Presentation Type:

Poster Presentation

Frequency of Testing for *Clostridioides difficile* in Long-Term Care Facilities in Louisville, Kentucky

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Background: *Clostridioides difficile* infection (CDI), caused by toxigenic *C. difficile* and predominately manifested by moderate-to-severe diarrhea, is an important cause of morbidity and mortality in long-term care facilities (LTCFs). However, for CDI to be diagnosed in an LTCF resident, an LTCF resident with diarrhea must have a stool specimen collected for CDI diagnostic testing. The objective of this study was to define the frequency of stool specimen collection and testing for CDI in adult LTCF residents with diarrhea in Louisville, Kentucky. **Methods:** A cross-sectional study was conducted in 14 (31%) of the 45 LTCFs in Louisville (adults aged ≥18 years; population, 599,276) to identify LTCF residents with diarrhea and to observe the frequency of stool specimen collection for CDI diagnosis. For 14 consecutive days in February 2019, each LTCF was visited to identify new onset diarrhea (≥3 loose stools in 24 hours) by interviews of nursing staff. For residents with diarrhea, staff reviewed electronic medical records to determine whether a stool specimen was collected for CDI diagnosis and interviewed nurses about potential noninfectious causes of diarrhea. **Results:** The 14 participating LTCFs have 1,208 beds (median, 86 beds and 43 occupied beds per participating LTCF). Among 743 LTCF residents (with 10,402 patient days of surveillance), new-onset diarrhea was identified in 63 residents (21% male; median age 75 years); 0.6 diarrhea cases per 100 patient days (diarrhea attack rate, 0.6% per day). Nurses indicated that 16 (25%) of the 63 residents with diarrhea had a potential noninfectious cause of diarrhea (11 laxatives, 3 feeding tube, 1 colostomy, and 1 gastric surgery). Stool specimens were collected for CDI testing from 20 of 63 of residents (32%) with diarrhea; none with potential noninfectious cause of diarrhea and from 20 of 47 other residents (42%) with diarrhea. Of 20 stool specimens tested, 9 (47%) yielded toxigenic *C. difficile* (8.6 CDI cases per 10,000 patient days). During this survey, none of the 63 LTCF residents with diarrhea were transferred to a hospital or other healthcare facility. **Conclusions:** Diarrhea was common among LTCF residents, and toxigenic *C. difficile* was frequently identified in stool specimens collected from LTCF residents with diarrhea. The majority of non–laxative-receiving LTCF residents with diarrhea did not have a stool specimen collected for CDI diagnosis. The low frequency of CDI diagnostic testing of LTCF residents with diarrhea indicates that CDI may be underdiagnosed in these LTCFs and suggests that the CDI disease burden may be larger than currently appreciated.

Presentation Type:

Poster Presentation

Hand Hygiene in the Era of Big Data: We Can Now See What We Have Been Missing

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Background: Hand hygiene (HH) has long been a focus in the prevention of healthcare-associated infections. The limitations of direct observation, including small sample size (often 20–100 observations per month) and the Hawthorne effect, have cast doubt on the accuracy of reported compliance rates. As a result, hospitals are exploring the use of automated HH monitoring systems (AHHMS) to overcome the limitations of direct observation and to provide a more robust and realistic estimation of HH behaviors. **Methods:** Data
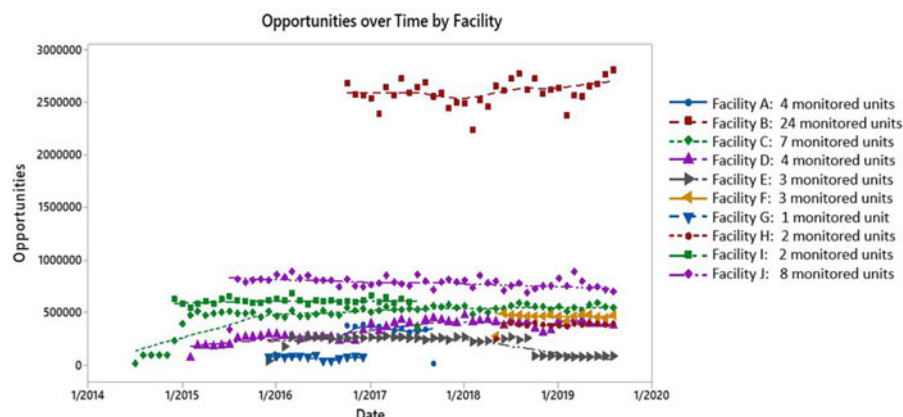

