

# DELAYED CLEARANCE OF MYCOPLASMA GENITALIUM FOLLOWING AZITHROMYCIN TREATMENT

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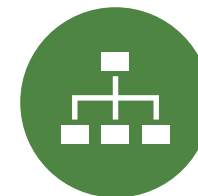




**Background**



**Aims**



**Methods**



**Results**



**Conclusions**



**Future research**

# **OVERVIEW**

# THE PROBLEM



Lack of validated testing



Syndromic management with azithromycin 1 g

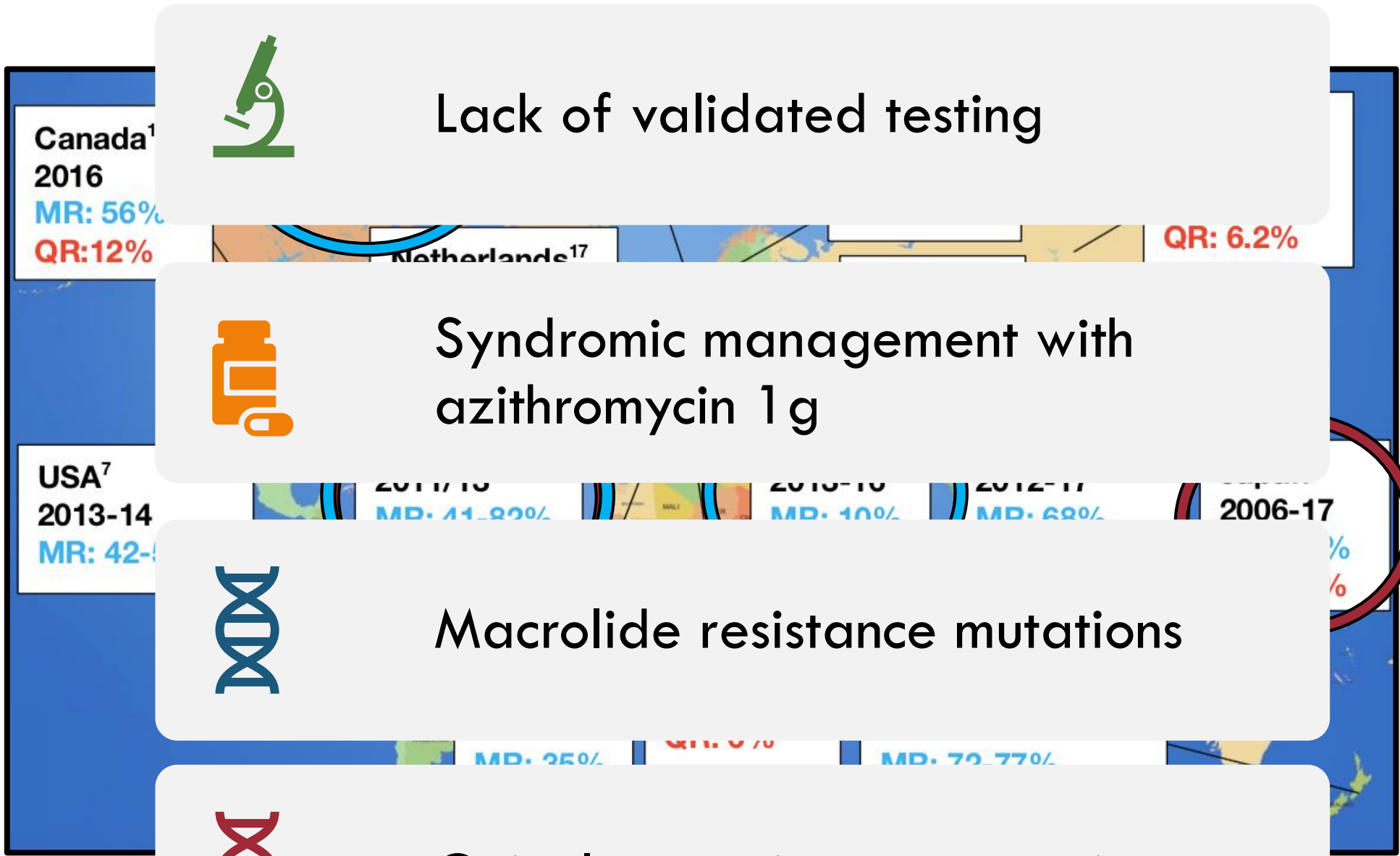


Macrolide resistance mutations

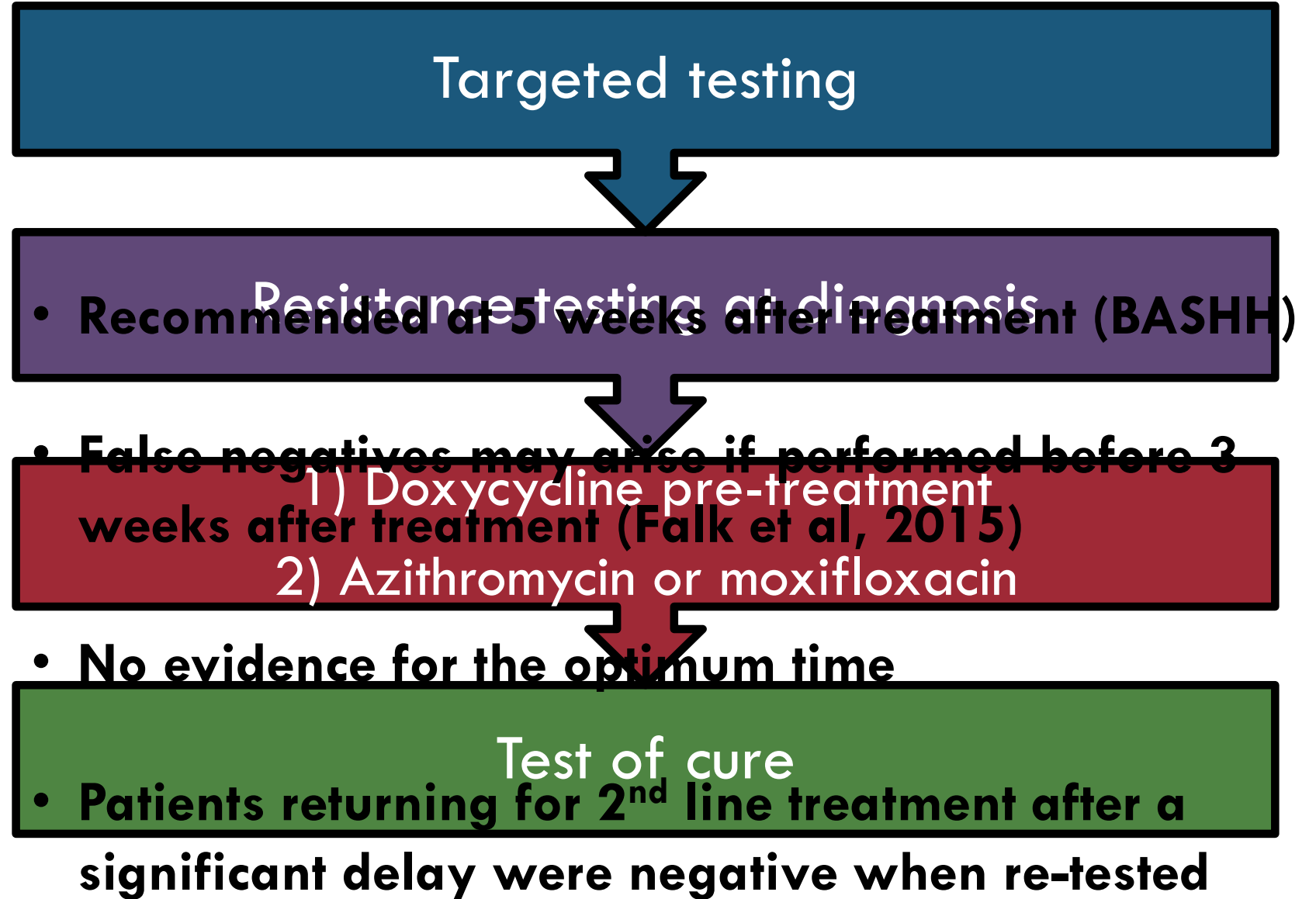


Quinolone resistance mutations

MR= Macrolide resistance, QR= Quinolone resistance



# THE RECOMMENDED APPROACH



# **OUR QUESTION AND AIMS**

**Does additional time to TOC improve Mgen clearance rates following azithromycin, without the need for further treatment?**

## **Aims:**

- **Identify patients with a positive TOC after treatment**
- **Determine the proportion of patients with a negative TOC and hence spontaneous clearance at the time of 2<sup>nd</sup> line treatment**
- **Determine the mean time from azithromycin treatment to spontaneous clearance**

# METHODS



## Setting:

- The Claude Nicol Centre, Brighton
- TOC performed routinely at 5 weeks, no resistance testing



## Population:

- Patients with a positive TOC after azithromycin treatment
- October 2017 – May 2018



