substantial: it is estimated that in 2012, 1.2 million HIV-related deaths occurred. These deaths are chiefly related to tuberculosis (TB) and opportunistic infections, particularly cryptococcal meningitis. Post-mortem data from Africa demonstrates that 30-50% of HIV-related deaths have active TB disease, and in many cases the TB was undiagnosed ante-mortem. Under-diagnosis and late diagnosis of TB in HIV is a major driver of mortality and related to non-specific clinical presentations, poor sensitivity of available diagnostics, frequent extra-pulmonary involvement and rapidity of clinic deterioration in patients with severe immunodeficiency.

In hospitalised patients diagnosed with TB case fatality rates are particularly high (11-50%), despite TB treatment, ART and cotrimoxazole prophylaxis and reasons for this need to be further examined to improve acute management strategies and outcomes. The contribution of bacterial infections to HIV-TB deaths needs to be more accurately defined. Mortality rates in patients started on ART in Africa are higher than in industrialised countries even after adjusting for CD4 count. Studies of routine screening, regardless of symptoms, amongst patients commencing ART in Africa have demonstrated high prevalence of active TB (up to 25%) and cryptococcal antigenaemia (up to 20% in those with CD4 <100) suggesting such routine screening should be considered where resources permit and may impact mortality. However, outcomes data on the impact of such screening programmes is limited. Health system and patient factors contribute to ongoing mortality: many patients are only diagnosed with HIV when immunosuppression is advanced, in a subset of patients adherence on ART is poor resulting in virological failure and default from the ART programme is associated with substantial morbidity. The net result is that there remains a significant population of HIV-infected people with low CD4 counts amongst whom mortality remains high.

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Type: Invited Presentation

Final Abstract Number: 02.004
Session: Spotlight on Africa
Date: Thursday, April 3, 2014
Time: 10:15-12:15
Room: Auditorium 2

Building laboratory capacity in Africa

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Investment in healthcare in Africa has increased significantly over the past decade driven by efforts to combat HIV, TB, malaria as well as in response to Africa’s development trends and new health priorities. Unfortunately, medical laboratories in Africa are unfortunately under-developed and suffer from both systemic and infrastructure capacity weaknesses. They cannot meet the testing demands of rapidly growing health delivery services on the continent.

The African Society for Laboratory Medicine, a pan-African professional body endorsed by the Africa Union, is focused on improving healthcare by improving laboratory services. In 2012, ASLM convened its inaugural conference themed “Accurate diagnostics is the Cornerstone of Quality Healthcare”. At this meeting, six African Ministers of Health signed a Call to Action for Laboratory Strengthening in Africa. This statement recognized that laboratory tests are pivotal in disease diagnosis, patient management, surveillance, outbreak investigation, and research and highlighted the integral link between expanded access to high quality, reliable laboratory services and improved health outcomes.

Recognizing the 2008 WHO Resolution AFR/RC58/R2 for strengthening public health laboratories in the African region, ASLM is advancing the Call to Action by working collaboratively with governments, regional and international organizations, and the private sector towards the following goals by 2020 – (i) strengthening the laboratory workforce through training and retention initiatives; (ii) accrediting laboratories to improve testing quality and reliability; (iii) developing strong, harmonized regulatory systems for diagnostic products to improve patient safety and; (iv) building a network of public health reference laboratories to improve early disease detection and south-south collaboration.

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Antibiotic use and the trends of gram-negative resistance around the world

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Bacterial resistance in clinically important pathogens has reached alarming rates and exerts a significant impact on clinical outcomes. This phenomenon is longer confined to the hospital setting alone and will continue to worsen if not addressed, due to the fact that no antimicrobial options for severe Gram-negative bacterial infections (GNB) are on the immediate horizon. The specific multidrug (MDR), extensive drug (XDR) and pan-drug resistant (PDR) bacteria that necessitate, antimicrobial stewardship (AMS) or antibiotic conservation as a matter of urgency, are the extended-spectrum β-lactamase (ESBL) producing and/or carbapenemase-producing Enterobacteriaceae (CPE) (e.g. Escherichia coli and Klebsiella pneumoniae). Indeed, colistin resistance amongst the latter pathogens have now emerged amongst the major carbapenemase genotypes (e.g NDM, KPC and OXA-48-like) and have been described from several continents.

Regarding carbapenemases, several studies have shown that prior carbapenem therapy is not a prerequisite for acquisition of CPE. The genes conferring such resistance usually reside on large plasmids, which frequently carry additional resistance determinants that confer cross-resistance to several if not all antibiotic classes. As a consequence, prior use of any antibiotic may select for carbapenemase-producing GNB. Besides the XDR nature of the CPE genes, the role of formulary interventions in controlling CPE is not well studied. Therefore, rather than targeting a specific class or limiting specific agents, an overall reduction in antibiotic use is recommended as a focus for ASPs. A patient’s cumulative antibiotic exposure history is likely to be more important than any one specific exposure when determining the likelihood of developing a CPE infection. It also appears that not only is prior cumulative exposure a risk factor, but that the risk increases with increasing duration of prior treatment. Hence, the development of resistance is a complex consequence of inappropriate prior antibiotic use which include homogenous and repetitive use (always the same agent), excessive use (e.g. routine combination therapy), prescribed...