UK Health Security Agency

Briefing Note

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Event: Emergence of new *Clostridioides difficile* ribotype – 955 - update

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IRP Level Standard

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Instructions for Cascade

- **Devolved Administrations to cascade to Medical Directors and other DA teams as appropriate to their local arrangements**
- **Regional Deputy Directors to cascade to Directors of Public Health for onward cascade to Local Authority Directors of Adult Social Care**
- **UKHSA microbiologists to cascade to non-UKHSA labs (NHS labs and private)**
- **UKHSA microbiologists to cascade to NHS Trust infection leads**
- **NHS labs/NHS infection leads/NHS microbiologist/NHS infectious disease specialists to cascade to hospital clinicians and nursing staff (particularly general medicine, surgery and elderly care)**

Background and Rationale:

Clostridioides difficile (previously known as *Clostridium difficile*) are bacteria that can cause diarrhoea, particularly in older persons, those who have been or are being treated with certain antibiotics, hospitalised and debilitated patients. Since January 2021 there has been an increase in *Clostridioides difficile* infections (CDI) for which there is no clear explanation. Half of CDI case samples get ribotyped by the reference laboratory and no dominant emergent ribotype explains this increase as the ribotypes identified vary substantially.
However, UKHSA is investigating a newly evolving ribotype (955) which has emerged in England over the last 2 years (total 50 cases). This new ribotype is concerning, because it has caused 2 large hospital clusters, with sporadic cases identified elsewhere in England with no apparent links to the two hospital clusters. It appears to transmit readily, may present with severe disease or as a recurrence and has caused significant mortality (10 patients

died in the 30 days following the detection of the infection (all-cause mortality)).

Overall, the age profile of cases is similar to CDI generally although there have been some younger patients affected. Most of the cases were hospital onset, healthcare associated (34). In the two hospital clusters, gastroenterology patients were particularly affected, and this complicated detection because many were receiving laxatives. However, the Cepheid PCR assay detects ribotype 955 as a 'presumptive 027' based on the detection of a deletion in the toxin regulator which has facilitated identification.

The two outbreaks were difficult to bring under control and required additional infection prevention and control measures, in particular, patient decant followed by hydrogen peroxide vapour deep cleaning.

Microbiological fingerprinting using MLVA and WGS shows that the isolates are very closely related. Initial investigations, based on the outbreaks, clinical severity and the deletion in the toxin regulator, suggest that ribotype 955 is potentially similar to ribotype 027. Ribotype 027 emerged in the 2000s, disseminated internationally and resulted in large numbers of patients being affected by CDI which was associated with more severe disease, frequently with complications, increased mortality and increased recurrence rates.

Microbiological sensitivity testing has identified that the ribotype 955 isolates are **RESISTANT** to treatment metronidazole and therefore the use of this agent will be ineffective for treating CDI.

Implications & Recommendations for UKHSA Regions

- Be aware of the emergence of this new ribotype and support hospitals and other healthcare providers with healthcare associated diarrhoea outbreaks including in care settings.

Implications & Recommendations for the NHS

Action for hospital-based Healthcare Professionals

Healthcare professionals should be aware of this new ribotype. They are also are reminded that the NICE guidelines for the assessment and treatment of CDI should be followed. **Metronidazole should NOT be used for treatment.** Further information on *Clostridioides difficile* diagnosis, management and disease surveillance are available from the UKHSA. Patients not responding to standard treatment with vancomycin, may require treatment escalation to second- or third-line treatment options based on NICE recommendations.

Healthcare professionals are also reminded that suspected cases should be promptly isolated and rigorous infection prevention and control procedures

should be instituted without waiting for the results of microbiological investigations, and should be guided by the National infection prevention and control manual (NIPCM) for England

Action for IPC, and cleaning and facility management teams

Be aware of this new ribotype.

Additional measures should be considered to terminate outbreaks such as decanting of affected patient areas for deep cleaning and hydrogen peroxide fogging, with particular attention being paid to areas exposed to faecal soiling e.g., sluices and toilets, mattresses, and pressure cushions.
CDI outbreaks and clusters should be reported to the relevant health protection team.

Action for microbiology Labs

Laboratories are encouraged to send samples for ribotyping to the *Clostridioides difficile* ribotyping network reference laboratory from:
severe cases of CDI, when there are periods of increased incidence (PII), outbreaks and from suspected cases of *Clostridioides difficile* ribotype 955 (detected presumptively by PCR).

Samples that result from severe disease, outbreaks or presumptive ribotype 955 isolates (positive on Cepheid PCR for ribotype 027) can be submitted for free of charge ribotyping for the next 3 months to improve the ascertainment of this ribotype.