the bacterial populations, which were regularly sampled to monitor their composition. At 3 weeks after installation, the waste traps were subjected to a drainage backflow event. Waste trap water populations continued to be monitored, and when transfer between sinks was suspected, isolates were characterized and compared using whole-genome sequencing. **Results:** Between January and June 2019, 200 samples were taken from 103 sinks. In total, 24 (23%) sinks (in 8 hospitals) harbored CRE; of which 10 (in 5 hospitals) harbored at least 1 CPE. Immediately after a backflow event in the laboratory model system, 2 KPC-producing *E. cloacae* were recovered from a waste trap in which CPE had not been previously detected. The isolates were identified as ST501 and ST31 and were genetically indistinguishable from those colonizing sinks elsewhere in the system. Following intersink transfer, KPC-producing *E. cloacae* ST501 successfully integrated into the microbiome of the recipient sink and was detected in the waste trap water at least 6 months after the backflow event. At 2 and 3 months after the backflow, other intersink transfers involving *Escherichia coli* and KPC-producing *E. cloacae* were also observed. **Conclusions:** Sink waste traps and drains are a reservoir for CPE in hospitals. Once established, CPE contamination might not be confined to a single sink and could spread through wastewater plumbing. Hospitals frequently report drainage problems, which could cause or facilitate CPE transfer between sinks and could lead to long-term establishment.

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Laboratory Testing, Diagnostic Coding, and Treatment for Electronic Identification of *Clostridioides difficile* Infection

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Background: Accurate identification of *Clostridioides difficile* infections (CDIs) from electronic data sources is important for surveillance. We evaluated how frequently laboratory findings were supported by diagnostic coding and treatment data in the electronic health record. **Methods:** We analyzed a retrospective cohort of patients in the Veterans' Affairs Health System from 2006 through 2016. A CDI event was defined as a positive laboratory test for *C. difficile* toxin or toxin genes in the inpatient, outpatient, or long-term care setting with no prior positive test in the preceding 14 days. Events were classified as incident (no CDI in the prior 56 days), or recurrent (CDI in the prior 56 days) and were evaluated for evidence of clinical diagnosis based on *International Classification of Disease, Ninth Revision, Clinical Modification* (ICD-9-CM) and ICD-10-CM codes and at least 1 dose of an anti-CDI agent (intravenous or oral metronidazole, fidaxomicin, or oral vancomycin). We further assessed the possibility of treatment without testing by quantifying positive laboratory tests and diagnostic codes among inpatients receiving an anti-CDI agent. A course of anti-CDI therapy was defined as continuous treatment with the same drug. **Results:** Among 119,063 incident and recurrent CDI events, 70,114 (58.9%) had a diagnosis code and 15,850 (13.3%) had no accompanying treatment. The proportion of patients with ICD codes was highest among patients treated with fidaxomicin (82.6% of 906) or oral vancomycin (74.3% of 30,777) and was lower among patients receiving metronidazole (63.3% of 103,231) and those without treatment (29.9% of 15,850). The proportion of events with ICD codes and treatment was similar between incident and recurrent episodes. During the study period, there were ~470,000 inpatient courses of metronidazole, fidaxomicin, and oral vancomycin. Table 1 shows the presence of ICD codes and positive laboratory tests by anti-CDI agents. Among 51,100 courses of oral vancomycin, 51% had an ICD code and 44% had a positive test for *C. difficile* within 7 days of treatment initiation. Among 1,013 courses of fidaxomicin, 79% had an ICD code and 56% had a positive laboratory test. **Conclusions:** In this large cohort, there was evidence of substantial CDI treatment without confirmatory *C. difficile* testing and, to a lesser extent, some positive tests without accompanying treatment or coding. A combination of data sources may be needed to more accurately identify CDI from electronic health records for surveillance purposes.

Treatment	ICD+ n(%)	Lab + n(%)	Total n(%)
Oral Vancomycin	25,954(50.8%)	22,272(43.6%)	51,100(10.9%)
Metronidazole	64,192(15.4%)	71,940(17.3%)	416,381(88.9%)
Fidaxomicin	804(79.4%)	567(56.0%)	1,013(0.2%)
Total	90,950(19.4%)	94,779(20.2%)	468,494

Table. 1.

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Lack of Evidence of Transmission of Bloodborne Viruses by Improperly Reprocessed Fiberoptic Endoscopes

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Background: A sterile processing service (SPS) technician was found to inadequately clean fiberoptic endoscope channels during reprocessing prior to high-level disinfection. Channels were only brushed once and 7 of 30 audited scopes had measurable bioburden. Consistent with VA policy, a retrospective investigation, along with public disclosure, was performed. **Methods:** A potentially exposed case (PEC) was defined as any patient who had flexible fiberoptic endoscopy between April 19, 2015, and June 23, 2017, when the identified SPS technician worked in the endoscope reprocessing station. Using the internal log of the automated high–level disinfection equipment (Medivators/Cantel, Minneapolis, MN), device serial numbers were matched to patients in endoscopy suite procedure logs. Additionally, the VA Corporate Data Warehouse (CDW) was queried for CPT and *International Classification of Disease, Ninth Revision* (ICD-9) and ICD-10

