK LION HOSPITAL: COURSE FACULTY VISIT THE LABORATORY



From the people of United States of America to the people of Ethiopia
This Laboratory Section
Officially Opened by
The Ethiopian Minister of Health and Ambassador of the United States in Ethiopia January 25 2012
Addis Ababa Ethiopia
Funded by The US President's Emergency Plan For AIDS Relief (PEPFAR)



Time	Tuesday 21st Hematology	Wednesday 22nd Blood Bank	Thursday 23rd Chemistry	Friday 24rd Microbiology
9:00-10:30	Lectures	Lectures	Lectures	Lectures
10:30-11:30 or more	Solving cases: with facilitators.	Solving cases: with facilitators.	Solving cases: with facilitators.	Solving cases: with facilitators.
11:30-12:00	Coffee break	Coffee break	Coffee break	Coffee break
12:00-12:30	Discussion of cases, lead Dr Jeannette	Discussion of cases, lead Dr Annie	Discussion of cases, lead Dr Tim	Discussion of cases, lead Dr Mike
12:00-12:30	Lab tour (first group)	Lab tour (third group)	Lab tour (second group)	Wrap up/ Evaluation
Afternoon	Homework (interactive hematology and blood bank case)	Homework (interactive chemistry case)	Homework (interactive microbiology case)	

Solving cases and case discussion

Topic/area	Cases for case-based learning	Interactive case
Chemistry	1. Diabetic ketoacidosis in pregnant patient	Yes
	2. Paraprotein	
	3. Abnormal urinalysis	
Hematology	1. Lymphocytosis	Yes
	2. Microrangiopathic anemia in HIV positive patient	
	3. Malaria	
Microbiology	1. Cryptococcal meningitis in HIV positive patient	Yes
	2. Tuberculosis in HIV positive patient	
	3. Sepsis	
Blood Bank	1. Anemia in patient with a colonic cancer	Yes
	2. Sickle cell patient with alloantibodies	
	3. Hemophilia	





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Specialty -

Clinical Chemistry
Hematopathology
Transfusion Medicine & Coagulation
Lab Principles for Clinicians
Molecular Genetics Pathology
Anatomic Pathology

Microbiology -

Laboratory Principles for Clinicians - Topics

- Healthy 60 year old male, annual physical exam
- 65 year old woman with an elevated TSH
- 64 year old woman with fatigue and lymphocytosis
- 25 year old pregnant woman short of breath and feeling dizzy

MEPI



- 64 year old woman with fatigue and lymphocytosis
- 25 year old pregnant woman short of breath and feeling dizzy
- 22 year old man with persistent headaches and fatigue
- 50 year old man with light headedness, fatigue and shortness of breath

<http://path.emory.edu/EPeP/>, in the section Laboratory Principles for Clinicians, use EPeP as username and password

