



MONASH
IMPACT
AMR

AMR Hub



MSHC
MELBOURNE SEXUAL HEALTH CENTRE
Part of AlfredHealth

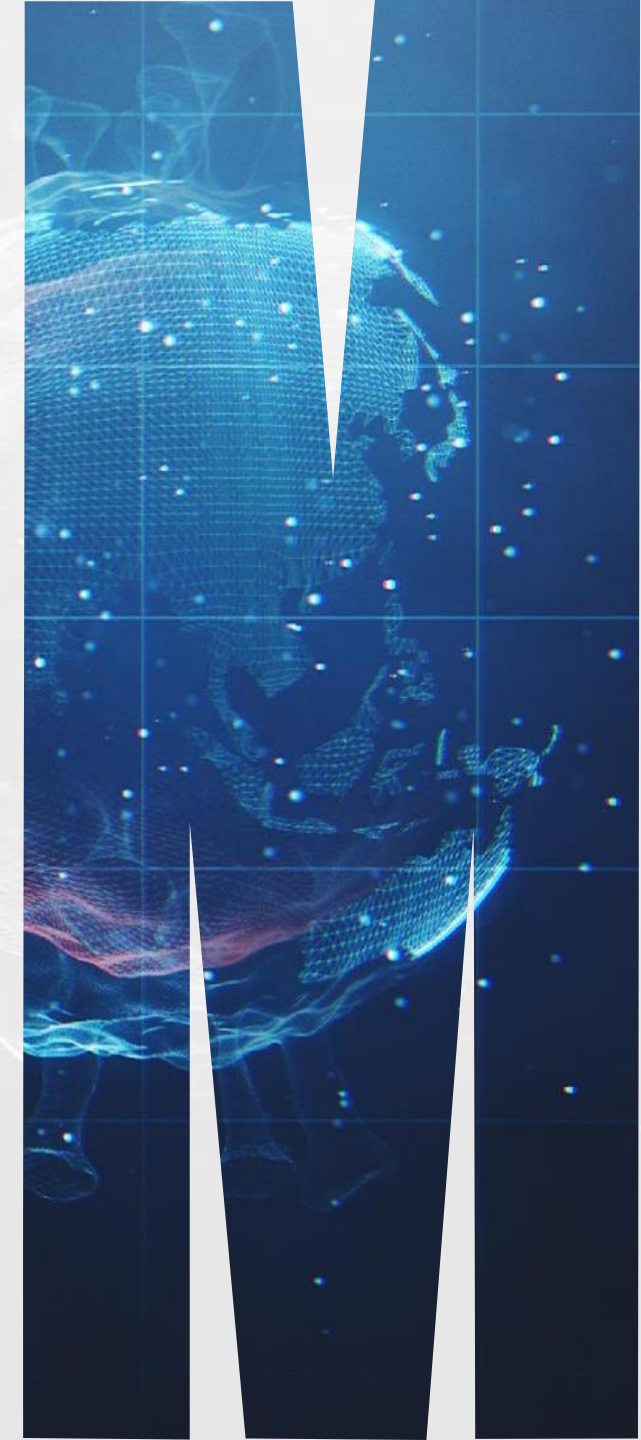
Near to patient testing for STIs in an urban setting

Dr Lenka Vodstrcil

Genital Microbiome and Mycoplasma group

Melbourne Sexual Health Centre, Central Clinical School, Monash University and Alfred Health

Dr Kay Htaik, Dr Erica Plummer, Vesna De Petra, Melodi Sen, Prof Deborah Williamson, A/Prof Jason Ong, Prof Christopher Fairley, Dr Jason Wu, Monica Owiad, Dr Gerald Murray, A/Prof Eric Chow, Prof Catriona Bradshaw



Near to patient testing (NPT) for STIs

- Patients with STI syndromes or as a contact of an STI are commonly presumptively treated with antibiotics
- In the absence of a pathogen, this practice leads to antibiotic misuse
- Near-to-patient testing (NPT) has the potential to reduce the time to pathogen-specific results and provides clinicians with the opportunity to reduce syndromic prescribing and deliver aetiological treatment
- NPT is particularly beneficial for STIs that demonstrate high levels of antimicrobial resistance
- 2021 – access to the Cepheid GeneXpert System
 - CT and NG in ~2 hr (express format has results in ~30 mins)
 - SpeeDx *ResistancePlus* MG assay with MG result and associated MRM¹ in ~2.5 hr



