

Clinical Microbiology Laboratory & Antimicrobial Stewardship

By:

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At:

**First AMR- MOPH Lab Mtg for PT & Standardization.
USJ, Beirut, Lebanon, October 27-2015.**



Aspects Involved in AMR & Stewardship Program (ASP)

Antimicrobial Resistance-Pathogens spectrum

Impact of AMR- on individual and community Cost-LOS

Health Initiative to curb R: Local-Global

Stewardship: Aspired target

Antimicrobial Stewardship & Partnership with Clinical Micro

Role of Clinical Micro & reliability of Surveillance

Antibiogram: local & National

Issues of Misuse & Inappropriate Use of Antimicrobial Agents

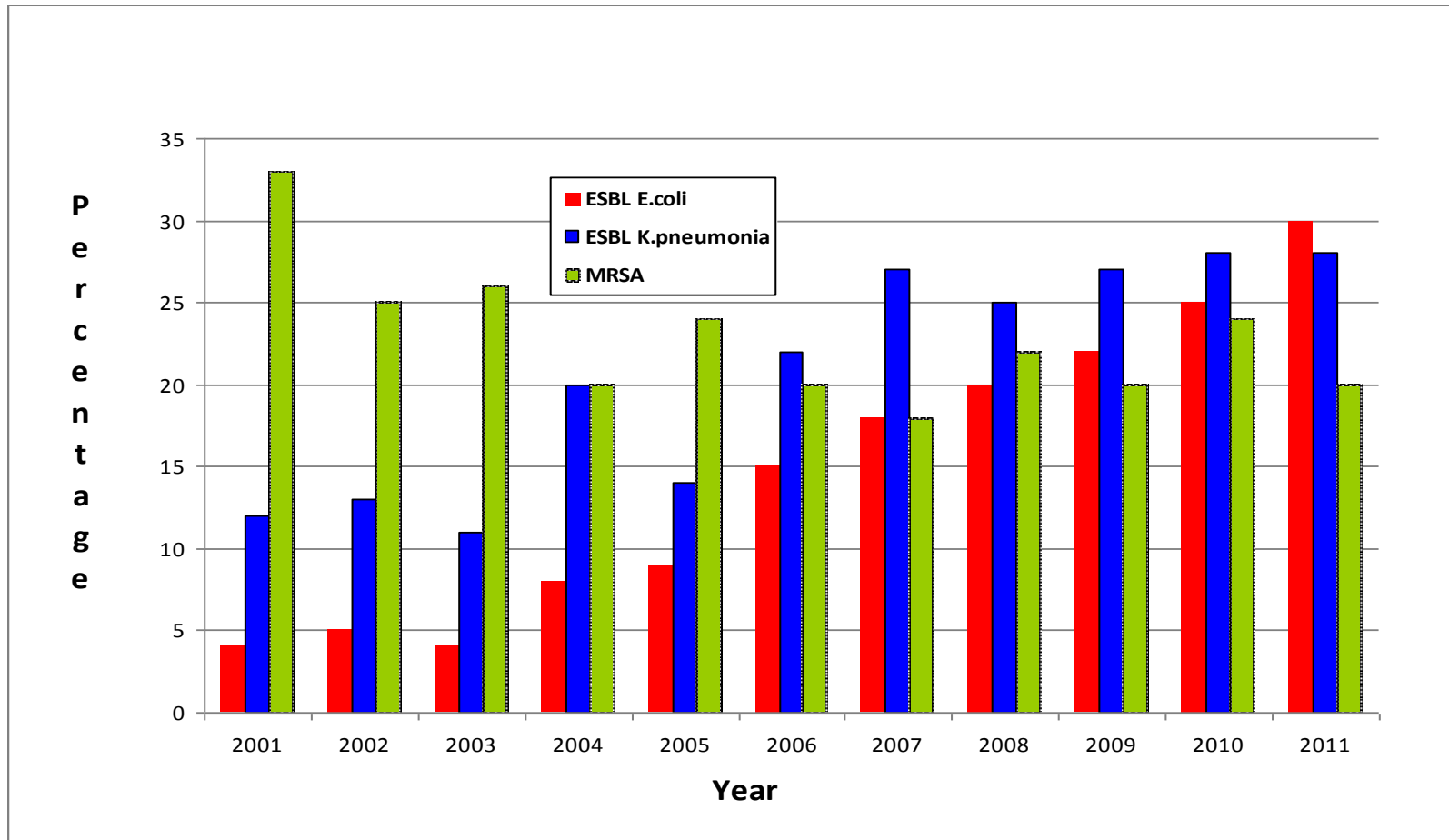
- Patient's Issues
- Physician's issue
- Drug Quality Issues
- Lab Testing Issue's
- Governmental Policy
- Public & Media Issues

