

higher HIV prevalence such as Benin, Burkina Faso, Columbia or Kisumu will be considered. We will also contrast the impact of ART programme targeted to FSW on HIV transmission in the general population and assess the influence of key parameters of the treatment cascade on the impact of ART among FSWs.

S.05 - Fostering an Integrated Approach to the Control of Antimicrobial Resistance in *Neisseria gonorrhoeae* (WHO Symposium)

S05.1 ANTIMICROBIAL RESISTANCE IN *N. GONORRHOEA*: UPDATE OF THE SITUATION

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Background The rapidly changing antimicrobial susceptibility of *N. gonorrhoeae* since the introduction of antibiotics has created challenges in gonorrhoea control. Antimicrobial resistance has regularly appeared and expanded with every release of new classes of antibiotics for gonorrhoea.

Methods The Gonococcal Antimicrobial Surveillance Programme (GASP) has been documenting the emergence and spread of antimicrobial resistance in gonorrhoea since 1992 and has informed treatment guidelines.

Results Sixty two countries participated in GASP in varying degrees including the extend of specific antimicrobials tested for resistance in 2010. There are high rates of resistance in *N. gonorrhoeae* to penicillin and quinolones. There are 36 countries reporting increasing minimum inhibitory concentration (MIC) to Cefixime ($\geq 0.25 \mu\text{g/mL}$) or Ceftriaxone ($\geq 0.125 \mu\text{g/mL}$). Treatment failures to Ceftriaxone were reported in Japan, Austria, Australia, Canada, France, Norway, Slovenia, Sweden, UK and South Africa. Majority of reports is from developed countries. This is only the tip of the global health burden as surveillance data from resource-constrained settings are scarce.

Spectinomycin and azithromycin resistance are monitored in limited countries. Brunei, China, Mongolia and Russia reported decreased susceptibility to spectinomycin. Resistance to azithromycin has been identified in some European countries, US and Chile. Azithromycin resistance remains well below the 5% threshold in most countries.

Conclusions Treatment options for gonorrhoea is dwindling. In the short term, options for treatment will include increasing dosage, using intramuscular or intravenous route and multiple doses of Ceftriaxone; use of alternative medication (e.g. gentamycin), and combination therapies. In the long term there is a need to develop newer classes of antibiotic. There is a need to ensure rational drug use and strengthen antimicrobial resistance monitoring in gonorrhoea including detection and management of treatment failure.

S05.2 CHALLENGES AND OPPORTUNITIES: POTENTIALS IN RESEARCH ON AMR GONOCOCCI

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Although gonorrhoea has afflicted humans for centuries and the causative bacterium, *Neisseria gonorrhoeae*, was identified over a century ago, gonorrhoea remains a global public health problem. Stepwise acquisition of genetic mutations has conferred gradually increasing resistance to multiple antibiotics, thus limiting their usage for presumptive therapy. Until recently cephalosporins have remained the foundation of treatment, but growing evidence suggests that resistance is emerging. Even as researchers work to

understanding the genetic mutations required for cephalosporin resistance, it is clear that new treatment options are needed. This presents a challenge as the number of new systemic antimicrobials evaluated and approved each year by regulatory agencies has steadily fallen over the past 30 years. Currently one new antimicrobial is undergoing clinical study as a potential treatment of gonorrhoea. An alternative strategy is to repurpose older antibiotics by studying the efficacy of dual therapy combinations of existing antimicrobials. Ultimately new antimicrobial development is needed now, since the development process can take more than a decade.

Detecting and responding to emergence of multidrug resistant gonorrhoea remains a challenge. Rapid detection of resistant infections is facilitated by local antimicrobial susceptibility testing, which requires live organisms isolated by culture. However, as the use of nucleic acid amplification tests (NAATs) have expanded, the number of *N. gonorrhoeae* cultures performed by public health laboratories decreased rapidly and the capacity of laboratories to perform culture has declined. An alternative strategy is to develop molecular assays for detecting genetic mutations associated with resistance or susceptibility to specific antimicrobials to guide antibiotic selection by the clinician at the point of care. Even with this potential, molecular assays may not be able to supplant culture-based antimicrobial susceptibility testing for surveillance to detect novel resistance phenotypes and genotypes. Ultimately a gonococcal vaccine may be the most effective public health strategy.

S05.4 INTEGRATING ANTIMICROBIAL SUSCEPTIBILITY MONITORING IN *NEISSERIA GONORRHOEA* TO BROADER AMR AGENDA

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Background Based upon the strategies of the WHO "Global action plan to control the spread and impact of antimicrobial resistance in *Neisseria gonorrhoeae*", a plan was developed and implemented to align GASP related activities within the broader agenda of the Antimicrobial Resistance Latin-America Network. Spite of the achievements of GASP in the last decades, there was a need to increase the number of countries and institutions collaborating in *N. gonorrhoeae* susceptibility surveillance. In order to achieve this, a comprehensive plan to strengthen the capacity of the Latin-America National Reference Laboratories (NRL) to conduct AMR surveillance in a systematic and regular manner to ensure the early detection of resistant *N. gonorrhoeae* was implemented.

Methods After a number of communications and training activities with the NRL, *N. gonorrhoeae* susceptibility 2010 data were collected through a questionnaire sent to the National Reference Laboratories in Latin America. Data included country, number of isolated tested, and percentage of resistance to cefixime, ceftriaxone, ciprofloxacin, spectinomycin, penicillin, and tetracycline.

