How much do we Trust epidemiological definitions of healthcare-associated *C. difficile* infection

Jonathan Sullivan¹,², Eleonora Dyakova¹, Siddharth Mookerjee¹, Frances Davies¹, Tracey Galletly¹, Eimear Brannigan¹, Mark Gilchrist¹, Alison Holmes¹,², Jonathan Otter¹
1. Imperial College Healthcare NHS Trust; 2. Imperial College London.
jon.otter@imperial.nhs.uk; jonotter

1. Background
- Epidemiological definitions from PHE do not include previous hospitalisation in defining healthcare-associated (‘Trust-apportioned’) *C. difficile* cases,¹ in contrast to other definitions such as from the CDC and ECDC.²

2. Aim
- To investigate the frequency of previous hospitalisation in patients presenting with *C. difficile* infection within the first 72 hours of hospital admission or during an outpatient encounter.

3. Method
- We evaluated all cases of *C. difficile* PCR and toxin-positive cases identified in the 14/15 Financial Year.
- We compared case attribution for surveillance definitions from PHE (which do not include previous hospitalisation) and CDC (which include previous hospitalisation).¹ ²
- For each case of *C. difficile* identified in the first 72 hours of admission, previous hospitalization was determined through medical note review.

4. Results
- Of the 84 cases that were identified in the 14/15 Financial Year, that presented in the first 72 hours of admission (defined as non-Trusted apportioned by PHE) or during an outpatient visit, 63 (75%) had previous hospitalisation. 40 of these (63%) had a previous overnight hospital stay in the 4 weeks prior to their positive specimen, and 24 cases (38%) within 1 week prior to their positive specimen (Figure 1).
- When applying the CDC definitions to reportable toxin positive cases in 14/15 Financial Year, there was an increase of 41% in healthcare-associated cases (from 79 to 111 cases) (Figure 2).
- 31/32 additional healthcare-associated cases according to CDC surveillance definitions were due to previous hospitalisation in the 4 weeks prior to the positive specimen.

5. Summary/discussion
- A high proportion, 75% (63 out of 84) of *C. difficile* cases defined as non-healthcare-associated by PHE definitions had recent overnight hospitalisation in our hospitals, suggesting that these cases may be attributable to the previous episode of care.
- PHE should consider including previous hospitalisation in their epidemiological definitions.

References
3. IPC Data Scorecard. FY 2014/15.