Global Common resistant bacteria found in ICUs USA & Others

- Methicillin –R *S. aureus* (MRSA).
- Vancomycin-R enterococci (VRE).
- MDR (ESBL –CRE) Gram-negative pathogens:
 - E. coli*
 - Klebsiella spp*
 - Acinetobacter baumannii*
 - Pseudomonas aeruginosa*

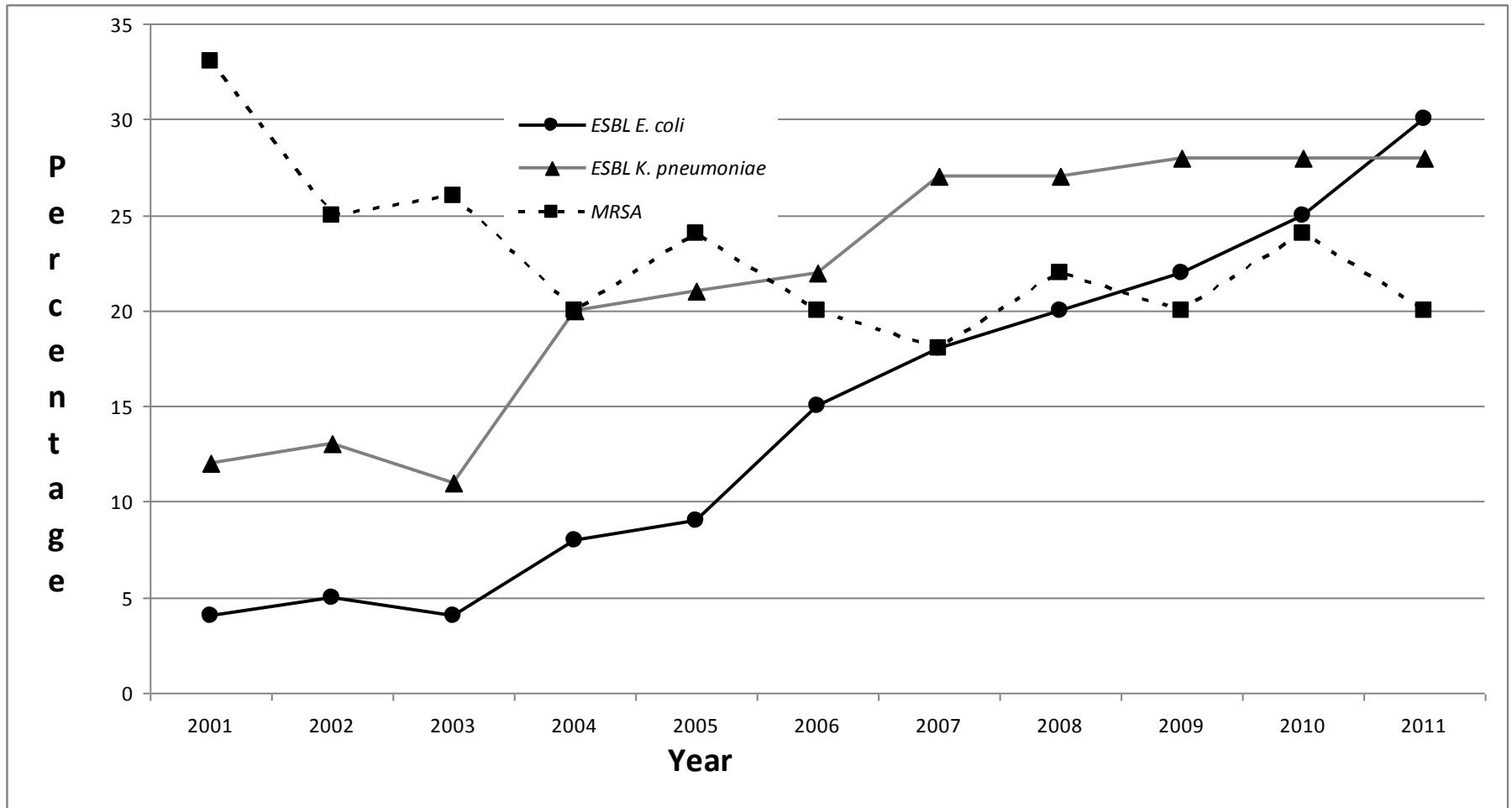
Hit List Dangerous Bugs; Bad Bugs Need Drugs”, (IDSA)- HAI

