106 Advancing the Global Workforce in Developing Countries: Diagnostics to Logistics to Solutions

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AMERICAN SOCIETY FOR CLINICAL PATHOLOGY
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Advancing the Global Workforce in Developing Countries: Diagnostics to Logistics to Solutions

This session is designed to increase awareness of the general laboratory community of the challenges faced in global workforce development in limited resource settings in developing countries. Practical methods of assessing laboratory programs enable those attendees who participate in international laboratory initiatives to be more effective in the assessment process. Utilizing the vast and varied experience of the audience, a targeted case study will provide a practical framework to discuss factors contributing to the global workforce crisis.

- Perform an assessment of needs and resources with respect to laboratory workforce in a limited resource laboratory program utilizing qualitative and quantitative techniques. (Direct observation, focus groups, interview of key personnel and review of available laboratory data, policies, and procedures etc.)
- Identify and design practical interventions to improve laboratory workforce in a limited resource laboratory setting utilizing best available patient centered practices and innovative techniques and technologies. (Point of Care, Distance and Web based Learning and Consultations etc.)
- Facilitate members of laboratory workforce in a limited resource laboratory setting in communicating goals and objectives and monitoring and evaluating strategies to internal partners (Clinicians and hospital administrators) and potential external collaborators (Potential grant makers and government and nongovernment organizations).

FACULTY:

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Marise McNeely MD

Entire Pathology Team
Global Pathology
Global Pathology

1.0 CME/CMLE Credit

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Advancing the Global Workforce in Developing Countries: Diagnostics to Logistics to Solutions

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Daniel Yavo, MT

Learning Objectives

• Provide a brief recent historical background on laboratory and public health lab services in resource limited countries (RLC’s)

• Discuss how to perform an assessment of needs and resources with respect to laboratory work force in a limited resource laboratory program

• Identify and design practical interventions to improve laboratory workforce in a limited resource laboratory setting

• Facilitate members of laboratory workforce in a limited resource laboratory setting in communicating goals and objectives and monitoring and evaluation strategies to interested parties

Global Burden of Disease
Kigali, Rwanda Conference 2009

• Premise: Improving clinical and public health laboratories should be a main goal to strengthen health systems and not an afterthought
• Partners included: Several African Countries, Donors, WHO and implementing partners
• Launched Laboratory Management Tool: ‘Strengthening Laboratory Management Toward Accreditation’ (SLMTA)
  • Nyengasong, AIHP September 2010

Three Pillars for Disease Prevention and Control

• Public Health
• Clinical Medicine
• Laboratory Medicine
  – Increase funding allocated for laboratory initiatives:
    • PEPFAR (President’s Emergency Plan for AIDS Relief)
    • and other Global Health Initiatives

Recommendations from Kigali Conference

• Bridge the gap between laboratory medicine and clinicians through continuous laboratory medical education
• Strengthen professional bodies that will advocate for and uphold standards in the field
• Implement competency and task-based management programs (such as SLMTA)
• Implement mentoring by embedding experts within countries lab networks for extended periods of time
• Develop capacity of local and indigenous partners to ensure sustainability
Novel Approaches and Strategies to Strengthen Integrated Laboratory Services in Resource Limited Countries (RLC’s)

- Practical
- Affordable
- Scalable

Avoid setting up parallel fragmented and weaker systems by holistic strengthening of the public health lab systems.

**National Laboratory Strategic Plan**

- Policy and Strategic Planning
- Training, Essential Supplies

NATIONAL CENTERS OF EXCELLENCE

REGIONAL REFERENCE/LARGE HOSPITAL/
PUBLIC HEALTH LAB

DISTRICT HOSPITAL

HEALTH CENTER

DISPENSARIES

Integrated Clinical Services and Testing
Surveillance
Outbreak Investigation

**WHO on Health Workforce Crisis**

- 57 countries with health workforce crisis (< 23 workers per 10,000 people)
- Global workforce crisis shortfall ~ 4.2 million
- Rapid scale-up: US$ 447 million per country per year

