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) cephradine, 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.

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

S Aral. Centers for Disease Control and Prevention, Atlanta, GA, United States

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 practices; 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.