Routine pharyngeal gonorrhoea test-of-cure:

Is 3 weeks after treatment better than 2?

Dr Sarah Cole, Dr Gawri Rajakaruna
South Terrace Clinic, WA

Government of **Western Australia**
South Metropolitan Health Service
Fiona Stanley Fremantle Hospitals Group

Acknowledgements

Disclosures

Background: rationale for the TOC in pharyngeal NG

Higher rates of treatment failure

Pharyngeal NG a pivotal site for AMR

May reduce risk of onward transmission

(1) doi:10.1016/S1473-3099(24)00001-X

(2) doi:10.1016/S1473-3099(20)30055-4

doi:10.1093/jac/dkaa300

(4) doi.org/10.1093/cid/ciab071

Who needs a TOC?

International guidelines vary, though indications for TOC increasing

- **Australian STI Guidelines: TOC for all sites, 2 weeks after treatment**
- UK BASHH 2025 Guidelines: for pharyngeal infection, at least 2 weeks after treatment
- European 2020 Guidelines: TOC for all sites
- US CDC 2021 Guidelines: for pharyngeal infection, 7-14 days after treatment.

What does a positive TOC result mean?

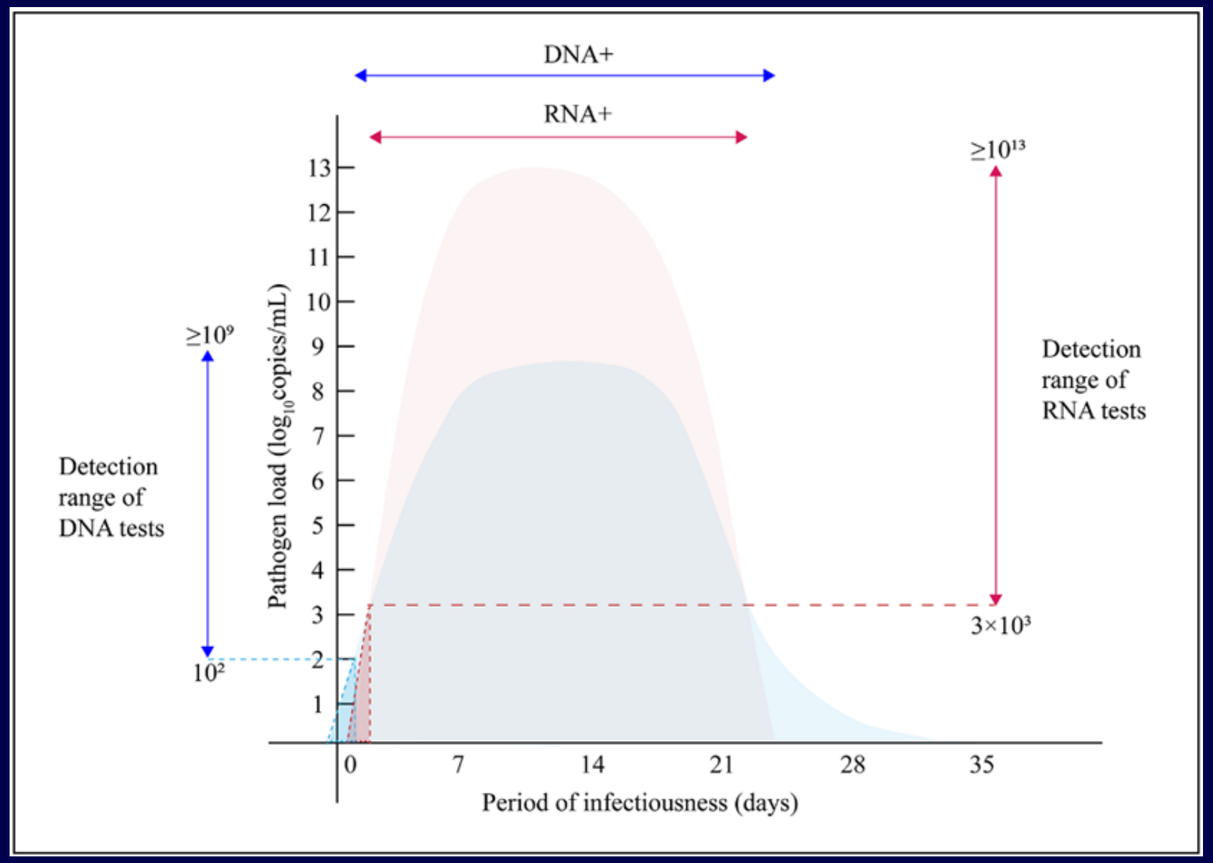
- Treatment failure
- Reinfection
- **False positive**

Testing too soon: risk of increased false positives, unnecessary patient recalls, repeat swabs

Testing too late: risk of onward transmission, loss to follow up

When is ‘just right’?

