reduction in slope (change in trend, IRR, 0.997; 95% CI, 0.995 to 0.999; $P = 0.007$). No concomitant change was seen in the trend of CA-CDI (change in trend, IRR, 0.997; 95% CI, 0.992 to 1.002; $P = 0.2$) despite a slight immediate change in level at inflection point (IRR, 1.131; 95% CI, 1.000 to 1.278; $P = 0.05$).

Conclusion. Between 2008 and 2015, the provincial incidence of hospitalized CA-CDI has significantly increased while the incidence rate of HA-CDI has remained relatively stable. Further studies are required to investigate the factors underlying this increase.

Disclosures. **Y. Longtin**, Merck: Grant Investigator, Research grant. Becton Dickinson: Grant Investigator, Grant recipient.

478. Improving Acid Suppression Therapy to Reduce Hospital-Onset *C. difficile* infection (HO-CDI): Impact of a Novel Analytic Application

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Background. Proton pump inhibitors (PPIs) are among the most widely used classes of drugs, especially in the elderly, who are also at higher risk for CDI. Acid suppression therapy, especially using PPIs, has been shown to increase the risk of CDI. As part of an institutional effort to reduce HO-CDI, we developed an analytic application to support PPI stewardship.

Methods. We conducted this study in a 2-hospital, >1,100-bed community-based academic healthcare system in northern Delaware. We created a CDI-specific analytic application using the Health Catalyst analytics platform, over the existing data warehouse (Cerner), using 2016–2018 data (figure). The application refreshes daily and is able to provide near real-time patient data, including PPI and antibiotic use. We aimed to describe current PPI utilization patterns, calculate risk associated with PPI use adjusted for other risk factors for CDI, and measure the effect of interventions to decrease PPI use.

Results. Among 133,592 total inpatient encounters from January 1, 2016 to April 22, 2018, 39,156 (29%) received PPIs and 1,146 (0.9%) had a positive PCR result for *C. difficile*. Among the *C. difficile*-positive encounters, PPIs were used in 486 (42%), with an adjusted OR of 2.1 (95% CI 1.7–2.6). Of encounters involving high-risk antibiotics who had a positive *C. difficile* PCR, 52% (255/486) were receiving PPIs. The services most likely to prescribe PPIs were internal medicine, orthopedic surgery and general surgery. Targeted chart review indicated that most inpatients receiving PPIs lacked an identified upper gastrointestinal (GI) disorder, and 37% were on the same PPI as outpatients prior to admission. Duration of therapy varied widely, but PPI courses were longer in patients diagnosed with CDI.

Conclusion. A novel application using existing health record data confirmed the increased risk of CDI due to PPI use, and identified important opportunities to decrease HO-CDI by limiting such use. Using this analytics platform provides near real-time data and will support rapid cycle improvements and allow for early evaluation of CDI interventions.

Disclosures. **All authors:** No reported disclosures.

479. Trends in *C. difficile* Incidence, Mortality, and NAP1/027 Strain in the Population of Monroe County, New York

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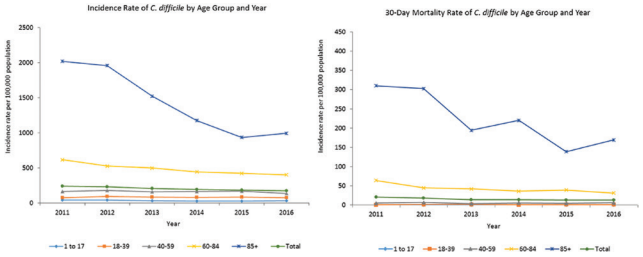
Background. Increases in the *C. difficile* infection (CDI) incidence, severity and mortality were reported in the early 2000s due to the emergence of the NAP1/027 strain. We evaluated the trends in incidence, mortality, hospitalization, and the prevalence of NAP1/027 strain in Monroe County, New York.

Methods. We conducted population and laboratory-based surveillance for CDI from 2011 to 2016 as part of the CDC Emerging Infections Program. An incident CDI case is defined as a positive *C. difficile* stool specimen from a resident of the county aged >1 year with no positive test in the prior 8 weeks. All the laboratories in our catchment area used nucleic acid amplification for diagnosis starting in 2011 as part of single or 2-step algorithm. A convenience sample of specimens were cultured and underwent molecular characterization. Mortality data was obtained via vital statistics databases and medical chart abstraction. Hospitalization within 2 days before to 7 days of diagnosis was collected.

