Table 1. Detection and quantitation of mucosal cytokines and viral loads in infants with RSV infection

	HC (n=20)		RSV-IP (n=48)		RSV-OP (n=36)		
	Detection n (%)	Concentration pg/mL	Detection n (%)	Concentration pg/mL	Detection n (%)	Concentration pg/mL	p-value*
Type-I IFN							
IFN-β	2 (10%)	6.4 (5.0-7.8)	7 (14%)	3.5 (2.5-9.8)	6 (17%)	34 (13.8-49.3)	0.004
Type-II IFN							
IP-10	14 (70%)	41.5 (11.3-99.9)	40 (83%)	65 (14.5-174.2)	36 (100%)	328.3 (137.5-2026)	<0.0001
IFN-γ	1 (5%)	-[a]	7 (15%)	2 (1.2-3.5)	20 (56%)	3.1 (1.0-25.8)	0.59
Type-III IFN (mucosal)							
IFN-λ1	2 (10%)	8.6 (5.2-12.1)	21 (44%)	4.4 (2.6-12.9)	24 (51%)	8.8 (3.7-45.9)	0.03
IFN-λ2/λ3	0 (0%)	-[a]	1 (2%)	-[a]	13 (36%)	20.4 (14.5-78.6)	-[b]
Other							
IL-6	8 (40%)	6.4 (3.5-23.8)	41 (85%)	14.8 (4.9-42.5)	31 (86%)	15.7 (4.6-52.8)	0.83
IL-8	20 (100%)	291 (161.6-1354)	48 (100%)	1105 (496-2142)	36 (100%)	1810 (672.2-9660)	0.09
RSV loads	NA	NA	---	7.5 (6.3-8.3)	---	8.2 (7.8-8.6)	0.002

HC: healthy controls; IP: inpatients; OP: outpatients. Values represent absolute numbers and percentages or medians (25%-75% interquartile range-IQR). Mann-Whitney test or Chi-square was used to determine differences between IP and OP (p-values*).
[a,b]Unable to perform statistical comparisons when <2 values in a group. IFN-α2, GM-CSF and IL-12p70 were below the limit of detection or detected at very low con. in all groups. RSV loads expressed as log10 copies/mL

Disclosures. Octavio Ramilo, MD, Bill & Melinda Gates Foundation: Research Grant; Janssen: Research Grant; Merck: Advisory Board; NIH: Research Grant; Ohio Children's Hospital Association (OCHA): Research Grant; Pfizer: Advisory Board, Consultant, Lectures; Sanofi/Medimmune: Advisory Board.

80. Opioid Analgesics Are Associated with Increased Clostridioides difficile Infection Risk in a National Cohort of Veterans

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Session: 31. Not Just Your Everyday Diarrhea
Thursday, October 3, 2019: 11:19 AM

Background. *Clostridioides difficile* infection (CDI) is the leading cause of healthcare-associated diarrhea. Several drugs are known to increase CDI risk, although the association between opioids and CDI risk has not been clearly established. Opioid analgesics have gastrointestinal antimotility and immunomodulatory effects, which may predispose patients to infection. The purpose of this study was to determine the association between opioid use and CDI risk.

Methods. This was a retrospective case–control study that utilized inpatient and outpatient data from the national United States Veterans Health Administration (VHA). CDI patients included those age 18 to 89 years with an ICD-9-CM code for CDI (008.45), a positive stool test, and active CDI therapy between October 1, 2002 and September 30, 2014. A control cohort of VHA patients was created by randomly sampling patients without a CDI ICD-9-CM code during the study period and matched to CDI patients by visit setting and fiscal year. Opioid use was defined as at least one prescription for morphine, hydromorphone, hydrocodone, and/or codeine in the 90 days prior to study inclusion. The χ^2 test was used to compare the proportion of patients who received an opioid in the CDI and control groups. Opioid risk factors for CDI were analyzed using a multivariable logistic regression model that included 33 covariates.

Results. A total of 85,451 patients were included in this study (26,149 CDI patients and 59,302 controls). Overall, 50.1% and 30.1% of patients were prescribed an opioid in the CDI and cohort group, respectively. Overall, opioids were associated with significantly increased CDI risk (OR 1.92, 95% CI 1.86–2.00) and was even greater for >1 opioid (OR 2.40; 95% CI 2.25–2.55). Opioids with the strongest association with CDI risk include morphine (OR 2.04, 95% CI 1.95–2.13), followed by hydromorphone (OR 1.74, 95% CI 1.63–1.87), codeine (OR 1.56, 95% CI 1.44–1.70), and hydrocodone (OR 1.14; 95% CI 1.09–1.19).

Conclusion. In a national cohort of veterans, patients with recent opioid analgesic use had an increased risk of developing CDI compared with a control group. Opioid analgesics with greater immunomodulatory and constipating effects were associated with increased risk compared with other opioids.

Disclosures. **All Authors:** No reported Disclosures.