Results From 21 Latin American countries integrating the network, 8 (38%) provide data. None of them detected decreased susceptibility to ceftriaxone; resistance to ciprofloxacin ranked from 0% to 83%; penicillin from 6 to 78%; no resistance to spectinomycin; resistance to tetracycline from 27 to 83%.

Conclusions

- The NRL demonstrated certain capacity and commitment to collect, analyse, and report data on *N. gonorrhoeae* susceptibility; however, this should be strengthened and expanded to more countries in the Region.
- Broad differences among countries were observed, specially on the susceptibility to ciprofloxacin and penicillin.

- Some challenges were identified, such as the lack of a system for referral of specimens at national and regional level.
- This effort should be continued, emphasising the importance of periodicity on data collection, analysis and dissemination.

S.06 - How does your partner know?

S06.1 TREATING CONTACTS TO GONORRHOEA AND CHLAMYDIA WITHOUT A CLINIC VISIT: THE EFFICACY AND EFFECTIVENESS OF DIFFERENT MODELS

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The sex partners of persons with Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (GC) infection must be treated to prevent repeat infection of the index patient and to interrupt forward transmission of disease. Asking patients to refer sex partner(s) for evaluation and treatment ('patient referral') is an inadequate strategy, as many sex partners will not seek care, and the large burden of CT and GC infections makes it impractical and cost prohibitive to rely upon health care providers or public health field investigators to assure partner treatment. Although no single sex partner treatment approach will be a panacea, innovative strategies are clearly needed.

This session will focus on strategies that do not require sex partners to attend a clinic to obtain treatment for CT or GC. The presenter will describe two models: (1) Expedited Partner Therapy (EPT), used in many parts of the US, includes patient delivered partner therapy, wherein a patient is asked to deliver medication or a prescription to their sex partner; (2) Accelerated Partner Therapy (APT), studied in the UK, uses clinician-staffed hotlines or pharmacists to assess the health status of sex partners before arranging for treatment. APT is being evaluated in a community-based randomised controlled trial, and efficacy data are not yet available, however, EPT has been shown to reduce risk for repeat GC infection by 68% and repeat CT by 20%. In practice, uptake and effectiveness of EPT has been limited by a variety of implementation challenges. The session will describe and - where possible - quantify obstacles to EPT, including: legal issues (perceived and real), lack of provider and pharmacist knowledge, patient preference and acceptability (for example, as few as 50% of eligible patients accept EPT for CT), medication costs, use of prescriptions rather than dispensing medication, and the emergence of cephalosporin resistance among GC.

S06.2 USING SOCIAL MEDIA FOR PARTNERS SERVICES IN ADOLESCENTS

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Partner notification (PN) and treatment is a cornerstone of STI prevention. In the U.S., face-to-face, patient-initiated or provider-assisted partner notification has shown to result in approximately 50% of patients referring at least one partner for evaluation and treatment. While to some this percentage is higher than expected, there is considerable room for improvement. A number of developments in the past decade have shown promise in enhancing PN. Expedited partner treatment, i.e., providing medications to partners without an intervening medical consultation, has been proven to decrease re-infections among index patients above and beyond traditional partner notification and this practise is now widely endorsed. Second, the Internet has provided the technical means to enhance communication between providers, patients and their partners that could result in a higher proportion of notified contacts. Internet-based interventions include simple email or text

messages to the partner, either directly from the patient or from health-department staff (if agreed to by the index patient), outreach in chat rooms on gay websites, stand-alone online partner notification programmes, and interventions using social networking sites. While the online possibilities appear to be limitless, especially for adolescents who are very engaged in the online environment, there are few interventions that have been formally evaluated. This presentation aims to provide an overview of online programmes for partner services and a review of studies that have attempted to evaluate them. So far, it appears that few online interventions have risen above the "proof-of-concept" and their overall effectiveness may be limited. In addition, a number of studies have indicated that the majority of STI-infected patients prefer to notify their partner in person rather than using text or email messages. While research into effective online interventions for PN and treatment should continue, this must not come to the detriment of high-quality, in-person PN practises.

S06.3 MSM PARTNER SERVICES: WHAT WORKS?

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Background Partner notification (PN) is an important public health activity in STI control to stop onward transmission. Various forms of PN services have been developed but not all have been evaluated to the same extent. In the era of evidence-based resource allocation, it is of utmost importance to focus limited resources on services shown to be the most efficient and effective.

Methods A review of the current literature and of the National Collaborating Centre for Infectious Diseases (NCCID) STBBI partner notification (PN) project productions was conducted. The impact of these various forms of PN services on disease incidence, re-infection, relationship status and healthcare costs will serve as efficiency and effectiveness markers.

Results Outcomes of MSM PN services has been measured and found to be associated with

- reduced index case GC and CT reinfection rates through patient delivered therapy,
- higher adoption of safer sexual practises in both index case and their partners,
- reduced incidence of STIs,
- higher rates of notification to long term partners and significant partners,
- high acceptability of face-to-face patient delivered partner notification in significant or long term relationships compared to higher acceptability of physician or electronic notification for casual or anonymous partnerships
- lower cost per case reached by patient referral compared to provider referral,
- lower levels of stress in relationships. Emotional and physical abuse after PN services can occur. The fears accompanying PN services can affect sexual spontaneity.

Caution should be used before discarding PN services when efficiency or effectiveness is low because epidemiologic insight can still be gathered to help redirect screening activities.

Conclusions A Review of the evidence indicates that MSM PN services works!

S06.4 NEW DIRECTIONS IN HIV PARTNER SERVICES: AN EVOLVING MODEL OF GLOBAL, INTEGRATED FIELD SERVICES

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