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ASCP in Haiti

• Since 2007, ASCP was already involved in supporting laboratory services in Haiti
• Following the earthquake, ASCP in concert with partners in Haiti sought to identify future needs and to ensure that ongoing crucial support services were met
• ASCP mobilized volunteer members who were fluent in French or Creole to provide technical assistance to Haiti’s National Laboratory

ASCP Haiti Technical Assistance

• Mission:
  – Provide technical assistance to improve clinical laboratory management and optimize performance.
• Objectives:
  – Conduct a needs and resource assessment of two designated hospital’s laboratories
  – Facilitate lab professionals in identifying, creating and implementing solutions and in establishing a monitoring and evaluation process
• Areas of Laboratory Management that were addressed:
  – Laboratory Workflow
  – Document Control and Management Quality Assurance/Improvement Laboratory Safety
  – Personnel Management
Program Outline

• Didactic
  – Methods for Performing Laboratory Assessment
  – Findings and Challenges
  – Communicating Findings
  – Practical Short and Long-term Solutions
    • Facilitating Laboratory Workforce in Communicating Goals and Objectives
• Case Presentation

Methods for Performing Laboratory Assessment

• Quantitative and Qualitative Assessment of the 3 phases of laboratory processes:
  – Pre-Analytical
  – Analytical
  – Post-Analytical

Methods for Performing Laboratory Assessment

• Quantitative
  – Data collection
    – Review of documents, statistics, workload volumes
• Qualitative
  – Semi-structured interviews with key personnel or constituents
  – Focus groups
  – Direct observation
  – Participant observation
• Survey
  – Qualitative and quantitative
  – Identification of the different parts of the healthcare system in relation to the laboratory

– Request access to available laboratory statistics
  – Workload volumes
  – Tests performed in the lab
  – Incident report
  – …
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- Standard Operating Procedures (SOPs)
  - Are SOPs readily available to lab personnel?
  - How often are they updated and reviewed by responsible lab leaders?

- Laboratory records
  - How long records are kept?

- Quality Management Systems
  - Are errors frequently reported?
  - What steps are in place to address errors?

- Workflow Analysis
  - Is workflow standardized between different work shifts?
  - Is it optimized for maximal performance?
  - Identify weak links in the workflow

- Laboratory Collection system
- Safety system
Methods for Performing Laboratory Assessment

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Challenges of Laboratory Workforce in a Resource-Limited Country: Haiti

- Inadequate infrastructure and technology
  - Lack of integration of the laboratory services in the health care system
  - Absence of laboratory accreditation
  - Lack of standardization of training programs
  - Constant vulnerability of health care workers to both man-made and natural disasters
  - Inadequate safety system
  - Overstressed laboratory services
  - Restricted funds to adequately and timely pay health care workers
  - Little interest for individuals to enter in laboratory services as a health care career

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Communicating Results of Assessment

- Who should get results?
  - Directors, Managers, Supervisors, Administrators
- Written report with verbal discussion
- Best delivered while on site
- Emphasize positive, but be honest
- Don’t try and solve all problems
- Don’t forget to listen during this phase

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Practical Short-term Solutions

- Most sustainable solutions come from those involved in the day to day operations
- Work closely with local laboratory professionals
- Be diplomatic and sensitive about any proposed solutions
- What can be improved in a short-term manner?
  - Workflow
  - Laboratory documentation and records
  - Safety practices
  - Quality management system
**Practical Long-term Solutions**

- Continue training for all laboratory personnel in all aspects of the laboratory management
- Set goals for an accreditation system (e.g., ASCP)
- Create incentives for attracting and retaining laboratory professional

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**Definitions**

- Goal versus Objectives?
- Monitoring versus Evaluation?
What is a Goal?

- Broad, timeless statement of a long-range program purpose.
- Future event toward which a committed endeavor is directed.
- Usually: more general, take longer to complete, not measurable in exact terms.
- Example: To provide quality laboratory services for patients in XYZ Hospital

What is an Objective?

- More precise, represents small steps that if achieved, will lead to reaching goal.
- State in measurable terms, specific parameters and time frame.
- Example: For 2011-12, the lab will score at least 90% on all CAP proficiency surveys for all analytes assayed.

Monitoring and Evaluation

- MONITOR
- EVALUATE
- ACT
What is Monitoring?