## Intervention:

- An extra TOC when the patient returned for moxifloxacin treatment



## Analysis and Statistics:

- Retrospective analysis of electronic patient records
- SPSS V.25.0 software

## RESULTS:

## THE SAMPLE POPULATION



12 patients with a positive TOC gave an extra TOC sample



8/12 (66.6%) male [6 NGU, 2 proctitis]  
4/12 (33.4%) female [2 PID, 2 contacts]



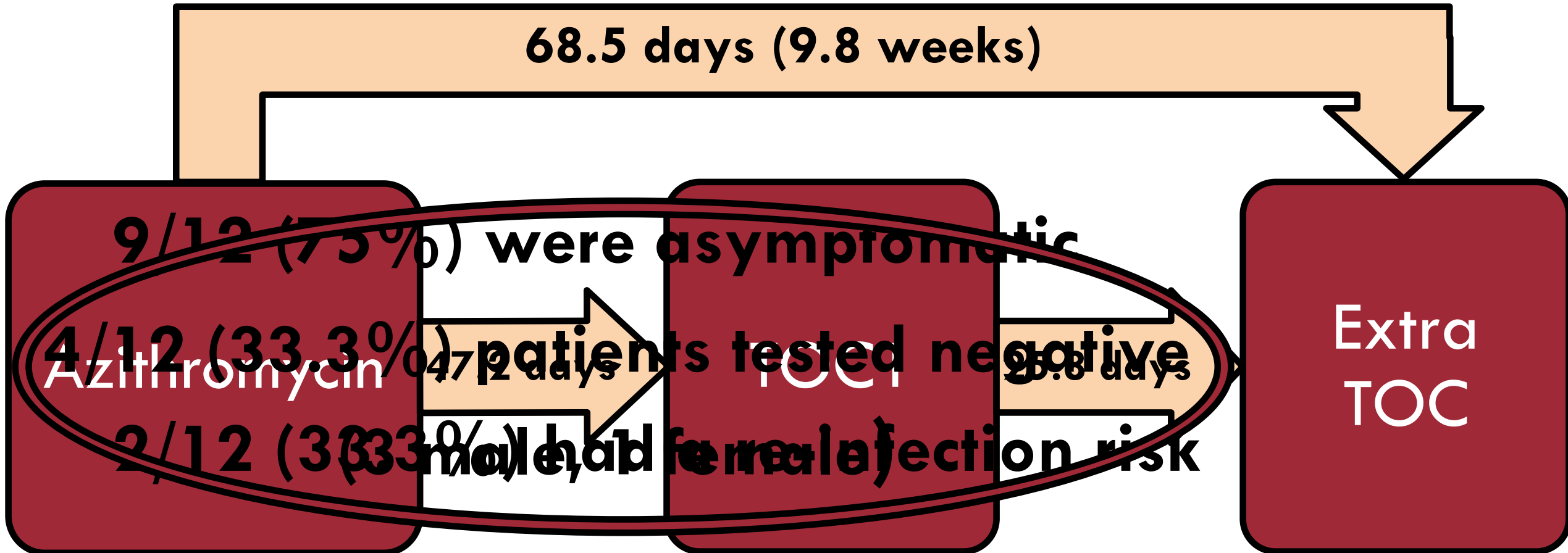
6/12 (50%) patients (all male) received doxycycline treatment before azithromycin



