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SHEA Spring 2025 Abstracts

Presentation Type:
Oral Presentation - Top Oral Abstract
Subject Category: C. difficile
The Impact of a Healthcare Facility-Onset Antibiotic-Treated CDI Surveillance Definition on reportable cases in VA Medical Centers
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Background: Most laboratories diagnose Clostridioides difficile infection (CDI), using a nucleic acid amplification test (NAAT) or an enzyme immunoassay (EIA) for detecting the toxins in the stool. Adoption of a two-step testing method where a positive NAAT is folowed by a negative toxin EIA may lead to underreporting of patients with CDI healthcare-associated infections (HAIs). The possibility that patients with an active infection may be underreported has been suggested by data, that NAAT positive/Toxin negative patients are sometimes treated. Therefore a new surveillance definition has been adopted by NHSN, healthcare facility-onset antibiotic-treated C. difficile infection (HT-CDI). To date, the impact of adopting this new metric on the number of CDI cases that would qualify for HAI surveillance reporting remains unknown. We chose to explore this by retrospectively evaluating CDI cases using the current and proposed HT-CDI surveillance definition over a two year period in a sample of VA Medical Centers. **Method:** The above HT-CDI definition was applied to all acute care inpatients tested for CDI from July 1, 2022 through June 20, 2024 in 25 volunteer acute care VA medical centers. Centers were chosen based on the use of NAAT alone, NAAT followed by toxin EIA, GDH followed by toxin EIA with discordant results arbitrated by NAAT, GDH plus toxin EIA, toxin EIA alone, or GDH plus NAAT. A HT-CDI was defined according to NHSN as any qualifying C. difficile-positive asssay collected in an inpatient location on day 4 or greater after admission, along with administration of new qualifying antimicrobial therapy in a time frame window. Qualifying therapeutic agents for CDI were defined as enteral vancomycin, metronidazole, or fidaxomycin or intravenous metronidazole. **Results:** Analysis of the 789 CDI cases in 25 VA facilities collected over two years showed that adoption of the HT-CDI definition could potentially increase the number of reportable cases by 23.3%. The impact was most pronounced for patients diagnosed with two-step testing where presumably the patient would not be reported to a national database on the last test done. **Conclusion:** Application of the HT-CDI definition to Veterans Affairs patients could lead to an estimated 23% increase in the number of cases identified and eligible for reporting to a national database such as NHSN. These cases may be a better indicator of the true burden of CDI in an acute healthcare system.

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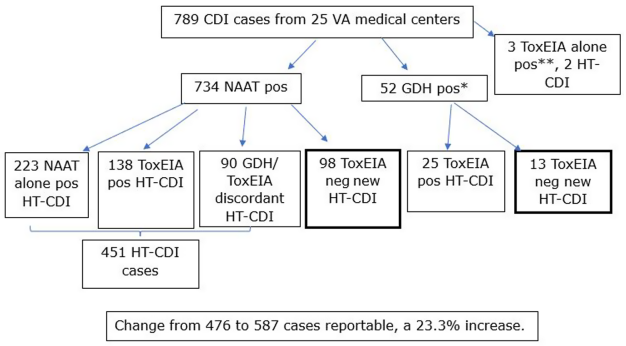

Figure 1. Effect of applying HT-CDI definition on reportable healthcare-associated *C. difficile* infections. (*no NAAT done, **no NAAT or GDH done)

Table 2. Relationship between diagnostic testing algorithm healthcare facility-onset antibiotic-treated *Clostridioides difficile* infection (HT-CDI) in VA acute care medical facilities (July 2022 – June 2024)

Algorithm*	Total Number cases using algorithm	Number HT CDI cases	Percent of cases identified as HT-CDI
NAAT alone pos	259	223	86
NAAT pos/ToxEIA pos	146	138	95
GDH & ToxEIA discrepant/NAAT pos	112	90	80
NAAT pos/ToxEIA neg	216	98	45
GDH pos/ToxEIA pos	25	25	100
GDH pos/ToxEIA neg	27	13	48

*NAAT = nucleic acid amplification test, EIA = enzyme immunoassay, GDH = glutamate dehydrogenase.

Presentation Type:
Oral Presentation - Top Oral Abstract
Subject Category: Diagnostic Stewardship
Environmental Impact of a Single Combined Urine Antigen Test for Streptococcus pneumoniae and Legionella pneumophila
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Background: Healthcare produces 10% of US carbon emissions. Diagnostic stewardship can improve patient care while reducing emissions from unnecessary testing. In the Bronx, community outbreaks of Legionella pneumophila result in frequent testing, yet, most testing for Legionella and Pneumococcus are negative. The institution is transitioning from separate tests for Streptococcus pneumoniae and L. pneumophila to a single combined test. We evaluated the environmental impact of this change. **Methods:** To approximate emissions from separate versus combined testing kits, each kit component was weighed and converted to CO2 emission equivalents using the US Environmental Protection Agency (EPA) greenhouse gas equivalencies calculators. Using data from the previous 12 months and projecting similar future testing patterns, we estimated an emissions reduction based on combined testing. By multiplying waste emissions before and after combined testing, we were able to estimate the emissions diverted by this institutional change. **Results:** From January 2023 to November 2024, 13906 urine Legionella tests were performed and 62 (0.45%) were positive, while 12796 urine Pneumococcal tests were performed and 479 (3.74%) were positive. Separate testing kits generated 218.2 kg of plastic waste and 749.1 kg of paper waste. Projected plastic waste from January 2025 to November of 2026 using the combined test is 48.5 kg of paper waste and 64.2 kg of plastic waste. The total