EVIDENCE FOR A NEW PARADIGM OF GONORRHOEA TRANSMISSION: CONCORDANCE OF *NEISSERIA GONORRHOEAE* INFECTIONS BY ANATOMIC SITE IN 60 MALE COUPLES. A CROSS-SECTIONAL OBSERVATIONAL STUDY.

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Introduction:
Gonorrhoea transmission between men is currently thought to occur primarily between the urethra and a partner's throat and/or anus. Transmission between the throat and a partner's throat and/or anus is thought to be uncommon. Using gonorrhoea results from male couples, we aimed to infer transmission dynamics of gonorrhoea. If conventional thinking is correct, then most throat and anal infection should be explained by the partner's urethral infection.

Methods:
Cross-sectional analysis of gonorrhoea diagnosed by nucleic acid amplification tests in male couples who attended Melbourne Sexual Health Centre (MSHC) together between 25th March 2015 and 29th June 2017. Isolates obtained from culture-positive infections underwent whole genome sequencing (WGS) to assess genetic relatedness.

Results:
In 60 couples (120 men) one or both partners had gonorrhoea. After excluding men with urethral gonorrhoea, 28%(95%CI16-43%) of men with throat gonorrhoea had a partner with anal gonorrhoea, and 34%(95%CI19-53%) of men with anal gonorrhoea had a partner with throat gonorrhoea. After excluding couples with urethral gonorrhoea; in 48 couples at least one man had throat gonorrhoea, and of these, in 11 couples (23%;95%CI12-37%) both men had throat gonorrhoea. Similarly, after excluding couples with urethral gonorrhoea; in 31 couples at least one man had anal gonorrhoea, and of these, in 13 couples (42%;95%CI25-61%) both men had anal gonorrhoea.

Conclusion:
The observed positive concordance between throat and anal gonorrhoea when urethral infection is absent is not consistent with current thinking on gonorrhoea

transmission between men, where the penis is the primary source. Our data support a new gonorrhoea transmission paradigm that makes the throat the primary source of gonorrhoea transmission between men, through tongue-kissing, oro-anal sex, and saliva use as anal lubricant. Current public health messages do not address these routes of transmission adequately, and future messages may need to discourage saliva exposure during sex.

Disclosure of Interest Statement:
The authors have no conflicts of interest to disclose.