Chlamydia trachomatis
Neisseria gonorrhoeae

Detected
Not-detected

Mycoplasma genitalium

Detected
Not-detected

MRM-
MRM+

¹Sweeney *et al* J Clin Microbiol 2020; Murray *et al* J Med Microbiol 2021

Method: Interventional clinical trial evaluating NPT for CT, NG and/or MG in MSHC patients

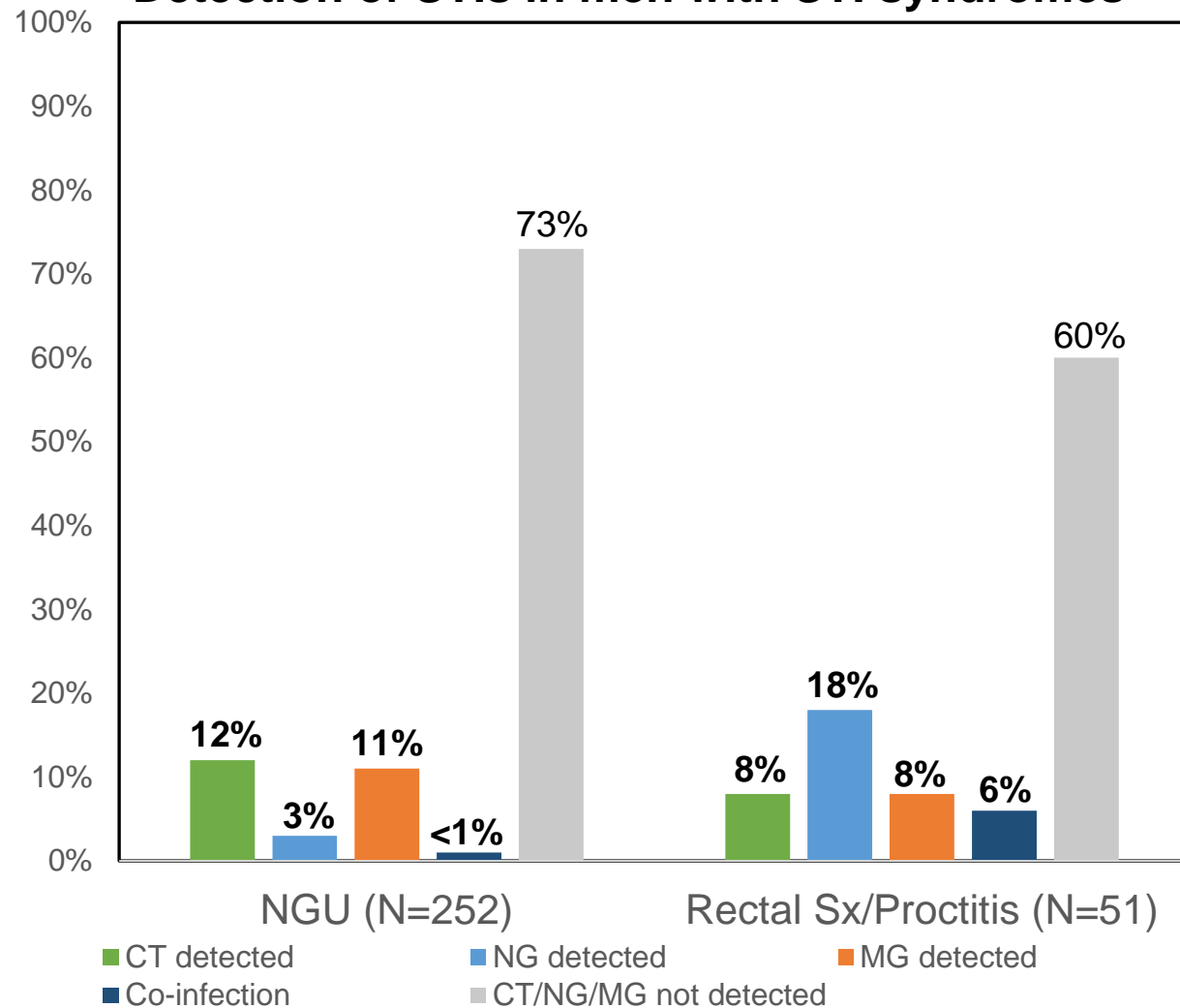
1. with symptoms consistent with STI syndromes (NGU, proctitis); or
2. as sexual contacts of an STI

