understand relationships between interventions and exposures (or risk factors) and disease or behavioral outcomes. In general, this approach allows many potential risk factors to be recast theoretically as an intervention. For example, a behavior such as condomless sex, which could never be assigned in an RCT, could be thought of as an 'intervention' or perhaps more appropriately, as the comparison to an intervention of sex with a condom. Once we reframe the question, several methods are available to account for potential biases that may arise in observational studies, including selection bias and confounding.

In this session, we will consider this reframing process using examples, real and hypothetical, from the fields of sexually transmitted infections and HIV. The process typically begins with a carefully constructed causal diagram, called a directed acyclic graph or DAG. DAGs are used to outline the causal pathways related to the research question. The DAG accounts for both the specific factors and temporality of the relationships. With the DAGs in hand, we can plan the appropriate analyses for the specific research questions. Without equations or complex statistics, we will consider three commonly used analytical approaches: propensity scores, instrumental variables, and marginal structural models (epidemiology's MSM). We will also briefly consider other quasi-experimental approaches for policy evaluations.

PL14 WHAT'S TO KNOW AND WHAT'S TO BE DONE – IMPLEMENTING AND MONITORING STI AND HIV PROGRAMMES

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With decades of experience implementing STI and HIV programmes globally what do we know and what are we still learning? Implementation science is a relatively new approach to understanding what facilitates rapid implementation and the barriers to implementation.

With a rising tide of some STIs and need to eliminate HIV as a public health threat, this presentation will focus on experiences of a national programme manager implementing STI, HIV and other programmes in an upper middle-income country – South Africa. Looking ahead does the COVID-19 pandemic provide us with opportunities to do things differently – and if yes, what can they be?

PL15 DEVELOPMENT OF IMMUNOTHERAPEUTIC APPROACHES AGAINST GONORRHEA

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Multidrug-resistant (MDR) Neisseria gonorrhoeae (Ng) is a global health problem. Targeting virulence factors can circumvent the ability of gonococci to resist conventional antimicrobials. Resistance to such agents, if it were to occur, would result loss of bacterial fitness; attenuated 'escape mutants' would be susceptible to host immune defenses. A unique gonococcal immune evasion strategy involves capping of lipooligosaccharide (LOS) with sialic acid by gonococcal sialyltransferase (Lst), utilizing host-derived CMP-sialic acid (CMP-Neu5Ac in humans). LOS Neu5Ac renders gonococci resistant to complement (by binding the complement inhibitor, factor H (FH)) and cationic antimicrobial peptides (CAMPs). LOS sialylation is important for gonococcal virulence in humans and in experimental mouse models. A chimeric protein that fuses the gonococcal binding domains of human FH (lacks complement-inhibiting activity) with human IgG1 Fc (FH/Fc) enhances complement activation on the bacterium and mediates complement-dependent killing of a wide array of gonococcal isolates in vitro. Intravaginal administration of FH/Fc attenuates bacterial burden in the mouse vaginal colonization model. Gonococcal Lst has broad substrate specificity and can utilize CMP salts of sialic acid analogs, such as legionaminic (CMP-Leg) or ketodeoxynonulosonic (CMP-Kdn). Incorporation of Leg or Kdn into LOS substitutes for the Neu5Ac sialic acid cap and restores bacterial susceptibility to complement and CAMPs. Intravaginal CMP-Leg or CMP-Kdn administration mediates CAMP-dependent clearance of MDR Ng in mice. An LOS epitope that is recognized by monoclonal antibody (mAb) 2C7 is expressed by ~95% of Ng isolates in vivo, can also be sialylated and is critical for virulence. The 2C7 epitope has also been fashioned as a vaccine candidate and is pending a human trial. mAb 2C7 delivered either intravaginally or systemically, or as a DNA-encoded mAb (passive vaccination) clears gonococci from mouse vaginas in a complement-dependent manner. In conclusion, targeting LOS-related virulence mechanisms is an innovate approach to combat MDR Ng.

PL16 STRENGTHENING COMMUNITIES' RESPONSE, STAKE, AND ENGAGEMENT IN HIV/STI RESEARCH

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Though HIV interventions have been implemented in India since over a decade, HIV prevalence among men who have sex with men (MSM) and transgender women (TGW) in India (2.7% and 3.1%, respectively) continues to be 10–15 times higher than that observed among heterosexual communities (0.34%). While evidence for nationwide prevalence of STIs is lacking, independent studies have estimated STI rates at 12–38%. Further, clinic data from The Humsafar Trust–an LGBTQ+ organization in Mumbai providing HIV outreach services to over 7500 MSM and TGW annually–has estimated syphilis rates to be 10% in 2018 and 12% in 2019. A key challenge in addressing these STI trends is the limited availability of prevalence-focused programmatic implementation and bio-behavioral research on STI awareness/health seeking behavior among vulnerable communities. Though syphilis testing has been integrated in national HIV interventions, management of other STIs is syndromic resulting in under-diagnoses and under-reporting. Further, lack of dedicated resources toward building knowledge and awareness of STIs among vulnerable communities leads to low risk-perception and compromised uptake of testing and treatment. While evidence building and documentation can