Prevalence of *ESBL E. coli*, *K. pneumoniae*, & MRSA AUBMC (2001- 2011)



Araj et al. A Reflection on Bacterial Resistance to Antimicrobial Agents at a Major Tertiary Care Center in Lebanon Over a Decade. *Leb Med J* 2012; 60 (3): 125-35.

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CML - ASP - Orchestrating the efforts



CMLs are the AWACS for ID in patient's care

Airborne Warning And Control System



CML Role - Activities

- CML is the Minaret and gate keeper of pathogen detection and identification of infectious etiologies & reveal of new resistance.
- CML aims to provide rapid, reliable, significant and clinically relevant cost effective investigation and results.
- ASP directly depends on reports from the CML, so good communication between both is essential.
- Maintains dynamism & updates to provide rapid diagnostics (including automation & molecular) which enables real-time detection of MDR pathogens, surveillance, and swifter responses by the ASP, IC, and clinicians esp in de-escalation of antibiotics .
- Establishes & maintains current SOPs
- Conducts diagnostic & therapeutic testing
[Clinically relevant-cost effective]
 - Specimen collection guidelines
[Good Q specimen In - Good Q result out], [Junk In - Junk out]
 - Reliable microbiology processing & testing practice
 - Rapid tests (e.g. conventional, automated, molecular)
- Microbiology reporting –comments that
 - Interpret isolate significance: like humans, most trivial- most troublesome.
 - Provide patient-specific culture and susceptibility data to optimize individual antimicrobial management.
- Provides Indispensable support to IC & outbreak resolution.

Reliable CML /Role - Successful ASP

General rules of Specimen management-basic concepts

- Collect specimens before initiating AB.
- Collect specimen from infected site using proper sterile procedure & devices.
- Collect adequate volume sufficient to permit complete examination.
- When not sure, contact CML

Unacceptable specimen and criteria for rejection

e.g. Saliva, Foley's catheter tips, leaky/contaminated containers, improperly labeled /completed request, replicate/ multiple specimen on the same day, long delayed specimens, pooled urine or sputum over 24h, wrong source specimen for Ano₂ cultures.

