

# Resistant gonorrhoea

## A public health issue

### Using diagnostics to define appropriate treatment options

- ▶ *Neisseria gonorrhoeae* infections that do not respond to recommended front-line dual therapy have now been reported.<sup>1,2</sup>
- ▶ Extensively drug-resistant (XDR) *N. gonorrhoeae* strains exhibit high-level azithromycin resistance as well as resistance to ceftriaxone and most other alternative antimicrobials.<sup>3,4</sup>
- ▶ There is a global call for measures to preserve ceftriaxone and azithromycin as viable treatment options.<sup>3</sup>

**Over half the reported gonorrhoea infections could be treated with a simple oral antibiotic.<sup>5-8</sup>**

### Resistance Guided Therapy

Better diagnostics to combat the rise in antimicrobial resistance (AMR).

Diagnostic tests that detect bacterial infection and genetic markers for antibiotic resistance in a single test can address the looming issue of global AMR<sup>9</sup> by enabling Resistance Guided Therapy (RGT).

- ▶ Patients receive targeted treatment<sup>9</sup>
- ▶ Healthcare costs are reduced<sup>9</sup>
- ▶ Spread of resistant infections minimised
- ▶ Antibiotic stewardship practices improved<sup>9</sup>

### ResistancePlus<sup>®</sup> GC\*

Test for ciprofloxacin susceptibility.

Ciprofloxacin susceptibility testing can deliver a positive change in your clinic practises. Latest surveillance data (see table) suggest over half of reported infections could be treated with a simple oral antibiotic.<sup>5-8</sup>

- ▶ Reported rates of ciprofloxacin resistance have declined in many regions
- ▶ RGT ensures patients receive targeted treatment
- ▶ Healthcare costs reduced by minimising use of injectable treatments (e.g. ceftriaxone)
- ▶ Preserve front-line dual-therapy options for appropriate cases

	Ciprofloxacin resistance	Azithromycin resistance	Ceftriaxone resistance	% Susceptible to Ciprofloxacin
Austria <sup>a</sup>	78%	1%	0	22
Belgium <sup>a</sup>	53%	0%	0	47
Cyprus <sup>a</sup>	88%	25%	0	12
Denmark <sup>a</sup>	53%	7%	0	47
France <sup>a</sup>	53%	0%	0	47
Germany <sup>a</sup>	49%	2%	0	51
Greece <sup>a</sup>	71%	29%	0	29
Hungary <sup>a</sup>	73%	0%	0	27
Iceland <sup>a</sup>	40%	0%	0	60
Italy <sup>a</sup>	50%	0%	0	50
Latvia <sup>a</sup>	26%	16%	0	74
Malta <sup>a</sup>	40%	0%	0	60
Netherlands <sup>a</sup>	36%	2%	0	64
Norway <sup>a</sup>	80%	11%	0	20
Portugal <sup>a</sup>	46%	19%	0	54
Slovakia <sup>a</sup>	47%	0%	0	53
Slovenia <sup>a</sup>	61%	0%	0	39
Spain <sup>a</sup>	65%	9%	4%	35
Sweden <sup>a</sup>	56%	10%	0	44
UK <sup>a</sup>	26%	0%	0	74
Australia <sup>b</sup>	27%	3%	1.8% <sup>e</sup>	73
New Zealand <sup>c</sup>	32%	2%	2.6% <sup>e</sup>	68
USA <sup>d</sup>	30%	2.5%	0.8% <sup>e</sup>	70

*Neisseria gonorrhoeae* (GC) resistance data (% of total isolates) from national surveillance programs. (a) European Gonococcal Antimicrobial Surveillance Programme,<sup>4</sup> (b) Australian Gonococcal Surveillance Programme,<sup>5</sup> the (c) New Zealand Public Health surveillance,<sup>6</sup> and the (d) Gonococcal Isolate Surveillance Project, United States.<sup>7</sup> (e) data indicate reduced susceptibility to ceftriaxone.