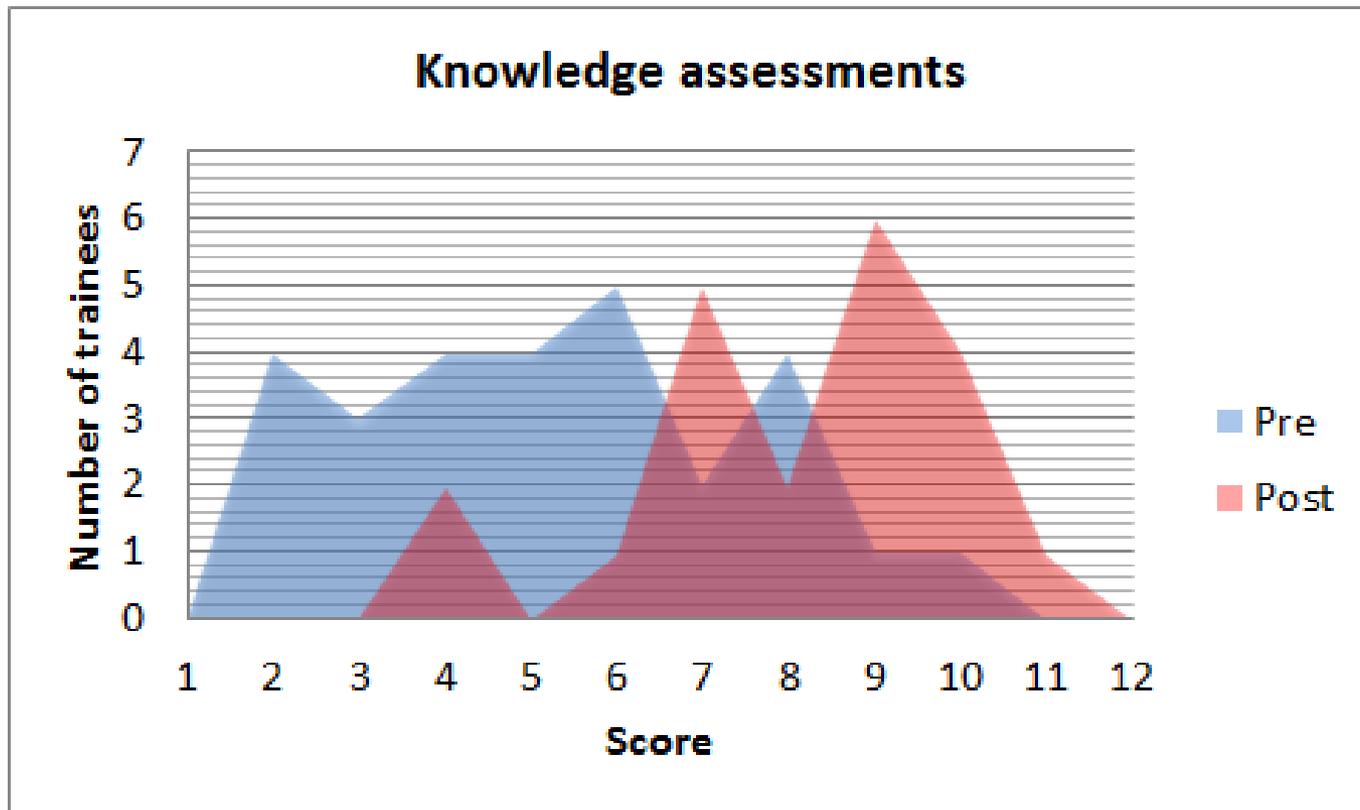
Participants

- Per list provided by MEPI office:
 - ~ 39 participants, though each day the number varied
 - Specialties included: pathology 14, internal medicine 8, surgery 4, dermatology 4, laboratory/microbiology 4, obstetrics and gynecology 3, and anesthesia 2.
- Per our initial assessment (28 participants):
 - 21 residents, all from AAU except one from Jima,
 - 3 faculty members from AAU, and
 - 4 participants from the laboratory/ microbiology

Likert scale regarding attitude towards laboratory before course (%)

	1	2	3	4	5
Interaction with laboratory personnel	0	6 (25)	9 (38)	4 (17)	5 (21)
Trust in hospital laboratory results	0	7 (29)	9 (37)	7 (29)	1 (4)
Results used for diagnosis	0	0	6 (26)	10 (43)	7 (30)
Results used as prognostic indicators	1 (5)	1 (5)	7 (32)	9 (41)	4 (18)
Results used to follow up patients	1 (5)	1 (5)	7 (32)	9 (41)	4 (18)
Results used to treat patients	0	2 (10)	7 (33)	8 (38)	4 (19)

(1 least valuable or used; 5 most valuable or used)



Pre test mean 5.28 (range 2-10), only 2 questions were answered correctly by 60% or more of the class (questions pertained to normal ranges and diagnostic sensitivity & specificity).

Post test mean 8.1 (range 4-11), 8 questions were answered correctly by 60% or more of the class.

The p value of the two-tailed t test comparing 2 means was <0.0001

Likert scale regarding self-assessment of topics learned during the course

	1	2	3
Normal values (reference ranges)	0	3 (15)	17 (85)
Sensitivity and specificity	0	4 (20)	16 (80)
False positive and false negative results	0	1 (5)	19 (95)
Variability of results depending on method	0	3 (15)	17 (85)
Interferences	3 (15)	6 (30)	11 (55)
Preparation of patient and specimens	0	1 (5)	19 (95)
Result interpretation using different methods	0	6 (30)	14 (70)
Laboratory quality control measures	2 (10)	4 (20)	14 (70)
Critical values	1 (5)	4 (20)	15 (75)
Interaction with laboratory professionals	1 (5)	0	19 (95)
Turn around time	2 (11)	4 (21)	13 (68)
Use of the tests discussed	0	3 (15)	17 (85)
Interpretation of point of care	1 (5)	4 (20)	15 (75)

(1 not comfortable; 3 very comfortable)

Conclusions

- We delivered a course that highlighted laboratory principles to clinicians using multiple formats, out of which case-based learning and case discussions were the ones most accepted by the trainees.
- The 14 contact hour course enabled trainees to perform better in a knowledge quiz.
- We have been asked to repeat at AAU for 2015.
- Courses like this bring awareness to what is performed in the laboratory, improve use of laboratory services, make clinicians advocates for laboratory services, and ultimately improve patient care.

THE CLASS



