Abstract # 41953

A Comparison Between National Healthcare Safety Network (NHSN) Laboratory-Identified (LabID) Event Reporting Module versus Standard Surveillance for *Clostridium difficile* Infection

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Abstract (Revised)

Background: The NHSN now requires reporting of laboratory-identified (LabID) *Clostridium difficile* infection (CDI) events. Little is known about how this proxy method compares to standard surveillance definitions when used to estimate incidence.

Methods: Six months (1/1/2013-6/30/2013) of CDI data from 29 community hospitals in the Southeastern US were prospectively collected using both the LabID and standard surveillance definitions. CDI cases were designated as hospital onset – healthcare facility associated (HO-HCFA), community onset – healthcare facility associated (CO-HCFA), community onset (CO), duplicate or recurrent for LabID events. They were designated as HO-HCFA, CO-HCFA, community-acquired (CA), indeterminate, recurrent or continuation per 2008 surveillance definition.

Results: A total of 1256 incident LabID CDI events were identified over 708, 551 patient-days (pt-d). Overall HO-HCFA incidence rate was 6.1 vs. 4.4 per 10,000 pt-d for LabID and standard surveillance respectively, resulting in a 38% higher rate for the LabID method (p<0.001). There were 303 (24%) discordant cases between the two methods, most due to lack of indeterminate category for LabID (n=140, 46% of discordant cases). Other major reasons for discordance included the following: signs or symptoms present on admission with delayed diagnostic testing (107, 35%), recurrent or continuation cases categorized as new LabID event due to and outside laboratory data (79, 26%).

Conclusions: LabID surveillance led to a significantly higher estimate of HO-HCFA CDI incidence rate compared to standard surveillance definitions. Infection prevention programs must carefully understand the LabID method and discordance from traditional surveillance in order to interpret longitudinal trends appropriately.

Background

- The National Health Safety Network now requires reporting of LabID events for CDI, which is a proxy method to estimate incidence rate.
- Little is known about how LabID compares with standard CDI surveillance definitions.

Methods

- 29 community hospitals in the Southeastern US
- Prospectively collected surveillance data by both the standard surveillance definitions (McDonald et al. ICHE 2007) and LabID CDI events
- Incidence rate estimates were compared and discordant cases described

Table 1. Case Definitions

	LabID Event	Standard Surveillance
CDI definition:	LabID event: positive stool toxin or PCR assay	CDI event: positive assay **AND symptom** onset without other known etiology
Hospital onset healthcare facility associated (HO-HCFA)	Positive test > 3 calendar days after hospital admission	Symptom onset >48 hours after admission or within 48 hours after discharge
Community onset (CO)/ Community acquired (CA)	CO: Positive test ≤ 3 days after admission, excluding patients discharged ≤ 4 weeks	CA: symptom onset < 48 hours after admission with no hospital discharge in last 12 weeks
Community onset healthcare facility associated (CO-HCFA)	Positive test collected ≤ 3 days after admission from a patient discharged ≤ 4 weeks prior (same facility)	Case with symptom onset within 4 weeks of discharge (same facility). Excludes patient with CDI during prior admission (same facility)
Recurrent	Positive test obtained > 2 weeks and ≤ 8 weeks after the most recent LabID event (any unit of same facility).	CDI event occurring > 2 weeks and ≤ 8 weeks after a prior CDI event (same or other facility)
Indeterminate	NA	CDI event occurring ≥ 4 and < 12 weeks after hospital discharge
Duplicate / Continuation	Positive test that occurs during the same admission and in the same patient location (hospital unit) within 2 weeks of previous event*	CDI event that occurs within 2 weeks of prior CDI Event

Results

Table 2. Case Status Match Comparison

Standard Infection Surveillance	LabID Definition*				
	HO-HCFA	CO-HCFA	CO	Recurrent	Totals
HO-HCFA	**312**	0	0	0	312 (25%)
CO-HCFA	26	**155**	0	0	181 (14%)
CA	57	0	**427**	0	484 (39%)
Indeterminate	14	3	123	0	140 (11%)
Recurrent	16	20	27	**59**	122 (9.7%)
Continuation	5	4	7	1	17 (1.3%)
Totals	430 (34%)	182 (14%)	584 (47%)	60 (4.8%)	1256

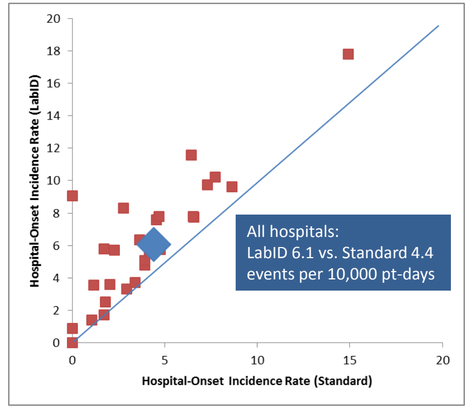
*Duplicate LabID events, defined as CDI positive test occurring within </=14 days after a previous LabID event, regardless of patient unit location, were removed from this analysis. Although MDRO module requires reporting of events occurring within the 2 week window on different hospital units as an "incident" episode, the NHSN web tool does remove these duplicate cases for LabID incidence rate calculations. (NHSN FAQ: http://www.cdc.gov/nhsn/PDFs/pscManual/12pscMDRO_CDADcurrent.pdf)

Table 3. Top Reasons for Discordance

Reason for Mismatch**	No. (%) of Discordant Events (N=303)	Net Effect on Estimate of HO-HCFA Incidence
LabID no Indeterminate category	**140** (46%)	Neutral
Symptoms in first 48h of admission and diagnostic test delayed >3 days	**107** (35%)	LabID Estimate Higher
Recurrent or continuation classified as new event due to data from outside laboratory	**79** (26%)	LabID Estimate Higher

**Discordant events are not exclusive to any single reason.

Figure 1. LabID vs. Standard HO-HCFA Incidence Rate Total and at Individual Hospitals (n=29)



Conclusions

The LabID proxy measure for overall HO-HCFA CDI incidence was **38% higher** than the estimate from standard surveillance methods.

Major reasons for discordance included:

- Delayed diagnostic testing in patients with symptom onset within 3 days of admission.
- Classification of recurrent and continuation cases as new events due to outside laboratory data.
- No indeterminate category in LabID events.

Infection prevention programs must carefully understand the LabID method and discordance from traditional surveillance in order to interpret longitudinal trends appropriately.