- Monitoring - regular assessment of program. Collect basic data on key aspects of program.
- Not unlike monitoring basic vital signs of a patient.

What is Evaluation?

- Evaluation - more systematic assessment of the program or certain aspects of it. May be done less often, may involve outsiders.
- Not unlike clinical multidisciplinary assessment and evaluation.

Evaluation

Asks the question: How well are things being done?

More specifically:
1. What has been done well?
2. How much has been accomplished in terms of what was planned?
3. Where is improvement needed?
Monitoring and Evaluation

- Aspects of the program that are monitored should be: meaningful, data should be readily available, and/or done to meet national or accreditation guidelines.

What is ACT?

- Implementation of corrective measures to meet:
  - National or accreditation guidelines
  - Established goals and objectives

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Clinical scenario from an elderly patient visiting the tent laboratory at HUEH 6 months after the January 2010 earthquake

Pre-analytical Phase (1/2)

- After waiting for hours in a long line for the opening of the lab, an elderly woman in a wheelchair pushed by her husband reached the accessioning lab clerk.
- Looking at the folded and partially destroyed piece of paper, the clerk severely admonished the duo for not taking better care of the document.
- The husband explained that this is their second trip to the lab trying to have the requested tests done:
  - The first time they came right after seeing the doctor, they were told that it was too late because they have stopped taking lab requests an hour ago
  - They were caught in the rain on their way home and the paper with the lab request got wet

Pre-analytical Phase (2/2)

- The requested tests were hand-written on a piece of notebook page; the running ink made reading the order almost impossible:
  - The letters "Hg" and "C" from "Hmg Complet" (for CBC) were recognizable
  - On another line the clerk could identify "VIH" (for HIV) all cap letters; he could not read the other two lines of lab request
  - Even the patient’s name was faded
- He directed her toward the phlebotomist after letting them know that not all the requested tests will be performed because of the state of the paper.
- At that time the husband pulled out form his bag a small jar with a yellow fluid consistent with urine, stating they were told that she will have to give a urine sample at the lab. Because of her handicap, he thought of collecting the sample at home would be easier.
Analytical Phase

• Unfortunately, the phlebotomist that day had to rush back home because of an emergency. All patients were told to return the next day or to go the other public hospital, La Paix, if it would more convenient. This is how we got involved with her CBC.

• At La Paix, we were consulted on her pancytopenic sample. However, numerous issues came up while attempting to review the peripheral smear:
  – Reused/poorly cleaned glass slide
  – Poor quality staining reagents
  – Substitution of mineral oil for immersion oil
  – Poor optics microscope

• Unable to commit to a specific diagnosis for the reasons stated above, unstained smears were taken to the US for processing and diagnosis (pictures)

Discussion Questions

Peripheral Smear (1000X)
Post-analytical Phase

• Contrary to HUEH where there is a pathologist on staff, at La Paix abnormal tests results are reported directly to the requesting clinician without the input form a pathologist. There was no evidence of a mechanism in place for clinicians’ follow-ups:
  – The samples are not archived (space and refrigeration issues)
  – Shortage of supplies forces the lab to reuse glass slides
Discussion Questions

Follow Up on Haiti and ASCP

- Chemistry, Hematology and CD4 training courses completed in June ‘11 at Haiti National Reference lab with participants from all over the country.
- Phlebotomy training courses scheduled to take place sometime this Fall
- Additional areas under consideration for training:
  - Specifically strengthening laboratory management
  - However funding currently is not available.

Possible Opportunities for Volunteer Activities in Laboratory Medicine

- American Society for Clinical Pathology Global Outreach (www.ascp.org)
- American Society for Microbiology (www.asm.org)
- Idealist.org
- Project Medishare (www.projectmedishare.org)
- Pathologists Overseas (Pathoverc@aol.com)
- International Health Volunteers (www.internationalhealthvolunteers.org)
References

- Cheesbrough M. District Laboratory Practice in Tropical Medicine, 2nd ed. Cambridge, Cambridge University Press, 2006.
- McPherson RA and Pincus MR. Henry’s Clinical Diagnosis and Management by Laboratory Methods (Clinical Diagnosis & Management by Laboratory Methods) 2006.