Timing the pharyngeal TOC



doi:10.1128/spectrum.01497-23

1. Most data for TOC timing comes from urogenital site sampling
2. Pharyngeal clearance is **probably slower**
3. Time to clearance of RNA vs DNA differs (range 1-7 vs 1-15 days)
4. Pharyngeal-specific data is limited, and is mostly based on RNA test assays

WA pathology providers **overwhelmingly use DNA-based assays**, so when do we do TOCs?

Timing the pharyngeal TOC

Days from treatment to clear NG via molecular testing		
	Urogenital	**Pharyngeal**
RNA	Median 2 days 95% clearance 7 days	Median 3 days 95% clearance 12 days
DNA	Median 3 days 95% clearance 15 days	???

1. Most data for TOC timing comes from urogenital site sampling
2. Pharyngeal clearance is **probably slower**
3. Time to clearance of RNA vs DNA differs (range 1-7 vs 1-15 days)
4. Pharyngeal-specific data is limited, and is mostly based on RNA test assays

WA pathology providers **overwhelmingly use DNA-based assays**, so when do we do TOCs?

doi:10.1128/spectrum.01497-23
doi:10.1093/cid/ciw141
doi:10.1128/jcm.00399-22
doi:10.1097/OLQ.0000000000002157

Timing the pharyngeal TOC

Days from treatment to clear NG via molecular testing		
	Urogenital	**Pharyngeal**
RNA	Median 2 days 95% clearance 7 days	Median 3 days 95% clearance 12 days
DNA	Median 3 days 95% clearance 15 days	??? X=20 days?

1. Most data for TOC timing comes from urogenital site sampling
2. Pharyngeal clearance is **probably slower**
3. Time to clearance of RNA vs DNA differs (range 1-7 vs 1-15 days)
4. Pharyngeal-specific data is limited, and is mostly based on RNA test assays

WA pathology providers **overwhelmingly use DNA-based assays**, so when do we do TOCs?

doi:10.1128/spectrum.01497-23
doi:10.1093/cid/ciw141
doi:10.1128/jcm.00399-22
doi:10.1097/OLQ.0000000000002157

We noticed high rates of positive TOCs when recalling patients at 2 weeks, so the clinic shifted towards 3-week TOCs, though this hadn't been formally examined.

Aims:

- Establish current TOC return rate
- Assess TOC interval and positivity rate

Methods:

- Retrospective review of all pharyngeal NG treated at our clinic (Fremantle South Terrace Clinic) in 2024
- TOC defined as repeat PCR-based testing 1-6 weeks after treatment
- All testing done by the Roche Cobas 6800 DNA PCR assay at Pathwest

SMS recall system in place at 2 weeks if patients were not already scheduled for TOC

