by metagenomic sequencing (NovaSeq), and absolute abundance of key bacterial species was assessed by qPCR.

Results Immediately following treatment, there was a marked drop in the vaginal level of proinflammatory cytokines (IL-1a, IL-6), chemokines (IL-8, MIP-1b, MIP-3a) and a marker of epithelial barrier disruption (sE-cad; all $p < 0.01$). The vaginal microbiome was generally shifted from BV to community state types (CSTs) dominated by *L. iners* (49%) or *L. jensenii* (31%). However, these CST shifts were driven by a dramatic (7–12-fold) reduction in the absolute abundance of BV-associated Gram negative anaerobes (*Prevotella* spp., *Gardnerella vaginalis*, *Atopobium vaginae*, and *Megasphaera*; all $p < 0.001$), while there were minor or no increases in the absolute abundance of *L. jensenii* (2.9-fold increase, $p = 0.006$) or *L. iners* (0.6-fold reduction, $p = 0.245$).

Conclusions Standard BV therapy reduced inflammatory cytokines/chemokines and enhanced epithelial integrity in the short term. Despite a shift to CSTs dominated by lactobacilli, these immune changes were linked to reductions in the absolute abundance of BV-associated anaerobes rather than to increased *Lactobacillus* abundance.

003.3 INTRAVAGINAL LACTIC ACID GEL VERSUS ORAL METRONIDAZOLE FOR TREATING WOMEN WITH RECURRENT BACTERIAL VAGINOSIS: THE VITA RANDOMISED CONTROLLED TRIAL

^{1,2}J Ross*, ³C Brittain, ⁴J Kai, ¹M David, ³M Ozolins, ²L Jackson, ²Z Abdali, ³T Hepburn, ⁵F Griffiths, ³A Montgomery, ³J Daniels, ²T Roberts, ¹A Manley, ⁶G Dean, ⁵J Anstey Watkins, ³L Armstrong-Buisseret. ¹University Hospital Birmingham NHS Foundation Trust, Birmingham, UK; ²University of Birmingham, Birmingham, UK; ³Nottingham Clinical Trials Unit, Nottingham, UK; ⁴University of Nottingham, Nottingham, UK; ⁵University of Warwick, Coventry, UK; ⁶Elton John Research Centre, Brighton, UK

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Background Bacterial vaginosis (BV) is a common, embarrassing and distressing condition, with serious comorbidities. The VITA trial assessed the effectiveness of intravaginal lactic acid gel versus oral metronidazole for treating recurrent BV.

Methods Open-label, multicentre, parallel group, randomised controlled trial. Women aged ≥ 16 years with history of BV within the past 2 years and current symptoms were recruited at one GP practice and 19 sexual health centres in the UK. Participants were randomised to 5ml intravaginal lactic acid gel or oral 400mg twice daily metronidazole tablets, for 7 days. The primary outcome was participant reported resolution of BV symptoms by the end of Week 2, with subsequent follow up over 6 months. Semi-structured interviews explored tolerability and acceptability of the study treatments.

Results 518 participants were randomised (259 to metronidazole, 259 to lactic acid gel). Primary outcome data were available for 204 (79%) participants allocated to metronidazole and 205 (79%) allocated to lactic acid gel. Resolution of BV at Week 2 occurred in 143 (70%) participants in the metronidazole arm versus 97 (47%) participants in the lactic acid gel arm (adjusted risk difference -23.2% (95% CI -32.3 to -14.0%). Symptom resolution with no subsequent recurrences over 6 months occurred in 23% of those who took metronidazole and 16% of those using lactic acid gel. Side effects were more common following metronidazole compared to lactic acid gel. Interviews revealed that many women preferred lactic acid gel despite perceiving antibiotics to be more effective.

Conclusion Metronidazole is more effective than lactic acid gel in achieving short term resolution of BV symptoms but recurrence is common following both treatments. Lactic acid is associated with fewer reported side effects and is preferred by many women despite its lower efficacy.

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Trial Registration ISRCTN14161293

003.4 THE VAGINAL MICROBIOME AND DEVELOPMENT OF PELVIC INFLAMMATORY DISEASE: A PROSPECTIVE STUDY USING 16S RRNA LONG-READ SEQUENCING

¹L Phillips*, ²S Kerry-Barnard, ¹L Zhou, ¹M Furegato, ¹A Witney, ²P Oakshott, ¹T Sadiq.

¹Institute for Infection and Immunity, St George's University of London, London, UK;

²Population Health Research Institute, St George's University of London, London, UK

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Background A low diversity vaginal microbiome dominated by *Lactobacilli*, may be associated with lower risk of pelvic inflammatory disease (PID). However, disruption to this balance through an increase in diversity, particularly dominated by *Gardnerella vaginalis*, may lead to increased susceptibility. Not all *Lactobacilli* are equally protective, species that produce higher proportions of D(-) isomer lactic acid (*L. crispatus*, *L. jensenii*, and *L. gasseri*) have proven protection against *Chlamydia trachomatis* (CT) infection, an important cause of PID, however *Lactobacillus iners*, which produces predominantly L (+) isomer lactic acid, may be less protective. We investigated the relationship between 'baseline' microbiome and the subsequent risk of acquiring PID, using stored vaginal samples from participants in the Prevention of Pelvic Infection chlamydia screening trials.

Methods 16S rRNA long-read nanopore sequencing was carried out on vaginal samples from 37 women who subsequently developed clinically defined PID during 12 months of follow-up, and 111 frequency-matched controls who did not. Samples were matched on age, ethnicity, CT status at baseline and number of sexual partners.

Results Three main taxonomic clusters were identified which were dominated by *L. iners*, *L. crispatus*, and *G. vaginalis*. Microbiomes dominated by *G. vaginalis* were associated with black ethnicity ($p = 0.002$), age ≥ 20 ($p = 0.048$) and bacterial vaginosis ($p < 0.0001$), but not with subsequent development of PID or CT infection at baseline. Lower rates of D(-) isomer lactic acid producing *Lactobacilli* were not associated with PID ($p = 0.53$) or concurrent CT ($p = 0.38$) infection, but were associated with bacterial vaginosis, as expected ($p < 0.0001$).

Conclusion We found no association between baseline vaginal microbiome composition and subsequent development of PID, nor between quantities of D(-) isomer lactic acid producing *Lactobacilli* and concurrent CT infection.

003.5 PID TREATMENT AND MYCOPLASMA GENITALIUM (MG): THE IMPACT OF VAGINAL DYSBIOSIS

¹H Wiesenfeld*, ¹L Meyn, ²T Darville, ¹I Macio, ¹S Hillier. ¹University of Pittsburgh, Pittsburgh, USA; ²University of North Carolina, Chapel Hill, USA

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