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MELBOURNE SEXUAL HEALTH CENTRE  
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**Evidence for a new paradigm of gonorrhoea transmission.  
Concordance of gonorrhoea infections by anatomic site in  
same-sex male couples.  
A cross-sectional observational study.**

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## Our Aim

To analyse gonorrhoea diagnosis data from male couples to examine the role of urethral gonorrhea in transmission between men.

## Hypothesis

Urethral gonorrhoea is not the “principal driver” of gonorrhoea transmission between men. Instead, the throat is the main source of gonorrhoea transmission between men.



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## Methods

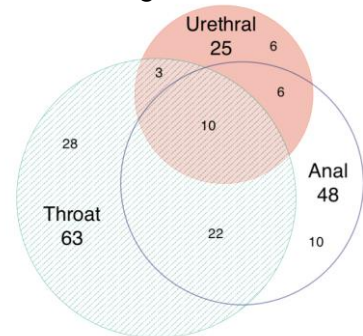
- Cross-sectional retrospective analysis of clinic data.
- Data period: 25<sup>th</sup> March 2015 to 29<sup>th</sup> June 2017
- Included all men who attended the clinic together with their male partner, and when both partners had complete testing for gonorrhoea by NAAT. (anal swab, throat swab, first pass urine)
- For couples where both partners had gonorrhoea culture samples available, we conducted whole genome sequencing to assess whether the gonorrhoea from the two partners was phylogenetically related.

## Included couples

- 417 couples (834 men) presented to the clinic together on the same day.
- 315 couples (630 men) had complete testing for gonorrhoea.
- In 60 couples (120 men) at least one partner tested positive for gonorrhoea, and form the basis for this analysis.

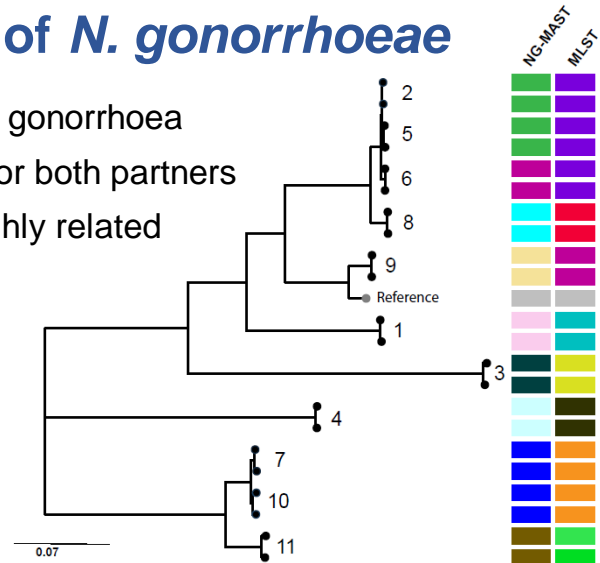
### Included men:

- Median age 30 (IQR 25-36)
- 85 men had gonorrhoea (see Venn)



## Genomic relatedness of *N. gonorrhoeae*

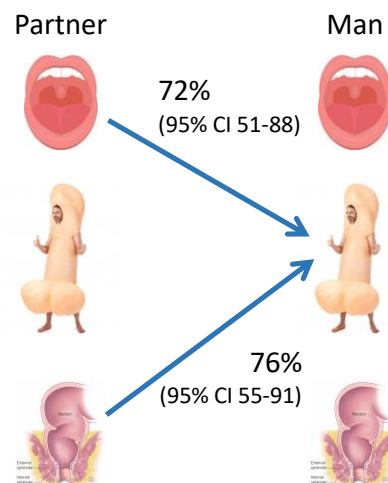
- In 25 couples, both partners had gonorrhoea
- In 11 couples, culture available for both partners
- In all 11 couples, gonorrhoea highly related



## Urethral gonorrhoea

Background rates:

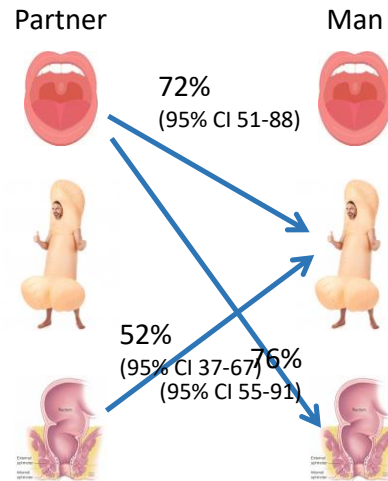
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

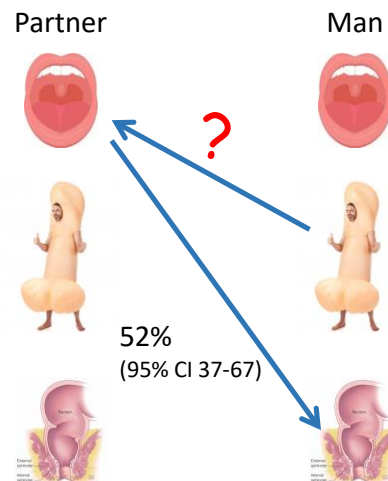
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

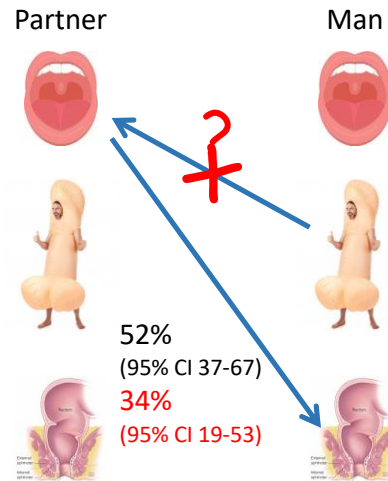
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