81. Azithromycin-Nonsusceptible Salmonella Newport Infections Associated with Mexican-style Soft Cheese and Beef—the United States, 2018–2019

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Session: 31. Not Just Your Everyday Diarrhea
Thursday, October 3, 2019: 11:31 AM

Background. Azithromycin is a recommended oral agent for treating non-typhoidal *Salmonella* (NTS), when antibiotics are indicated. Azithromycin nonsusceptibility among NTS is <1% in the United States. CDC, FSIS, and state health departments investigated an outbreak of azithromycin-nonsusceptible *Salmonella* serotype Newport infections to determine sources.

Methods. We classified isolates as the outbreak strain if they were within 11 alleles by core genome multilocus sequence typing. We defined a case as infection with the outbreak strain during June 2018–February 2019. After stratifying by gender and ethnicity, we compared food exposures ≤7 days before illness onset with those reported by healthy persons in the Foodborne Diseases Active Surveillance Network population survey (2006–2007). We used broth microdilution to determine antimicrobial susceptibility.

Results. We identified 218 case patients from 31 states; 49 of 176 (28%) were hospitalized and 2 died. Overall, 65% (121/187) were Hispanic, and 41% (70/169) visited Mexico in the 7 days before illness onset. Among travelers to Mexico, 71% (23/32) reported eating Mexican-style soft cheese; 16/23 (70%) recalled obtaining the cheese in Mexico. Among nontravelers, the proportion who ate Mexican-style soft cheese (30%, 18/60) was similar to that reported by healthy persons, whereas the proportion who consumed beef (91%, 60/66) was higher than reported by healthy persons ($P = 0.04$). The outbreak strain was detected in a sample of soft cheese obtained in Mexico, and in a cecal sample from a steer and a beef sample that was collected at FSIS-regulated establishments in the United States. Isolates were resistant to ampicillin and trimethoprim–sulfamethoxazole, nonsusceptible to azithromycin, and showed decreased susceptibility to ciprofloxacin.

Conclusion. This is the first documented outbreak of azithromycin-nonsusceptible *Salmonella* infections in the United States. Two food vehicles—soft cheese obtained in Mexico, and beef obtained in the United States—were epidemiologically and genetically associated with this outbreak. Further investigation is warranted to determine the routes of entry, prevalence, and spread of azithromycin-nonsusceptible *Salmonella* in US and Mexican cattle.

Disclosures. **All Authors:** No reported Disclosures.

82. First 5 Years of Experience with the Illinois Extensively Drug-Resistant Organism (XDRO) Registry and Implementation of Automated Alerting

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Session: 32. Surveillance in Healthcare-associated Infections
Thursday, October 3, 2019: 10:30 AM

Background. The Illinois XDRO Registry was created in November 2013 as an information system for XDROs; currently, the registry includes carbapenem-resistant *Enterobacteriaceae* (CRE), carbapenemase-producing *Pseudomonas aeruginosa*, and *Candida auris*. All Illinois healthcare facilities can manually query the registry at the time of admission to assess patients' prior colonization status. A subset of facilities, mainly hospitals, participate in the registry's automated querying process; alerts are generated automatically and sent via email, page, or text to infection preventionists at the time of patient admission.

Methods. We assessed counts of XDRO report submissions and total queries (manual and automated) over time, by organism. Facilities achieved automated alerts by sending a near-real-time feed of inpatient admission data (patient name and date of birth) to Illinois Department of Public Health (IDPH) via one of the three connection types: direct (data sent directly to IDPH), vendor (data sent via vendor software), and syndromic surveillance (existing syndromic surveillance data adapted for registry).

Results. In total, 6,445 unique patients (11,258 total reports) from 213 facilities have been reported to the XDRO registry (counts by organism type, Table). The registry has been manually queried 39,678 times by 232 facilities. Seventy-five facilities have achieved automation of alerting; the types of data connections used were direct ($N = 56$), vendor ($N = 18$), and syndromic surveillance ($N = 1$). In total, 5,344 automated alerts have been sent for 1,555 unique patients. Automated alerts per month have increased over time ($P < 0.001$, Figure). Infection preventionists reported feedback on 3,008 CRE alerts via a website questionnaire; among 1176 first alerts/patient/facility, 49% of patients' XDRO status were previously unknown to the facility, and 33% were not in contact precautions at the time of alert.

Conclusion. The XDRO registry, originally focused on CRE, successfully expanded to include emerging XDRO threats such as *Candida auris* and is poised for rapid response to emerging threats. The registry's adaptable reporting structure and expanding automation have enabled it to deliver an increasing number of actionable infection-control alerts over time.

Table. Extensively Drug Resistant Organism Types Reported to XDRO Registry

Organism	Date That Outbreak Was First Identified in Illinois	Date of First Report into XDRO Registry	Lag From Outbreak to Report in Months	Unique Patients (As of April 2019)
Carbapenem-resistant *Enterobacteriaceae*	December 2007	November 2013	72	6,140
Candida auris	May 2016	January 2017	9	593
VIM-producing *P. aeruginosa*	November 2016	April 2017	6	78