All patients were adherent to azithromycin treatment

# RESULTS:

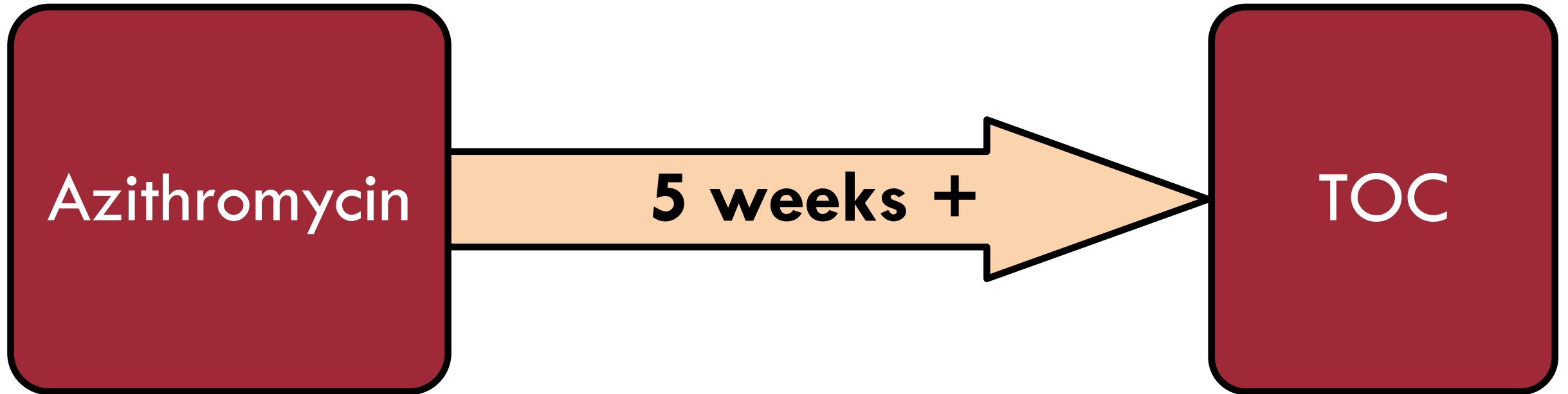
## THE PATIENT JOURNEY AND OUTCOMES





# CONCLUSIONS

- **Patients can experience delayed clearance of infection**
- **Some patients are receiving 2<sup>nd</sup> line treatment inappropriately**



# **LIMITATIONS**

- **SINGLE CENTRE**
- **SMALL COHORT**
- **RETROSPECTIVE**

**What is the optimum time for  
TOC?**

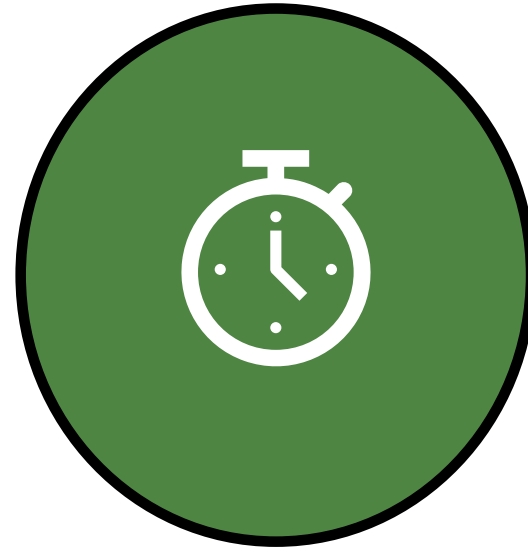
**Is prolonged time to TOC  
practical?**

**Benefit vs risk?**

**PERTINENT  
QUESTIONS**



Analyse the impact of an extra TOC on the number of patients receiving 2<sup>nd</sup> line treatment