# ResistancePlus® GC\*

Detect *Neisseria gonorrhoeae* and key mutations that predict susceptibility to ciprofloxacin<sup>10</sup>

Channel	Target
1	<i>N. gonorrhoeae</i> (Opa)
2	<i>N. gonorrhoeae</i> (PorA)
3	gyrA mutation
4	gyrA wild type
5	Internal Control

Single well test combining multiple *N. gonorrhoeae* (GC) targets with markers associated with resistance or susceptibility to ciprofloxacin.

## Built-in confirmatory target for use in front-line testing

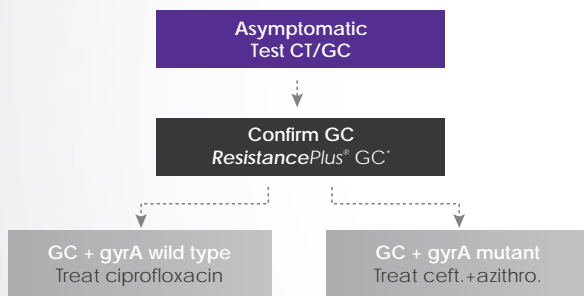
Performance data

- GC detection; 96.9% sensitivity 99.7% specificity
- Mutation detection; 100% sensitivity 98.6% specificity
- Ciprofloxacin resistance/susceptibility; 100% correlation to clinical isolates

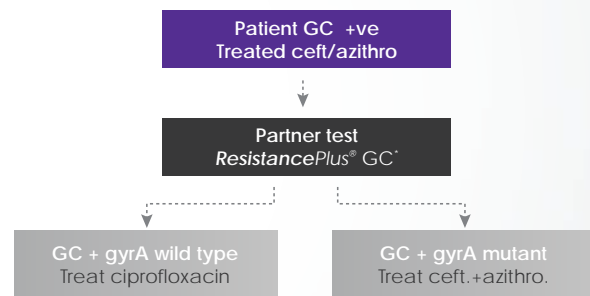
## Diagnostics Defining Therapy:

Test and treat algorithms to support your patient therapy decisions.

### Screening or postal service



### Partner testing



Guideline for testing/treatment algorithm, based on BASHH gonorrhoea guidelines that indicate ciprofloxacin should be preferentially used if infection is known to be quinolone sensitive.<sup>11 §</sup>

ResistancePlus® GC\* in your testing algorithm will reduce the need for injectable antibiotics and contribute towards the preservation of ceftriaxone and azithromycin dual therapy.

- ▶ Improve antibiotic stewardship, maximal use of existing treatment options
- ▶ Reduce in-clinic adverse events, simple oral medication
- ▶ Free up clinician staff, oral medication delivered by nursing staff
- ▶ Expand capacity of your service, treat patients out of clinic hours
- ▶ Reduce use of injectable, patients more agreeable to treatment

\*Not for sale in the USA

§Any testing algorithm used should adhere to relevant national testing regulations.

**References:** 1. PHE Health Protection Report Volume 12, Number 11. 2018 2. AU DoH Media Statement April 17<sup>th</sup> 2018. 3. Rapid Risk Assessment 7 May 2018. Stockholm: ECDC; 2018. 4. Eyre DW et al. Euro Surveill. 2019;24(10):pii=1900147. 5. Harris SR et al. Lancet Infect Dis Published online May 15<sup>th</sup> 2018 6. Lahra MM et al. Australian Gonococcal Surveillance Programme annual report, 2015 7. Heffernan H et al. Antimicrobial resistance and molecular epidemiology of gonococci in NZ, 2014-5 8. Kirkcaldy RD et al. MMWR Surveillance Summaries July 15, 2016 / 65(7);1-19 9. O'Neill J. The Review on Antimicrobial Resistance. May 2016;35. 10. Siedner MJ et al. J. Clin. Microbiol. 45, 1250-1254 (2007) 11. Fifer et al. British Association for Sexual Health and HIV national guideline for the management of infection with *Neisseria gonorrhoeae* (2019).

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