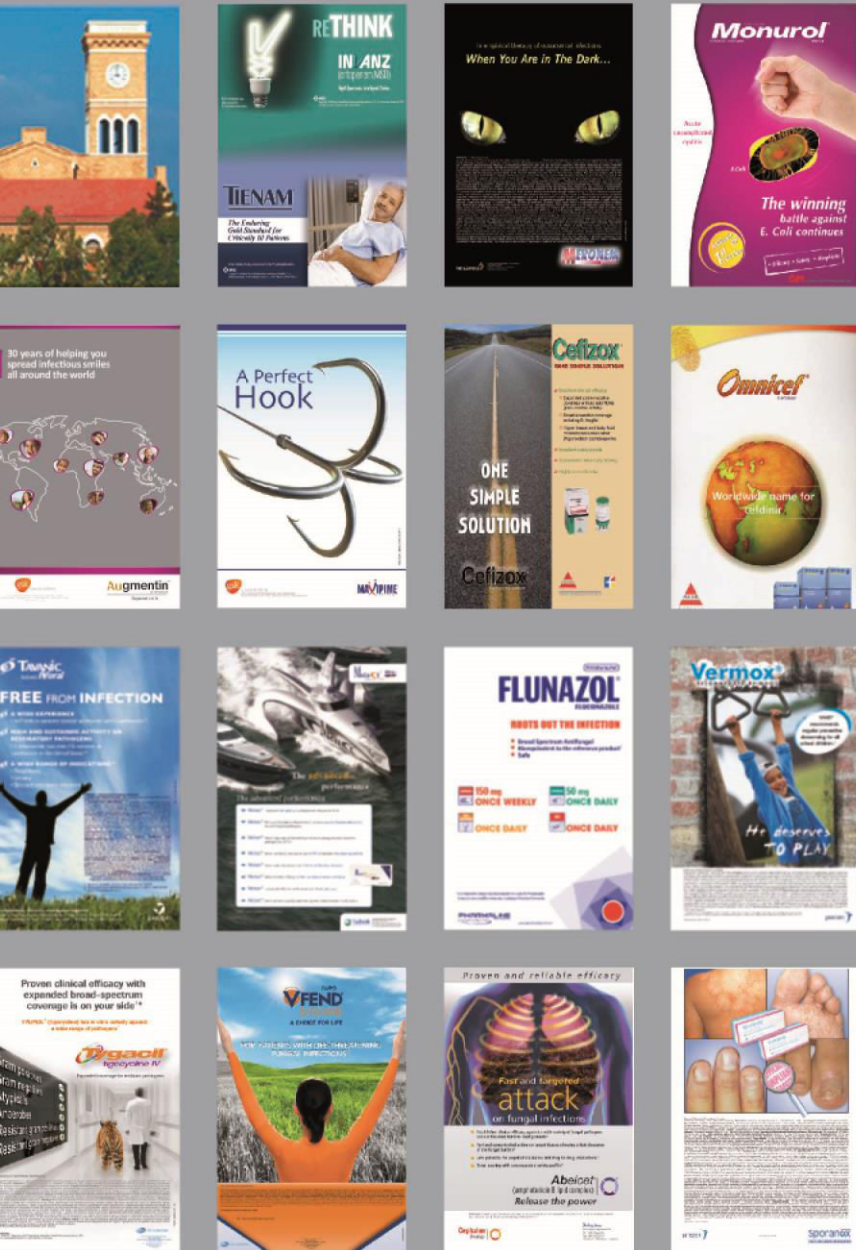
Interpretation based on source of specimen:

- normally sterile site (e.g. blood, CSF, lung, liver)
- passing through sites with NF (e.g. Sputum),
- sites with NF (e.g throat, GI, Vagina).

Nonspecific terms such as “wound”, “abscess”, “eye”, “genital”, “fluid”, “swab”, “ENT” are not helpful, cause waste of resources, and could result in misleading findings.

Critical-Panic values

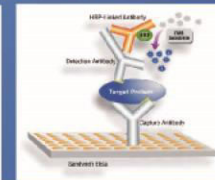
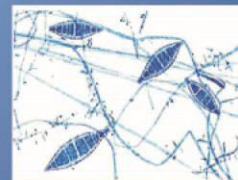
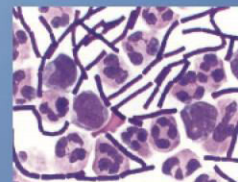
e.g. CSF, blood, Pos fluid, MDR,CRE, AFB, Flu, Legi, RSV, C diff, SS, Rota.



American University of Beirut Medical Center
 Department of Pathology and Laboratory Medicine

Instructions - Guidelines
 for
Specimens and Tests in Clinical Microbiology:

Bacteriology
 Mycobacteriology
 Mycology
 Parasitology - Microscopy
 Serology



Antibiograms: CML & ASP

-CML provide Antibiograms, very helpful aspect to ASP for:

- Choice of empiric treatment,**
- Evaluation of trends in important ABR rates**
- Developing an Antimicrobial Policy**
- Monitor and evaluate trends of AMR**
- Facilitate decisions for AB restriction or review**

Dellit, T. H., et al. 2007. IDSA and SHEA guidelines for developing an institutional program to enhance antimicrobial stewardship. Clin. Infect. Dis.44:159–177.(IDSA & the Society for Healthcare Epidemiology of America).