Objectives: To evaluate the benefits of NPT compared to standard of care (laboratory-based testing & presumptive Rx):

1. Antimicrobial prescribing practices among NEPTUNE participants compared to a clinic control group
2. Timely and STI specific notification of sexual partners

Which STIs are detected in STI syndromes by NPT?


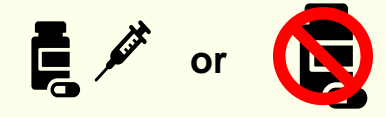
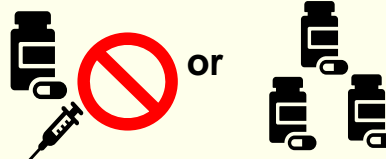
Detection of STIs in men with STI syndromes



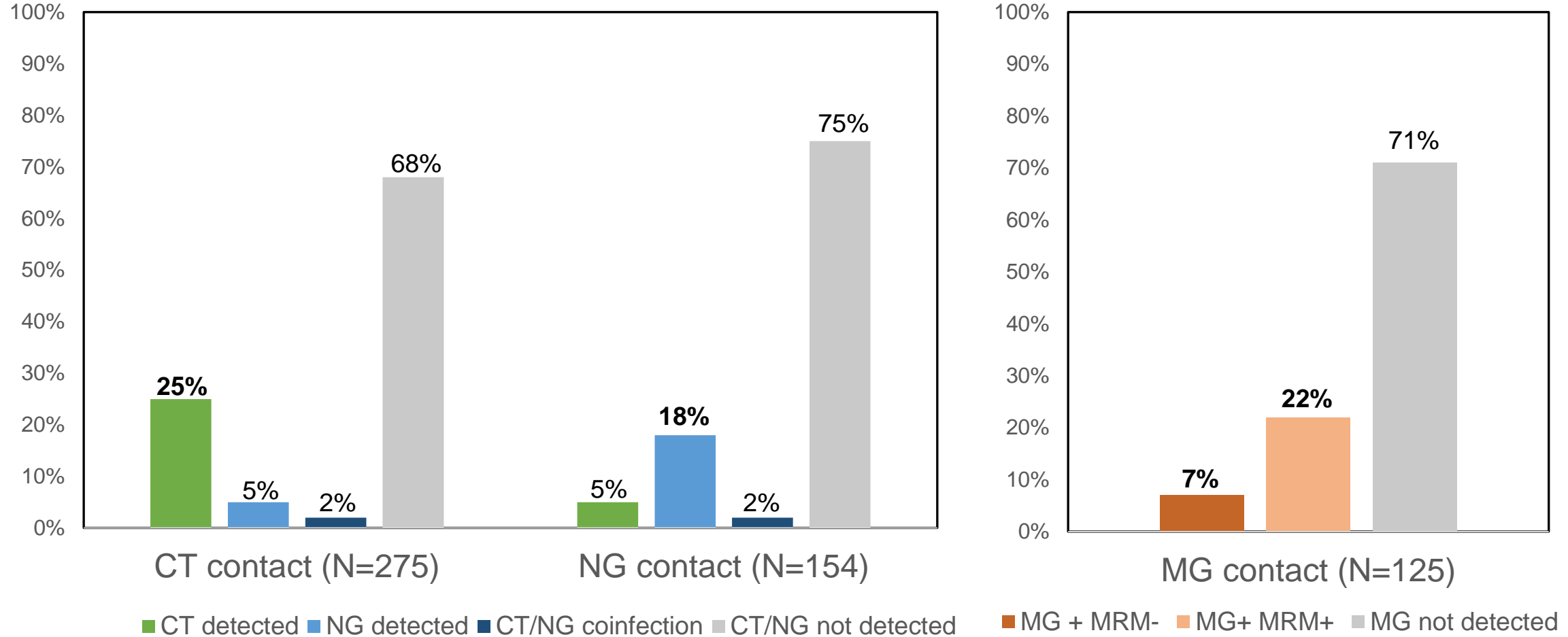
Any STI 27%

Any STI 40%

Antimicrobial prescribing for STI syndromes

	Neptune	Control group	
Syndromic Rx 	28%	92%	$p < 0.001$
Appropriate Rx 	81%	24%	$p < 0.001$
Mistreatment or overtreatment 	19%	76%	$p < 0.001$

What proportion of contacts have the STI they report exposure to by NPT?