Results

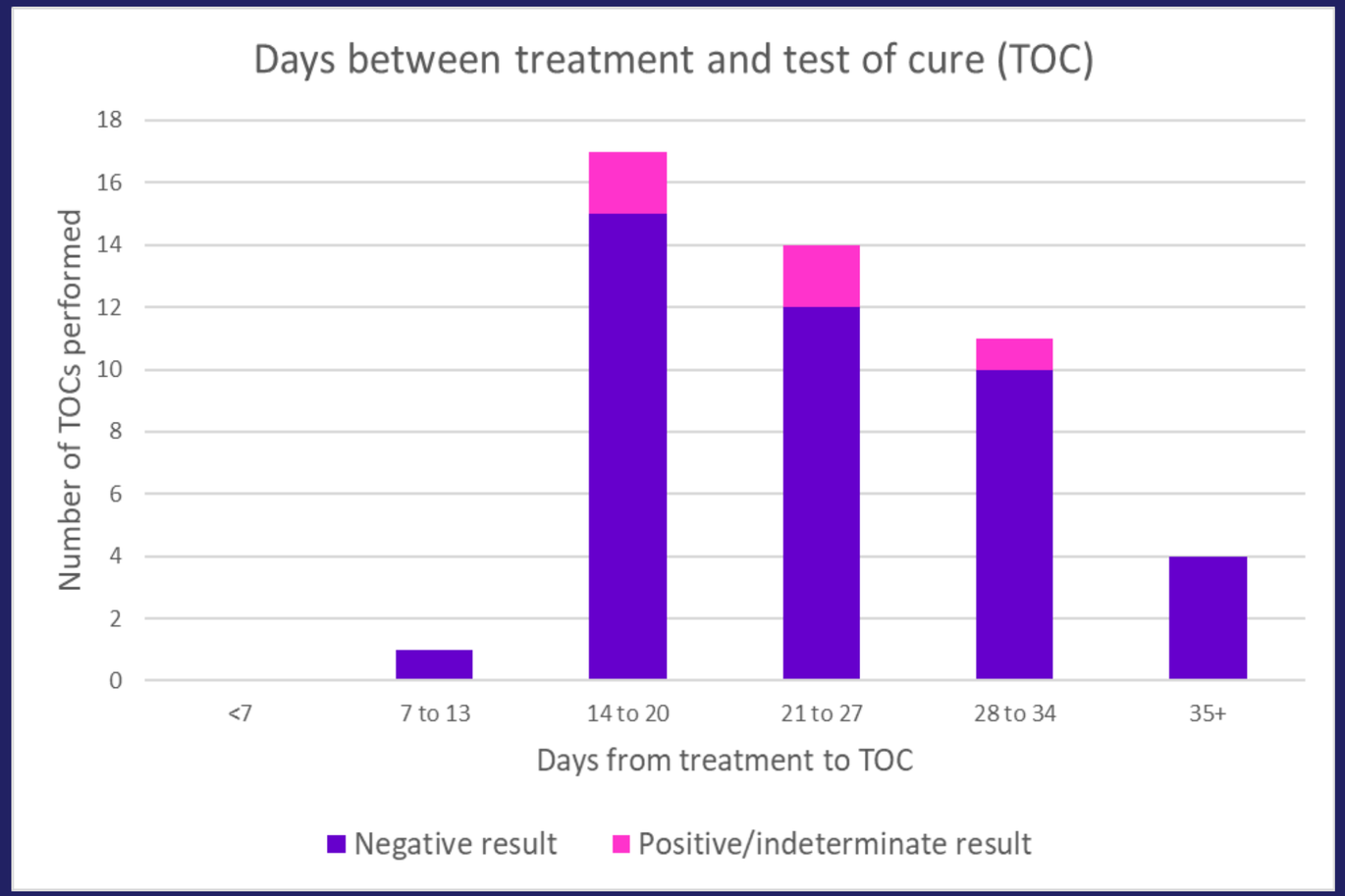
85 cases of pharyngeal NG treated in 2024

79/85 received ceftriaxone-based therapy

- 45/85 received ceftriaxone + azithromycin 2g

44 (52%) returned for TOC (1-6 weeks after treatment)

- Median 22.7 days
- 39 TOCs (88.6%) negative
- **3 positive, 2 indeterminate**
- No sig. association between TOC interval and positivity (small numbers)



Results: the indeterminate TOCs

	Diagnosis	Treatment received	TOC interval	TOC outcome	Clinical determination
Patient 1	Culture negative at diagnosis Ct value - 24.6	Ceftriaxone + azithromycin 1g	14 days	Indeterminate: screening positive but supplemental testing negative Ct value 38.3 Negative at day 21	**False positive likely, not retreated.**
Patient 2	Culture negative at treatment Ct value – 29.7	Ceftriaxone + doxycycline	14 days	Indeterminate: screening positive but supplemental testing negative Ct value 40.4 at day 14 Ct value 39.5 at day 21 Negative at day 43	**False positive likely, not retreated.**

Results: the positive TOCs

	Diagnosis	Treatment received	TOC interval	TOC outcome	Clinical determination
Patient 3	Culture negative at treatment Ct value 35.3	Ceftriaxone + azithromycin 2g	32	Positive: Ct value 40.61. Culture negative. Negative 14 days later (day 46)	**Likely false positive, not retreated.**
Patient 4	Diagnosed externally, no Ct value or culture available	Ceftriaxone + azithromycin 1g	27	Positive: Ct value 37.49 PCR and culture negative at day 32	**Likely false positive, not retreated.**
Patient 5	Culture positive at diagnosis (CRO MIC 0.006) Ct value 37.4	Ceftriaxone + doxycycline	22	Positive: Ct value 38.4. Culture negative. PCR also positive at rectum.	No risk of re-exposure. Possible treatment failure; retreated day 36. Subsequently lost to follow up.

Discussion

TOC return rate ~50%

Median interval between treatment and TOC: 22.7 days

Despite this, pharyngeal TOC positivity rate 6.8%; another 4.5% indeterminate

- 4/5 positive/indeterminate TOCs thought to be false-positives - not retreated.
- 1/5 possible treatment failure, retreated
- 8 subsequent visits between the 5 patients, post TOC.

No cases of AMR identified

Is the 3-week TOC better than 2?

Conclusions:

Watch this space!

- In the pipeline, prospective patient cohort study looking at the rate of DNA clearance in the pharynx

Patient-collected TOC specimens may also reduce burden on clinic

At this point, more nuance needed for TOCs and result interpretation than is currently reflected in most international guidelines

- DNA VS RNA-based testing
- Ct values may assist interpretation of indeterminate/positive TOCs

Thank you

Contact: sarah.cole2@health.wa.gov.au