Results. We identified 9189 incident CDI cases between 2011 and 2016. The CDI incidence decreased from 241 in 2011 to 175 cases per 100,000 persons in 2016, with the largest decrease among older adults aged ≥85 years. Similarly, the 30-day mortality rates decreased, with the largest decrease among persons aged ≥85 years: from 310 cases to 169 cases per 100,000 population (Figure 1). The percentage of isolates due to NAP1/027 decreased from 20.3% in 2011 to 6.5% in 2016. There was no decrease in the proportion of cases that died within 7 (range: 2% to 3%) and 30 days (range: 7% to 8%) and no decrease in the proportion of patients hospitalized after their CDI diagnosis (range: 34% to 40%). These findings are similar in persons aged ≥85 years.

Conclusion. From 2011 to 2016, the CDI incidence and mortality decreased concurrently with a decrease in the percentage of infections due to the NAP1/027 strain. Although NAP1/027 is known to be associated with more severe outcomes, we did not observe a reduction in the proportion of cases that died or the proportion of cases that were hospitalized.

Figure 1. Incidence and Mortality Rates of CDI



Disclosures. **G. Dumyati**, Seres: Scientific Advisor, Consulting fee.

480. Reduction in *Clostridium difficile* Infection Rates Following a Prevention Collaborative in Orange County, California, 2014–2017

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Background. The California Department of Public Health (CDPH) Healthcare-Associated Infections (HAI) Program and Orange County Health Care Agency convened a *Clostridium difficile* infection (CDI) prevention collaborative with health care facilities in Orange County (OC) to reduce CDI incidence in the region.

Methods. We invited all 34 hospitals and 76 skilled nursing facilities (SNF) in OC to participate from June 2015 to June 2016. Participants received onsite infection control and antimicrobial stewardship assessments, trainings, and an interfacility transfer communication improvement initiative. We used an interrupted time-series design and segmented regression analysis to evaluate monthly hospital-onset (HO) and community-onset (CO) CDI rates for acute care hospitals (ACH) reporting HAI data to CDPH via the National Healthcare Safety Network. The baseline period included 17 months (January 2014–June 2015) and the collaborative period 28 months (September 2015–December 2017). All OC acute care hospitals were included in the CO-CDI model to account for direct and indirect effects of the collaborative. We included only participating ACH in the HO-CDI model. For informal comparisons, we assessed changes in CO-CDI for ACH in three San Francisco Bay Area counties and HO-CDI rates in nonparticipant OC acute care hospitals.

Results. Collaborative participants comprised 15 ACH, three long-term acute care hospitals, one children's hospital, and 20 SNF; all but two SNF received an onsite assessment. Unadjusted, baseline pooled mean HO-CDI rates were 8.5 cases per 10,000 patient days for participant ACH, and CO-CDI rates were 4.9 cases per 1,000 admissions in OC acute care hospitals. During the collaborative period, HO-CDI rates in OC participant ACH decreased 2% per month (incidence rate ratio [IRR]: 0.98, 95% CI: 0.96, 0.99; $P < 0.001$). HO-CDI rates among OC nonparticipant ACH ($N = 10$) did not change during the same timeframe (IRR: 0.99, 0.96, 1.02; $P = 0.37$). During the collaborative period, Orange County CO-CDI rates also declined 2% per month (IRR: 0.98, 0.97, 0.99; $P < 0.001$); no changes in CO-CDI were observed among ACH ($N = 27$) in the comparison counties (IRR: 1.00, 0.99, 1.01; $P = 0.78$).

Conclusion. Our analysis of acute care hospitals in Orange County provides evidence that coordinated, regional multifacility initiatives can reduce CDI incidence.

Disclosures. **All authors:** No reported disclosures.

481. Implementation of a Prospective, Pharmacist-Driven *Clostridium difficile* PCR Pre-Authorization Process to Optimize Appropriate Testing

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Background. Since the implementation of more sensitive molecular diagnostics such as the *Clostridium difficile* PCR assay, hospitals have reported 50–100% increases in *C. difficile* infection (CDI) rates.

Methods. This single-center, quasi-experimental study assessed appropriateness of *C. difficile* PCR testing pre- and post-implementation of a prospective,