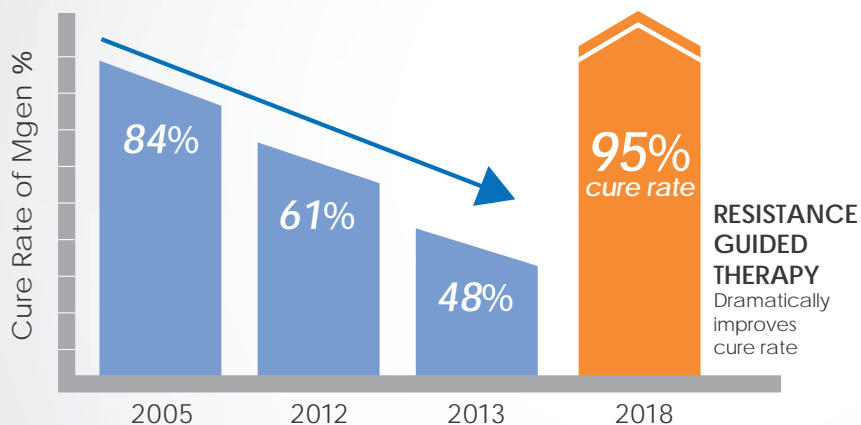


# Emerging STI Superbug: *Mycoplasma genitalium*

## Antibiotic Resistance in *M. genitalium*

- ▶ *M. genitalium* (Mgen) is a recognised STI with clinical presentation similar to that of *Chlamydia trachomatis* (CT).<sup>1</sup>
- ▶ Mutations in the 23S rRNA gene of *M. genitalium* have been linked with clinical treatment failure and high level *in vitro* macrolide resistance.<sup>2</sup>
- ▶ Macrolide resistance mediating mutations have been observed in 20-80% of cases in the UK, Denmark, Sweden, Australia, and Japan.<sup>3,4,6</sup>
- ▶ Resistance is already developing towards the second-line treatment moxifloxacin (fluoroquinolone).<sup>4-6</sup>

## Resistance Guided Therapy (RGT) uses diagnostics to inform treatment decisions

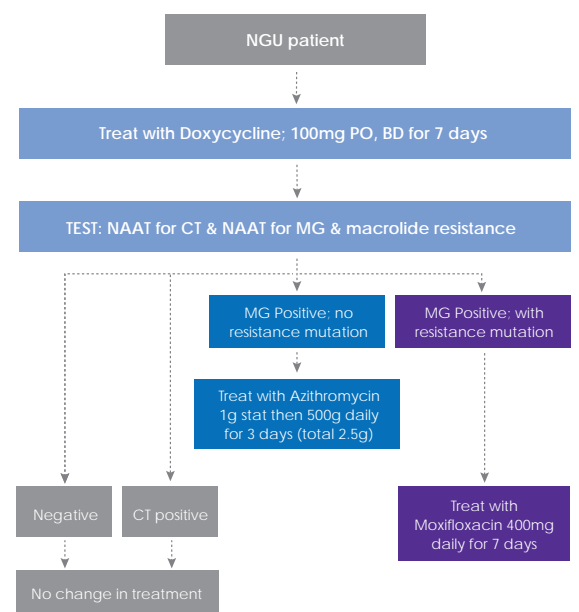


Macrolide resistance exceeds 60% in some populations.<sup>4</sup>

Cure rates after standard single-dose macrolide treatment can be as low as 40%.<sup>7</sup>

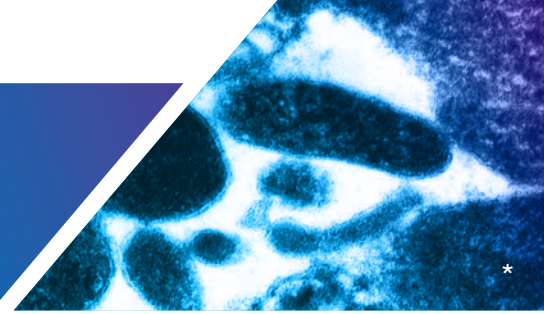
Greater than 92% of patients were cured using RGT<sup>4</sup>

- ▶ Management guidelines for Mgen infections (Figure 1) now recommend testing for macrolide resistance to help determine appropriate treatment.<sup>8-10</sup>
- ▶ RGT applied to a population with high levels of antibiotic resistance and cure rates below 67% significantly improved patient outcome.<sup>4</sup>
- ▶ Cure rates in the Mgen macrolide-susceptible population exceeded 94%.<sup>4</sup>
- ▶ Cure rates in the Mgen macrolide-resistant population exceeded 92%.<sup>4</sup>
- ▶ Using doxycycline for initial STI treatment reduces overall use of azithromycin and reduces initial bacterial load which may improve subsequent Mgen treatment.<sup>4</sup>



Australian STI management guidelines for symptomatic non-gonococcal urethritis, proctitis, and cervicitis include a recommendation to assess the macrolide resistant status of *M. genitalium* infections to direct appropriate treatment.<sup>8</sup>

# Mycoplasma genitalium



- ▶ *M. genitalium* (Mgen) was first identified in the 1980s<sup>11</sup> and is now a recognised sexually transmitted infection (STI), more prevalent than *N. gonorrhoeae* in many populations.<sup>12,13</sup> Mgen is associated with 10–35% of non gonococcal urethritis (NGU)<sup>14,15</sup> and as much as 45% of persistent/recurrent urethritis.<sup>9</sup>
- ▶ Mgen is an extremely fastidious and slow growing organism,<sup>3</sup> making nucleic acid amplification testing (NAAT) the only viable diagnostic solution.<sup>9,16</sup> Treatment options are limited as mycoplasma lack a cell wall, thus are unaffected by many common antibiotics.<sup>15,16</sup> Of additional concern is the apparent rapid rate of mutation of Mgen, resulting in an alarming increase in antimicrobial resistance (AMR) over relatively short periods of time.<sup>3</sup>

## Potential Health Risks

- ▶ Most Mgen cases are asymptomatic, any associated symptoms are similar to other STIs such as chlamydia.<sup>1</sup>
- ▶ The presence of Mgen is associated with an increased risk of NGU<sup>15</sup> and of acquiring HIV.<sup>17</sup>
- ▶ Increased risk of cervicitis, PID, preterm birth, spontaneous abortion and infertility in women has also been reported.<sup>18</sup>

### Signs and Symptoms

- Urethritis
- Mucopurulent cervicitis
- Cervical or vaginal discharge
- Acute pelvic pain and/or PID

### RISK FACTORS

- Individuals with high-risk sexual behaviour
- Sexual contact with individuals diagnosed with an STI or PID
- Contact with individuals infected with *M. genitalium*

## Improve patient management. Test for macrolide resistance.

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\* Electron micrograph depicting *M. genitalium* adhering to Vero cells. EM performed by Jens Blom from culture by Jørgen Skov Jensen, Statens Serum Institut.

#### Australia - SpeedX Pty. Ltd.

+61 (0)2 9209 4170

sales@speedx.com.au

Suite G16, National Innovation Centre  
4 Cornwallis Street, Sydney NSW 2015 Australia

#### Europe - SpeedX Ltd.

+44 (0)333 577 5210

sales.uk@speedx.com.au

Kemp House 152-160 City Road  
London EC1V 2NX United Kingdom

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