All received appropriate treatment or no treatment

Assay performance GeneXpert vs TMA

<i>N. gonorrhoeae</i>		TMA		
		detected	not-detected	total
GeneXpert	detected	49	1	50
	not-detected	2	382	384
total		51	383	434

<i>C. trachomatis</i>		TMA		
		detected	not-detected	total
GeneXpert	detected	103	6	109
	not-detected	4	582	586
total		107	582	695

<i>M. genitalium</i>		TMA		
		detected	not-detected	total
GeneXpert	detected	87	11	98
	not-detected	31	414	445
total		118	425	543

▶ NG: high load infection

- Sensitivity 96.1%, Specificity 99.7%
- PPV 98.0%, NPV 99.5%

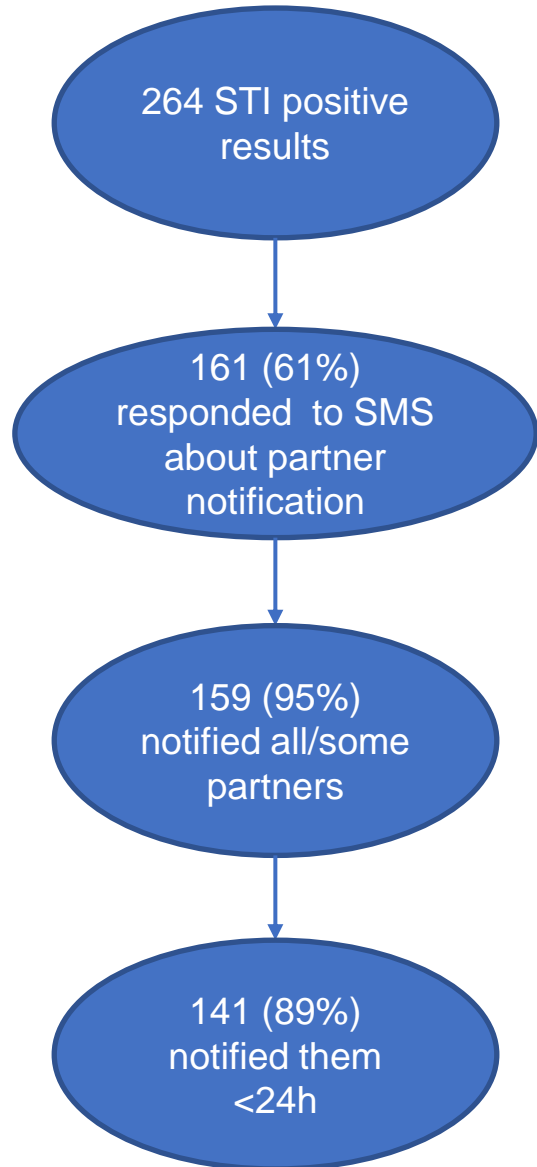
▶ CT: intermediate load infection

- Sensitivity 96.3%, Specificity 99.0%
- PPV 94.5%, NPV 99.3%

▶ MG: 100-fold lower than CT

- Sensitivity 73.7%, Specificity 97.4%
- PPV 88.8%, NPV 93.0%

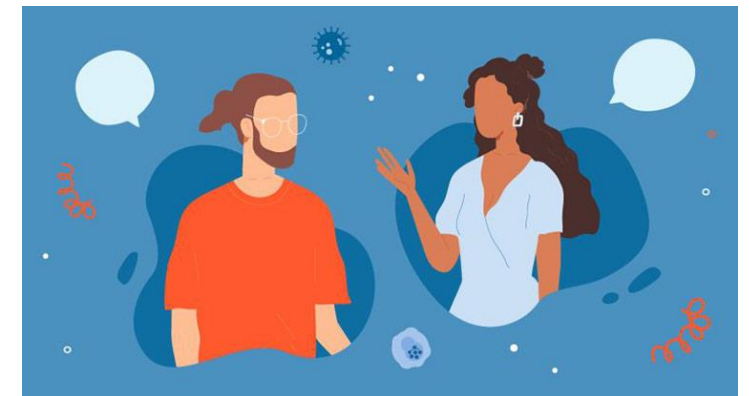
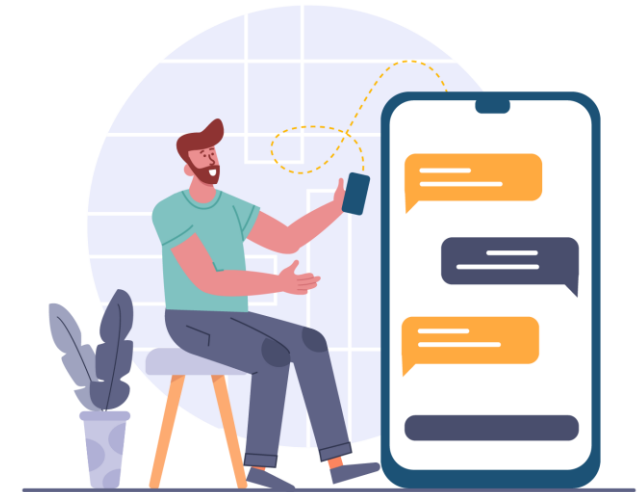
STI-specific partner notification following NPT



*Did you notify your sexual partners?
If so – how many did you notify?
When did you notify them?*



Hey, my chlamydia test is positive and you might have it too. You should head to your GP for a STI test. Sorry to give you this news but I thought it was better that you knew.



Benefits of NPT

STI syndromes: **25-40%** had an STI detected

- Highlights the potential antibiotic misuse in these syndromes
- Fewer NEPTUNE patients received syndromic treatment, resulting in a higher proportion appropriately treated and fewer patients mistreated



STI contacts of infection: **20-30%** had the reported STI

