

Plenary sessions

PL.01 - Plenary session 1

PL01.1 ANTIMICROBIAL RESISTANCE IN *NEISSERIA GONORRHOEA* AND POSSIBLE EMERGENCE OF UNTREATABLE GONORRHOEA: HOW, WHEN AND ESSENTIAL ACTIONS?

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The WHO estimated 106 million gonorrhoea cases in 2008 globally and antimicrobial resistance (AMR) in *Neisseria gonorrhoeae* is a major public health concern that compromises effective treatment and disease control efforts worldwide. The new superbug *Neisseria gonorrhoeae* has retained high-level resistance to antimicrobials previously recommended for first-line treatment and, recently, the first extensively drug-resistant (XDR) gonococcal strains with high-level resistance to the extended-spectrum cephalosporin (ESC) ceftriaxone, the last remaining option for first-line empiric monotherapy of gonorrhoea, were reported. This is of grave concern and it is feared that gonorrhoea may become untreatable under certain circumstances. In this talk, with particular emphasis on ESCs the evolution, origin, emergence and spread of AMR and genetic AMR determinants; their relevance and effects (including interplay and epistasis) on AMR and biological fitness of gonococcal strains; gonococcal population dynamics and international spread of biologically "successful" AMR gonococcal clones; genetic AMR detection methods; current situation regarding verified treatment failures with ESCs, and suggested future treatment options will be discussed. Essential actions to combat the emergence of multidrug resistant and possibly untreatable gonorrhoea will also be highlighted, such as implementing the WHO Global Action Plan and national or regional action/response plans, e.g., the ECDC Response plan for the European Union and the CDC Response Plan for the USA; enhancing surveillance of gonococcal antimicrobial resistance, treatment failures and antimicrobial use/misuse; and improving prevention, early diagnosis and treatment of gonorrhoea to reduce the gonorrhoea burden. All these responses will be valuable in detaining the global spread of AMR, however, in a longer term not sufficient to prevent the emergence and spread of potentially untreatable gonorrhoea. Few promising new antimicrobials are in sight, and it is essential to promptly focus research on timely development of novel effective drugs for treatment of gonorrhoea, and ideally, a vaccine.

PL01.2 HPV: CHANGING SCREENING ALGORITHMS AND SCALING UP VACCINATION

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Since 2006, when the first human papillomavirus (HPV) vaccine was approved, there has been much progress on the prevention of diseases associated with HPV infection, particularly cervical cancer. A decade earlier, the first clinically validated HPV assay was approved as an adjunct test in cervical cancer screening. As the two cervical cancer prevention fronts, i.e., primary via vaccination and secondary via screening, progressed more or less in parallel they have begun to intersect in recent years, as it has become clear that effective deployment of these strategies requires integration of resources and planning. However, acceptance of these technologies has not been without obstacles. Up until recently, although the evidence for the superior value of HPV testing in cervical cancer screening had become unequivocal, consensus guidelines in the U.S.

tended to indicate uncertainty as to the degree and strength of evidence associated with this test. This state of affairs changed in March 2012 with the simultaneous publication of the guidelines from the US Preventive Services Task Force and from the joint society consortium that involved the American Cancer Society, the American Society for Colposcopy and Cervical Pathology, and the American Society of Clinical Pathology. These guidelines placed greater emphasis on HPV testing in primary screening and discouraged unnecessary screening at younger ages and overly frequent screening. While co-testing is still favoured by the new US guidelines, other high-resource countries began to pilot or even to implement programmatically the strategy of HPV testing as the sole primary screening test, reserving Pap cytology for the triage of women who are HPV positive. The author will review the historical milestones of how HPV-based strategies have moved to centre stage in cervical cancer prevention and discuss the research directions in the area, particularly with respect to how these strategies intersect.

PL.02 - Plenary session 2

PL02.1 THE DYNAMIC EVOLUTION OF SEXUAL BEHAVIOR AS IT IMPACTS STD SPREAD

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The past three decades have been marked by significant progress in our understanding of the biological foundations of human behaviour, the evolutionary forces that drive human conduct and cognition and environmental factors that turn genes on and off. Concurrently, advances in communication technologies have drastically changed the way people meet and mate; demographic trends have modified patterns of supply and demand of potential mates while economic trends have affected men and women's motivations for sexual partnering.

Consequent changes in sexual values, attitudes and norms; sexual behaviours including sexual practises; and concepts of marriage, commitment, love and sex have been remarkable. Major trends in sexual behavioural determinants of sexually transmitted infection spread include: exponential increases in the size of sexual core groups; increased acceptance of commercial and transactional sex; increases in male, female and underage sex tourism; and increased geographic mobility of sex workers. These trends result in greater connectedness among sexual core groups across national boundaries thereby limiting the effectiveness of national prevention programmes. Moreover, both increased sexual mixing between core groups and the general population and increased reporting about sexual core behaviours through social media facilitate behavioural contagion and enhance the impact of sexual core groups on the behaviours of the general population. It is surprising that STI are not spreading faster globally in light of these changes in their social and behavioural determinants.

PL02.3 HIV TRANSMISSION DYNAMICS; CAN WE TRANSLATE KNOWLEDGE INTO ACTION

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Background There are 34 million people living with HIV globally, and 2.5 million people become newly infected last year. Although there have been some successes in prevention, the epidemic continues unabated in many populations, requiring more intensive and integrated behaviour and biomedical prevention programmes if we are to control HIV spread.