Longitudinal study to find the optimum time to TOC

## **FUTURE RESEARCH**

# ACKNOWLEDGEMENTS

**The Claude Nicol Centre**



**BASHH**



**THANK YOU FOR  
LISTENING**

**QUESTIONS?**

# MAP REFERENCES

1. Pond MJ, Nori A V., Witney AA, Lopeman RC, Butcher PD, Sadiq ST. High Prevalence of Antibiotic-Resistant *Mycoplasma genitalium* in Nongonococcal Urethritis: The Need for Routine Testing and the Inadequacy of Current Treatment Options. *Clin Infect Dis* [Internet]. 2014 Mar 1 [cited 2019 Feb 15];58(5):631–7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24280088>
2. Pitt R, Fifer H, Woodford N, Alexander S. Detection of markers predictive of macrolide and fluoroquinolone resistance in *Mycoplasma genitalium* from patients attending sexual health services in England. *Sex Transm Infect* [Internet]. 2018 Feb [cited 2019 Feb 15];94(1):9–13. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28717051>
3. Hamasuna R, Le PT, Kutsuna S, Furubayashi K, Matsumoto M, Ohmagari N, et al. Mutations in ParC and GyrA of moxifloxacin-resistant and susceptible *Mycoplasma genitalium* strains. Balish MF, editor. *PLoS One* [Internet]. 2018 Jun 8 [cited 2019 Feb 15];13(6):e0198355. Available from: <http://dx.plos.org/10.1371/journal.pone.0198355>
4. Shipitsyna E, Rummyantseva T, Golparian D, Khayrullina G, Lagos AC, Edelstein I, et al. Prevalence of macrolide and fluoroquinolone resistance-mediating mutations in *Mycoplasma genitalium* in five cities in Russia and Estonia. Browning GF, editor. *PLoS One* [Internet]. 2017 Apr 13 [cited 2019 Feb 15];12(4):e0175763. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28407014>
5. Le Roy C, Hénin N, Pereyre S, Bébéar C. Fluoroquinolone-Resistant *Mycoplasma genitalium*, Southwestern France. *Emerg Infect Dis* [Internet]. 2016 [cited 2019 Feb 15];22(9):1677–9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27533360>
6. Salado-Rasmussen K, Jensen JS. *Mycoplasma genitalium* Testing Pattern and Macrolide Resistance: A Danish Nationwide Retrospective Survey. *Clin Infect Dis* [Internet]. 2014 Jul 1 [cited 2019 Feb 15];59(1):24–30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24729494>
7. Getman D, Jiang A, O'Donnell M, Cohen S. *Mycoplasma genitalium* Prevalence, Coinfection, and Macrolide Antibiotic Resistance Frequency in a Multicenter Clinical Study Cohort in the United States. Patel R, editor. *J Clin Microbiol* [Internet]. 2016 Sep [cited 2019 Feb 15];54(9):2278–83. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27307460>
8. Barberá M-J, Fernández-Huerta M, Jensen J-S, Caballero E, Andreu A. *Mycoplasma genitalium* Macrolide and Fluoroquinolone Resistance. *Sex Transm Dis* [Internet]. 2017 Aug [cited 2019 Feb 15];44(8):457–62. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28703723>
9. Basu I, Roberts SA, Bower JE, Henderson G, Reid M. High Macrolide Resistance in *Mycoplasma genitalium* Strains Causing Infection in Auckland, New Zealand. Munson E, editor. *J Clin Microbiol* [Internet]. 2017 Jul [cited 2019 Feb 15];55(7):2280–2. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28468853>
10. Anderson T, Coughlan E, Werno A. *Mycoplasma genitalium* Macrolide and Fluoroquinolone Resistance Detection and Clinical Implications in a Selected Cohort in New Zealand. Forbes BA, editor. *J Clin Microbiol* [Internet]. 2017 Nov [cited 2019 Feb 15];55(11):3242–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28878004>
11. Read TRH, Fairley CK, Murray GL, Jensen JS, Danielewski J, Worthington K, et al. Outcomes of Resistance-guided Sequential Treatment of *Mycoplasma genitalium* Infections: A Prospective Evaluation. *Clin Infect Dis* [Internet]. 2019 Feb 1 [cited 2019 Feb 15];68(4):554–60. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/29873691>
12. Murray GL, Bradshaw CS, Bissessor M, Danielewski J, Garland SM, Jensen JS, et al. Increasing Macrolide and Fluoroquinolone Resistance in *Mycoplasma genitalium*. *Emerg Infect Dis* [Internet]. 2017 May [cited 2019 Feb 15];23(5):809–12. Available from: [http://wwwnc.cdc.gov/eid/article/23/5/16-1745\\_article.htm](http://wwwnc.cdc.gov/eid/article/23/5/16-1745_article.htm)
13. Hokynar K, Hiltunen-Bäck E, Mannonen L, Puolakkainen M. Prevalence of *Mycoplasma genitalium* and mutations associated with macrolide and fluoroquinolone resistance in Finland. *Int J STD AIDS* [Internet]. 2018 Aug 9 [cited 2019 Feb 15];29(9):904–7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/29631509>
14. Gesink DC, Mulvad G, Montgomery-Andersen R, Poppel U, Montgomery-Andersen S, Binzer A, et al. *Mycoplasma genitalium* presence, resistance and epidemiology in Greenland. *Int J Circumpolar Health* [Internet]. 2012 Jan 31 [cited 2019 Feb 15];71(1):18203. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22564463>
15. Björnelius E, Magnusson C, Jensen JS. *Mycoplasma genitalium* macrolide resistance in Stockholm, Sweden. *Sex Transm Infect* [Internet]. 2017 May [cited 2019 Feb 15];93(3):167–8. Available from: <http://sti.bmj.com/lookup/doi/10.1136/sextrans-2016-052688>
16. Gratrix J, Pliitt S, Turnbull L, Smyczek P, Brandley J, Scarrott R, et al. Prevalence and antibiotic resistance of *Mycoplasma genitalium* among STI clinic attendees in Western Canada: a cross-sectional analysis. *BMJ Open* [Internet]. 2017 Jul 1 [cited 2019 Feb 15];7(7):e016300. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28698342>
17. Nijhuis RHT, Severs TT, Van der Vegt DSJM, Van Zwet AA, Kusters JG. High levels of macrolide resistance-associated mutations in *Mycoplasma genitalium* warrant antibiotic susceptibility-guided treatment. *J Antimicrob Chemother* [Internet]. 2015 Sep [cited 2019 Feb 15];70(9):2515–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25995292>