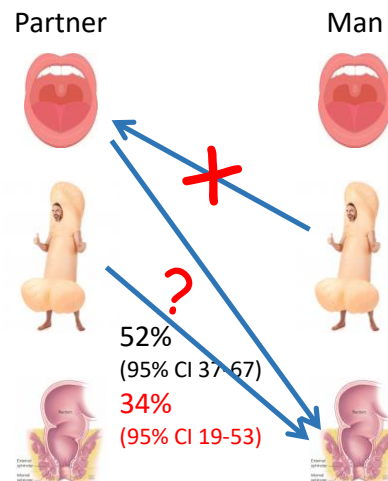
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

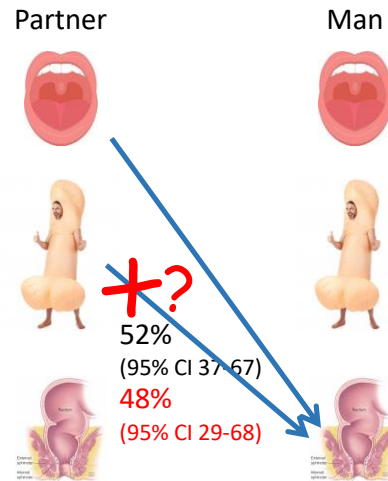
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

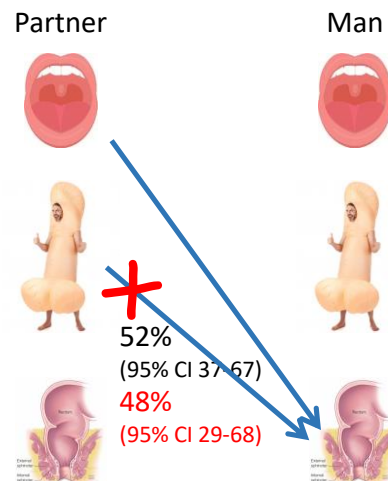
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Throat-anus gonorrhoea

Background rates:

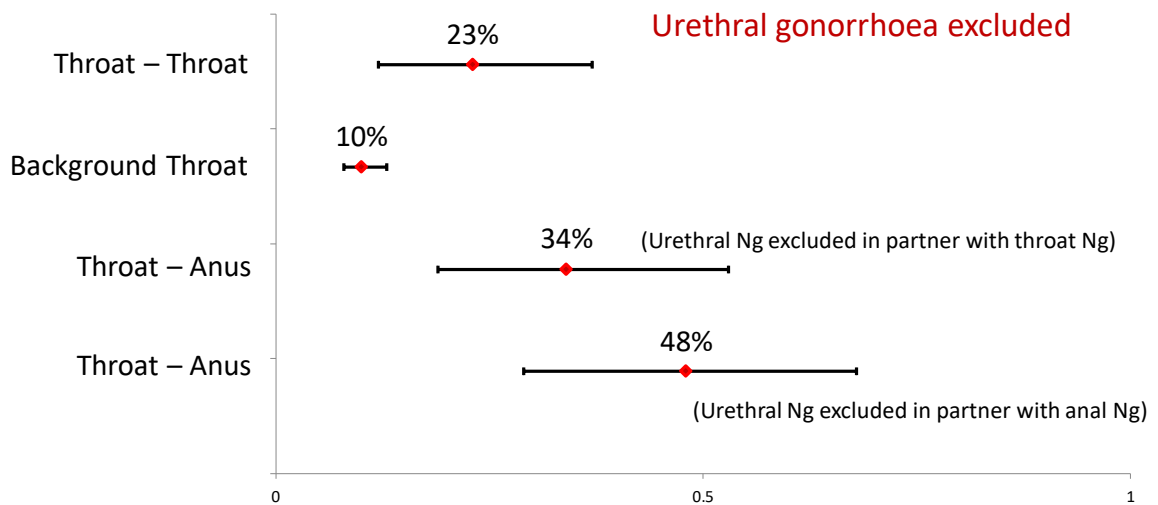
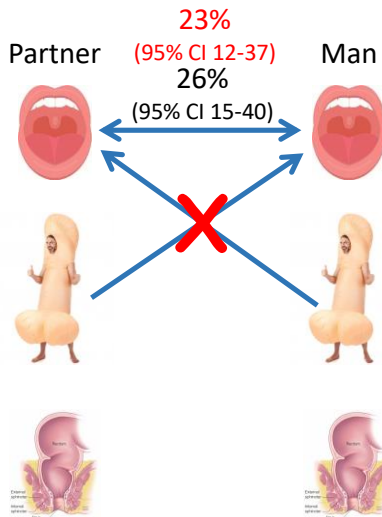
- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



# Throat-throat gonorrhoea

Background rates:

- Throat: 10.0% (95% CI 8 to 13)
- Anus: 8% (95% CI 6 to 10)



## Conclusions

- In the absence of urethral infection, throat/throat concordance of gonorrhoea was common (23%) as was throat/anus concordance (48%).
- These percentages and the lower ends of their 95% confidence intervals are higher than would be expected to occur by chance (about 8-10%), given overall gonorrhoea positivity among the 630 men of 10% for throat and 8% for anal gonorrhoea.
- These data are not consistent with current thinking on gonorrhoea transmission between men, but are consistent with a new paradigm of gonorrhoea transmission, where the a man's throat plays a central role in transmission to all three anatomic sites in his partners, presumably through infected saliva.