- Confirms the need to avoid presumptive treatment of contacts of STIs and treat only detected infections with the appropriate antibiotic

NPT resulted in rapid and high rates of STI-specific partner notification

- May translate to rapid and appropriate treatment of partners
- Reduction in reinfection as well as associated sequelae



Acknowledgements



MSHC
MELBOURNE SEXUAL HEALTH CENTRE
Part of AlfredHealth



AMR Hub

MONASH
IMPACT
AMR

Funding and study support

NHMRC Leadership Investigator Grant GNT1173361

Australian Research Council (ARC) Industrial Transformation Research Hub Grant IH190100021

Study kits donated by : Speedx Pty Ltd and Cepheid Pty Ltd

Genital Microbiota and Mycoplasma Group

Catriona Bradshaw, Erica Plummer, Kay Htaik, Jason Wu, Monica Owlad, Michelle Doyle, Robyn Holmes, Maggie Vandeleur, Susan Rose

Melbourne Sexual Health Centre

Jason Ong, Kit Fairley, Eric Chow
Nurses and Doctors who referred participants

Royal Women's Hospital, Melbourne

Gerald Murray

Doherty Institute, University of Melbourne

Deborah Williamson, Vesna de Petra, Melodie Sen

SpeedX Pty Ltd

Elisa Mokany, Colin Denver

Cepheid Pty Ltd

Rayden Rivett, Daniela Symons Troy



@lenkavod



@MSHCRResearch



Lenka.Vodstrcil@monash.edu



We acknowledge the **Boonwurrung** and the **Wurundjeri** clans of the **Kulin Nation** who are the custodians of the land and waters, and pay our respects to **Elders** past and present.

WUNUNGU AWARA
MONASH INDIGENOUS STUDIES CENTRE

WANGAILATHA WANGU NGA KIYAWATHA FROM THE TATI TATI, MUTTI MUTTI,
WADI WADI AND LATJI LATJI NATIONS, ROBINVALE, NORTHERN VICTORIA.

MONASH CCS
GEDI COMMITTEE