Fig. 1.

analyzed in this study were captured utilizing a group-based AHHMS installed in a number of North American hospitals. Emergency departments, overflow units, and units with <1 year of data were excluded from the study. The final analysis included data from 58 inpatient units in 10 hospitals. Alcohol-based hand rub and soap dispenses HH events (HHEs) and room entries and exits (HH opportunities (HHOs) were used to calculate unit-level compliance rates. Statistical analysis was performed on the annual number of dispenses and opportunities using a mixed effects Poisson regression with random effects for facility, unit, and year, and fixed effects for unit type. Interactions were not included in the model based on interaction plots and significance tests. Poisson assumptions were verified with Pearson residual plots. **Results:** Over the study period, 222.7 million HHOs and 99 million HHEs were captured in the data set. There were an average of 18.7 beds per unit. The average number of HHOs per unit per day was 3,528, and the average number of HHEs per unit per day was 1,572. The overall median compliance rate was 35.2 (95% CI, 31.5%–39.3%). Unit-to-unit comparisons revealed some significant differences: compliance rates for medical-surgical units were 12.6% higher than for intensive care units ($P < .0001$). **Conclusions:** This is the largest HH data set ever reported. The results illustrate the magnitude of HHOs captured (3,528 per unit per day) by an AHHMS compared to that possible through direct observation. It has been previously suggested that direct observation samples between 0.5% to 1.7% of all HHOs. In healthcare, it is unprecedented for a patient safety activity that occurs as frequently as HH to not be accurately monitored and reported, especially with HH compliance as low as it is in this multiyear, multicenter study. Furthermore, hospitals relying on direct observation alone are likely insufficiently allocating and deploying valuable resources for improvement efforts based on the scant information obtained. AHHMSs have the potential to introduce a new era in HH improvement.

Presentation Type:
Poster Presentation
Impact of Training Consultant Pharmacists on Antimicrobial Stewardship Programs in Long-Term Care Facilities

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Table 1: Antibiotic Starts/1000 Resident Days and Days of Therapy/1000 Resident Days in 2017 and 2018

Facility Code	AS/1000 RD (2017)	AS/1000 RD (2018)	% Change	DOT/1000 RD (2017)	DOT/1000 RD (2018)	% Change
1	4.03	5.62	39.34	34.86	55.52	59.26
2	5.01	5.27	5.19	112.01	80.29	-28.32
3	9.92	11.31	14.04	186.64	111.04	-40.51
4	9.90	7.08	-28.48	125.13	73.22	-41.48
5	8.54	9.96	16.63	174.43	150.00	-14.01
6	9.04	6.36	-29.65	87.26	53.67	-38.49
7	16.57	17.39	4.95	206.66	226.13	9.42
8	20.33	19.82	-2.51	261.09	219.84	-15.80
10	10.82	9.30	-14.05	137.75	111.95	-18.73
11	6.77	4.22	-37.67	112.43	41.39	-63.19
12	8.38	9.02	7.64	108.59	102.64	-5.48
13	18.02	9.44	-47.61	252.09	99.35	-60.59
14	13.08	10.72	-18.05	159.21	125.86	-20.95
15	13.24	11.66	-11.93	164.73	128.59	-21.94
16	4.23	4.22	-0.24	85.80	78.93	-8.01
17	7.84	7.59	-3.21	210.55	141.70	-32.70
21	6.65	8.07	21.35	145.92	139.50	-4.40
23	10.21	8.73	-14.47	145.43	110.29	-24.16
24	7.77	5.93	-23.67	90.08	65.56	-27.22
25	6.02	4.55	-24.48	55.76	39.72	-28.77
26	8.96	8.41	-6.14	117.73	74.67	-36.57
27	3.84	3.15	-18.07	52.85	32.06	-39.33
28	9.00	8.83	-1.89	117.12	125.29	6.98
29	11.28	7.88	-30.14	167.35	96.85	-42.13
30	7.01	8.67	23.68	78.46	98.33	25.33
31	16.68	16.62	-0.38	230.04	149.87	-34.85
32	19.00	16.91	-11.00	255.23	221.99	-13.02

AS = Antibiotic starts; DOT = Days of therapy; RD = Resident days

Table. 1.