



AMERICAN
SOCIETY FOR
MICROBIOLOGY

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Role of the microbiology laboratories in the detection of AMR

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American Society for Microbiology

- Oldest & largest single life science organization in the world (1899-2011)
- Membership >40,000 worldwide (30% reside outside the United States)
- ASM members represent 27 disciplines of microbiological specialization
- Publications
 - Translated books
 - 12 journals covering the spectrum of microbiology
- Meetings and conferences
- Official NGO partner of PAHO



Partnership with PAHO

- ASM/PAHO Fellowships and Professorships on Infectious Diseases Epidemiology and Surveillance
- Scientific Writing and Publishing Workshops
- Translation of Antimicrobial Susceptibility Testing Manual
- Provision of expertise on PAHO country assessment visits
- CDC-PEPFAR funded lab strengthening efforts in Guyana and Haiti



Detection of AMR in Microbiology Laboratories

- Labs serve as the first line responders to detect new & emerging microbial threats, re-emerging infectious diseases, the spread of AMR, & the possibility of bioterrorism
- Labs are critical for the collection, analysis, & circulation of AMR data



Detection of AMR in Microbiology Laboratories

- Rapid assays for detection of antibiotic inactivating enzymes (e.g. beta-lactamase)
- Rapid assays for detection of novel penicillin binding proteins (e.g. PBP2a in MRSA)
- Rapid molecular assays for detection of antibiotic resistance genes (e.g. *mecA* in MRSA, *vanA* in VRSA and VRE, and *bla*_{CTX-M}, *bla*_{KPC}, & *bla*_{NDM-1} in GNB)
- Growth (or no growth) on antibiotic-containing media (e.g. MRSA, VRSA, VRE)
- Growth dependent agar diffusion (S,I,R) or broth dilution (MIC) assays



Detection of AMR in Microbiology Laboratories

- Healthcare workers and public health authorities rely on the work and expertise of lab staff to determine:
 - what organism is causing a patient infection
 - what antimicrobials would be effective treatment options.
- The WHO Global Strategy for Containment of Antimicrobial Resistance identifies the establishment & support of microbiology labs as a fundamental priority in guiding & assessing AMR surveillance efforts.
- Lab requirements:
 - Trained & motivated lab professionals,
 - Appropriate infrastructure (materials, equipment, biosafety)
 - Mechanisms for assuring the quality of test performance, and
 - Proper communication with clinicians & public health authorities.



AMR Surveillance Efforts in PAHO Region

- Latin American & Caribbean Network for AMR Surveillance launched by PAHO in 1996
- Key component is - **lab strengthening**, including implementation of QA programs
 - National Public Health Laboratories coordinate and provide EQA to their national networks
- Promotion of WHONET as the basis for the data collection



About the LabCap Program

ASM LabCap's Mission is *to build international laboratory capacity for all clinical/public health microbiology in resource-limited countries.*

ASM LabCap's Goals are to:

- Develop and package training tools using new & existing resources with a consensus approach
- Monitor & evaluate program progress & impact in order to identify best practices
- Create sustainability at national levels through quality assurance programs & working with in-country partners



LabCap in Guyana

Assisting CDC-Guyana with strengthening clinical lab services for TB and microbiology since Dec 2009.

- LabCap/CDC-Guyana: training on solid culture and quality assurance (QA)/quality control (QC); procurement of materials and reagents, and training for nitrate reductase assay (NRA)
- PAHO: procurement of equipment and materials for line-probe assay (LPA) implementation
- Hain Diagnostics: free-of-charge training on LPA

Contamination rates in TB cultures have decreased from 25% to nearly 0%; the NRA has been piloted with good results.



LabCap in Haiti

2008 Coordinated plan for TB assistance to Haiti:

ASM/LabCap

- Providing TB NRL lab construction design plans for building BSL3 TB lab
- Assisting with set up and roll out of AFB smear microscopy EQA and training

Massachusetts Supranational Reference Lab

- Providing TB culture and DST training

PAHO

- Provision of guidelines
- TB surveillance



American Society for Microbiology

Visit the ASM Website at

www.asm.org

Learn more about ASM LabCap Programs at:

www.labcap.org

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