Shigellosis among gay, bisexual and other men who have sex with men in England; changing epidemiology and emergence of multidrug resistant *Shigella sonnei*.

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Overview

1) Background

2) Data sources

3) The objectives of this talk are to describe:
   - Changing epidemiology among MSM
   - Recent outbreak of drug-resistant *Shigella sonnei*
Shigellosis

What is shigellosis?

- Primarily a gastrointestinal infection caused by called *Shigella* spp
- Symptoms: diarrhoea (sometimes bloody), abdominal cramping, nausea, vomiting

How is it spread?

- Faecal-oral transmission. Which includes:
  - ingestion of contaminated food or water
  - person-to-person contact during sexual activity
National surveillance of *Shigella* spp.

**SGSS**- Second Generation Surveillance System
- Automatic import of diagnostic data from primary hospital laboratories.
- National coverage; 100% of all public labs reporting communicable diseases submit to SGSS.

**GDW** - Gastro Data Warehouse
- PHE database containing reference laboratory confirmatory typing results.
- Whole genome sequencing (WGS) performed routinely since 2015
- Not all laboratories submit samples to the reference laboratory → underestimates the number of cases in the community
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**No sexual identity data in either. Assumption:** Excess cases from adult males without travel or falling within a predominantly adult male cluster are likely due to sexual transmission among MSM.
Changing epidemiology of \textit{Shigella} among adult males in England

Shigellosis among MSM in England; changing epidemiology and emergence of multidrug resistant \textit{Shigella sonnei}.
Changing epidemiology of *Shigella* among adult males in England

**Data sources:**
- GDW
- SGSS

**Diagnoses**

Data source: * GDW, ¥ SGSS
Changing epidemiology of *Shigella* among adult males in England

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Shigellosis among MSM in England; changing epidemiology and emergence of multidrug resistant *Shigella sonnei*.
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Data source: * GDW, ¥ SGSS
Species breakdown
(among adult males, non-travel)

Data source: GDW
Recent MDR cluster of *S. sonnei* associated with MSM transmission
Recent MDR cluster of *S. sonnei* associated with MSM transmission

- In 2018, new activity was detected in an adult-male cluster of *S. sonnei* that exhibited multiple AMR determinants

- Case isolates fall within the 10-SNP cluster CC 152 1.3.197.460.1360.% on WGS.

- Correspondence with the USA Centers for Disease Control & Prevention revealed genetically linked cases had been seen in the USA as part of a multi-state shigellosis outbreak.

- This cluster is still being actively monitored & cases followed up.
Recent MDR cluster of S. sonnei associated with MSM transmission

Why is this of relevance?

• This particular strain is of concern due to its multi-drug resistant genotype;
  • Carries resistance markers to six different antibiotic groups.
  • Includes a mutation associated with quinolone failure.
  • The majority of isolates were resistant to azithromycin.

• Severe symptoms; 4 cases were hospitalised and 8/10 experienced prolonged symptoms (>7 days)

• International dissemination; genetically-linked cases were reported in the USA, Netherlands and Republic of Ireland and cases with a similar phenotypic resistance profile in Finland.
  • Also dissemination to other demographic groups (care home, primary school)
Shigella sonnei
Background

Data sources

Epidemiology

Outbreak

Shigellosis among MSM in England; changing epidemiology and emergence of multidrug resistant *Shigella sonnei.*
Take-home messages

• Diagnoses of *Shigella* spp. in presumptive MSM are increasing, largely due to *S. sonnei*.

• Clinicians should be aware of the potential for *S. sonnei* to cause severe infection in MSM (and other patient subgroups) and provide appropriate prevention advice.

  → Send samples for testing, and encourage the lab to refer onto the national reference laboratory if *Shigella* spp.

• There are multiple strains circulating in England, each with different resistance profiles; treatment should be guided by antibiotic susceptibility testing.

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