Daniel J. Diekema DJ & Saubolle MA. JCM 2011;49: S57–S60

Examples of Detected Problems in Lebanon

- ***Pen vs GAS***
- ***FQ vs Salmonella***
- ***D-Test vs Staph & B-strep***
- ***Van vs Staph***
- ***CRE Screen***
- ***ESBL testing***
- ***VRE Testing***

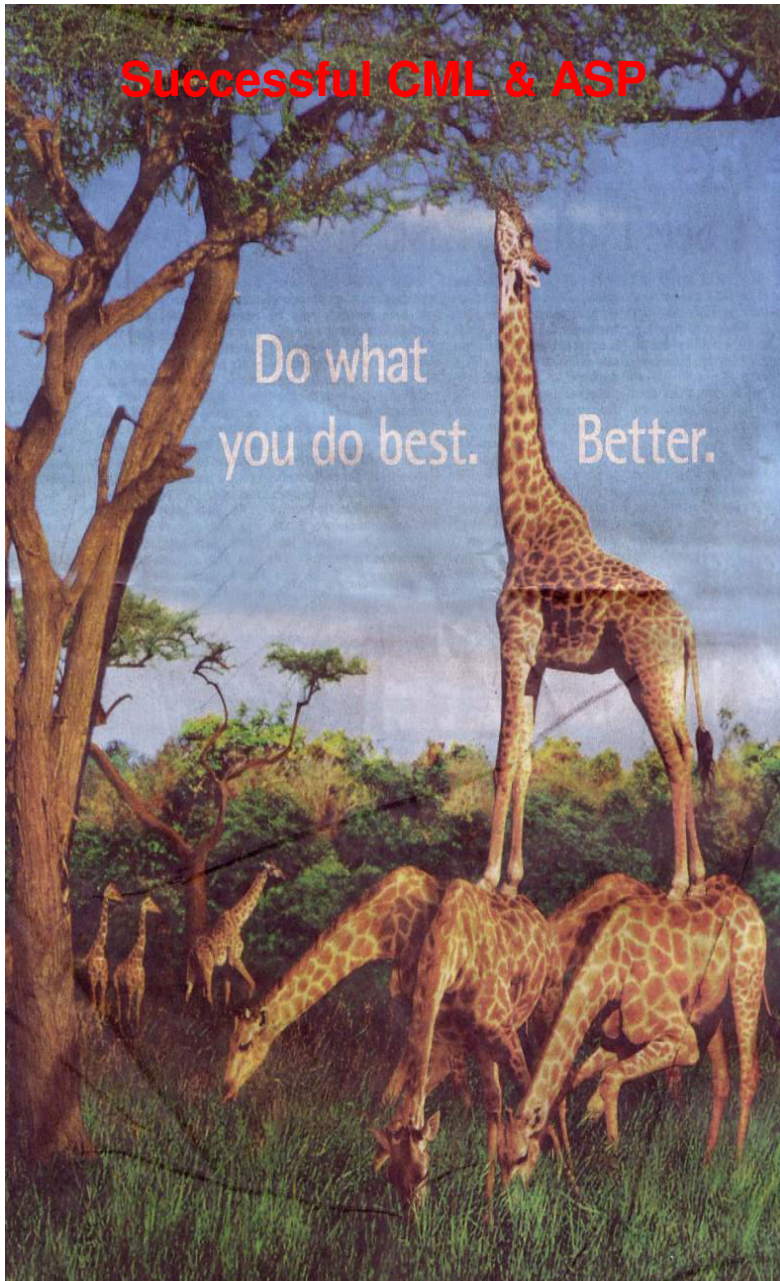
PT towards Nationwide Surveillance

In God we Trust

&


In Humans we Verify

Thanks for your Attention




**FIRST STATE-SPECIFIC
HEALTHCARE-ASSOCIATED INFECTIONS
SUMMARY DATA REPORT**

CDC's National Healthcare Safety Network (NHSN)



January – June, 2009

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion





REPUBLIC OF LEBANON
MINISTRY OF PUBLIC HEALTH

MOPH –AMR Committee –Proficiency Testing- Batch -1

<p>Main Objective: Standardize laboratory testing in microbiology</p>	<p>Date: 27-10-2015</p>
<p>Description: Five PT specimens are prepared and delivered as follows: PT-1: Abscess from F/ 23 y PT-2: Urine from F/ 57 PT-3: Blood from F/ 74 y PT-4: Sputum from F/ 79 y PT-5: Blood from M/ 31 y</p>	<p>Required work: Each lab needs to fill in the laboratory results detailed in the attached table for every PT received with the following information:</p> <ul style="list-style-type: none">- Gram stain- Identify the pathogen- Perform susceptibility testing
<p>Kindly submit the results <u>within 10 days</u> from receipt to the following email or fax: -Dr Atika Berry [aberrynd@hotmail.com], Fax: 01/611844</p>	