procedure codes to verify identified cases and to search for other PECs. All PECs were notified by telephone and mail, and serologic testing for human immunodeficiency virus (HIV-1), hepatitis C virus (HCV), and hepatitis B virus (HBV) was offered. Results were compared to prior bloodborne pathogen (BBP) testing results extracted from the CDW. Facility microbiology laboratory records of positive cultures/microscopy for enteric pathogens also were compared to the list of PECs; no active testing was performed. **Results:** Of the 565 PECs, 552 (98%) were successfully contacted. 8 declined testing or preferred non-VA testing, and 22 died before testing could be initiated. Repeat testing at 6 months was requested for PECs who had initial testing performed <6 months after exposure; 32 refused additional tests or did not respond to additional requests. In total, 522 PECs (92%) had testing performed for 1 or more BBPs: (1) 521 were anti–HIV negative with 1 previously known positive; (2) 481 were anti–HCV negative—43 were previously known positive and 1 PEC with an undetectable HCV viral load was newly identified; (3) 461 were negative for both HBV core or surface antibodies and surface antigen—32 were previously known positive and 17 were newly positive for one or both antibody tests with negative HBV surface antigen. Of 17 newly identified positive PECs, 16 had undetectable HBV DNA; 1 died prior to HBV DNA testing. **Conclusions:** There was no evidence of transmission of BBPs in this cohort of PECs who had procedures with potentially improperly cleaned fiberoptic endoscopes. Although not all patients completed all retrospective BBP testing, <10% were missing all or some tests. Local passive surveillance did not indicate enteric pathogen transmission. Additional education regarding and monitoring of reprocessing procedures have been instituted.

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Leptospirosis Outbreak in a Hill Due to Water From an Unprotected Well, Keerakadu Village, Kollihills, Namakkal, Tamilnadu, India

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Background: Annually, an estimated 1.03 million leptospirosis cases lead to 2.9 million disability adjusted life years. A cluster of fever cases was reported in Keerakadu village, Kollihills block in Namakkal district of Tamilnadu state, India, on April 28, 2017. We investigated to control the outbreak. **Methods:** We did a cross-sectional survey between April 29 and May 1. We defined a case of fever as any resident of Keerakadu village with fever for >2 days, with or without headache or myalgia, between April 15 and May 1, 2017. We conducted active surveillance. We reviewed medical records. We collected the line list from nearby health centers. We computed proportions to calculate the attack rate. We collected 11 serum samples and tested for dengue, scrub typhus, hepatitis A and leptospirosis by IgM ELISA method. We did a Widal slide agglutination test. We conducted an environmental survey to identify water sources. We performed a dengue larval survey. We collected 5 water samples: 1 from unprotected well, 1 from overhead tank and 3 from the houses of residents. We tested for fecal coliforms in the district public health laboratory. **Results:** The population of Keeradu village was 540. We identified 11 cases, for an attack rate of 2% (11 of 540). The hospitalization rate of cases was 81% (9 of 11). Median age was 45 years (range, 23–65). Of 11 samples, 3 were positive for leptospirosis; all were negative for dengue, scrub typhus, hepatitis A, and typhoid. The single water source for the whole village was an open, unprotected well. This well supplied water every day to the community, both for drinking purpose and domestic use. No breeding of dengue larva was observed. All the 5 water samples tested positive for fecal coliforms. Water was not chlorinated regularly. All patients were isolated and treated in the primary health center. Prophylactic antibiotics were given to the whole community. **Conclusions:** There was a leptospirosis outbreak in Keerakadu village, probably due to contaminated water from unprotected well. There were no cases after May 1, 2017. We recommended that the community chlorinate the water regularly and protect the well. We also recommend continued surveillance and a rodent survey.

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Lessons Learned From a Decade of Dental Lookback Investigations in the Department of Veterans' Affairs (VA): 2009–2019

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Background: The Department of Veterans' Affairs (VA) operates 146 hospitals providing healthcare to >6 million veterans annually, including dental care to qualified veterans. Although bloodborne pathogen transmission after dental procedures is rare, little is known of risk when there are breaches. A standardized approach to performing lookback investigations after dental infection control breaches could better quantify these risks. We reviewed dental lookback investigations from the past decade conducted by our VA office for lessons learned to improve processes. **Methods:** Three VA hospitals had dental infection control breaches during 1992–2016. Facility A had dental instruments that were not cleaned according to the manufacturer's recommendations, and dentists at facilities B and C failed to adhere to proper infection control standards. Exposed veterans who underwent dental procedures were notified of possible exposure and were offered testing for human immunodeficiency (HIV-1), hepatitis B virus (HBV), and hepatitis C virus (HCV). Prior clinical testing was also reviewed. Newly identified positive results were compared to known positives prior to exposure to determine strain relatedness when sufficient plasma viral load was present for viral sequence comparison. **Results:** There were 2,939 patients with potential exposures in these dental investigations: 2,667 were tested for HBV, 2,642 were tested for HCV and 2,599 were tested for HIV-1. No evidence of viral transmission was found based on genetic sequence comparison of positive cases, but relatively few samples were available for this testing. **Lessons Learned:** Each facility faced different challenges with their investigation; however, several key processes were identified. (1) Early engagement by our office with local facility leadership and lookback teams resulted in more efficient investigation and testing processes. (2) To improve