Fig. 2.

Background: Updated IDSA-SHEA guidelines recommend different diagnostic approaches to *C. difficile* depending on whether "There are pre-agreed institutional criteria for patient stool submission." If stool submission criteria are in place, nucleic acid amplification testing (NAAT) alone may be used. If not, a multistep algorithm is suggested, incorporating various combinations of toxin enzyme immunoassay (EIA), glutamate dehydrogenase (GDH), and NAAT, with discordant results adjudicated by NAAT. At our institution, we developed a multistep algorithm leading with NAAT with reflex to EIA for toxin testing if NAAT is positive. This algorithm resulted in a significant proportion of patients with discordant results (NAAT positive and toxin EIA negative) that some experts have categorized as "possible carriers" or *C. difficile* colonized. In this study, we describe the impact of a multistep algorithm on hospital-onset, community-onset, and healthcare-facility–associated *C. difficile* infection (HO-CDI, CO-CDI, and HFA-CDI, respectively) rates and the management of possible carriers. **Methods:** The study setting was a 399-bed, tertiary-care VA Medical Center in Richmond, Virginia. A retrospective chart review was conducted. The multistep *C. difficile* testing algorithm was implemented June 4, 2019 (Fig. 1). *C. difficile* testing results and possible carriers were reviewed for the 5 months before and 4 months after implementation (January 2019 to September 2019). **Results:** In total, 587 NAATs were performed in the inpatient and outpatient setting (mean, 58.7 per month). Overall, 123 NAATs (21%) were positive: 59 in the preintervention period and 63 in the postintervention period. In the postintervention period, 23 positive NAATs (26%) had a positive toxin EIA. Based on LabID events, the mean rate of HO+CO+HCFA CDI cases per 10,000 bed days of care (BDOC) decreased significantly from 9.49 in the preintervention period to 1.15 in the postintervention period ($P = .019$) (Fig. 2). Also, 9 of the "possible carriers" (22%) were treated for CDI based on high clinical suspicion, and 6 of the possible carriers (14%) had a previous history of CDI. Of these, 5 (83%) were treated for CDI. In addition, 1 patient (2%) converted from possible carrier to positive toxin EIA within 14 days. The infectious diseases team was consulted for 11 "possible carriers" (27%). **Conclusions:** Implementation of a 2-step *C difficile* algorithm leading with NAAT was associated with a lower rate of HO+CO+HCFA

CDI per 10,000 BDOC. A considerable proportion (22%) of possible carriers were treated for CDI but did not count as LabID events. Only 2% of the possible carriers in our study converted to a positive toxin EIA.

Presentation Type:
Poster Presentation
Implementation of a Nursing Algorithm for Penicillin Allergy Documentation in the Inpatient Setting

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Background: Patients with a penicillin/aminopenicillin (PCN) allergy label are more likely to receive non–β-lactam antibiotics

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and to experience worse clinical outcomes. Given that nurses are often first to interact with patients, we pilot tested a nurse-driven quality improvement initiative to improve PCN allergy documentation and increase β-lactam use. **Methods:** We conducted a before-and-after study on a labor and delivery unit at The Johns Hopkins Hospital (JHH) from May 2018 to September 2019. Patients aged ≥18 years with a PCN allergy were included. The intervention included (1) the use of an algorithm developed by the antimicrobial stewardship team to assist nurses in obtaining accurate PCN allergy histories (Fig. 1), (2) identification of a nurse champion to facilitate implementation of the algorithm, and (3) in-person education by a stewardship physician regarding the importance and impact of adequate PCN allergy documentation on clinical outcomes. Readmissions were counted as separate encounters. The primary outcome was improved allergy documentation (either fewer blank documentations, nonspecified rash reactions, drug intolerance documentations (eg, isolated nausea), documentation of signs and symptoms of anaphylaxis not specified as such). The secondary outcome was β-lactam use. Categorical variables were compared using the χ^2 test and continuous variables were compared with the Student t test. Severe allergic reactions were defined as anaphylaxis, severe skin reactions (eg, Stevens-Johnson syndrome), and organ involvement (eg, hepatitis). **Results:** Overall, 382 patient admissions were included, 305 in the preintervention (May 2018 to May 2019) and 77 in the postintervention period (June 2019 to September 2019). Mean age and length-of-stay were 30 years and 4 days, respectively, for both periods. The proportion of admitted patients with a PCN allergy label was 8% and 7% for pre- and postintervention periods. Documentation findings in the pre- and postintervention periods respectively were as follows: blank documentation 11% and 12% ($P = .89$), documentation of specified rashes 0.6% and 1.3% ($P = .56$), documentation of drug intolerance 11% and 8% ($P = .39$), documentation of reactions that were indicative of anaphylaxis but not documented specifically as anaphylaxis 8% and 13% ($P = .20$). Among patients with a documented PCN allergy who received antibiotics, 83 of 177 (47%) and 27 of 43 (63%) received β-lactams ($P = .01$) in the pre- and postintervention periods, with cefazolin being the antibiotic most commonly used in both periods. **Conclusions:** Nursing education and an algorithm did not result in significant improvements in PCN allergy documentation in the 3 months after implementation. More data collection is planned to assess the impact of the intervention.

Figure: Algorithm used by bedside nurses to obtain and document a penicillin allergy
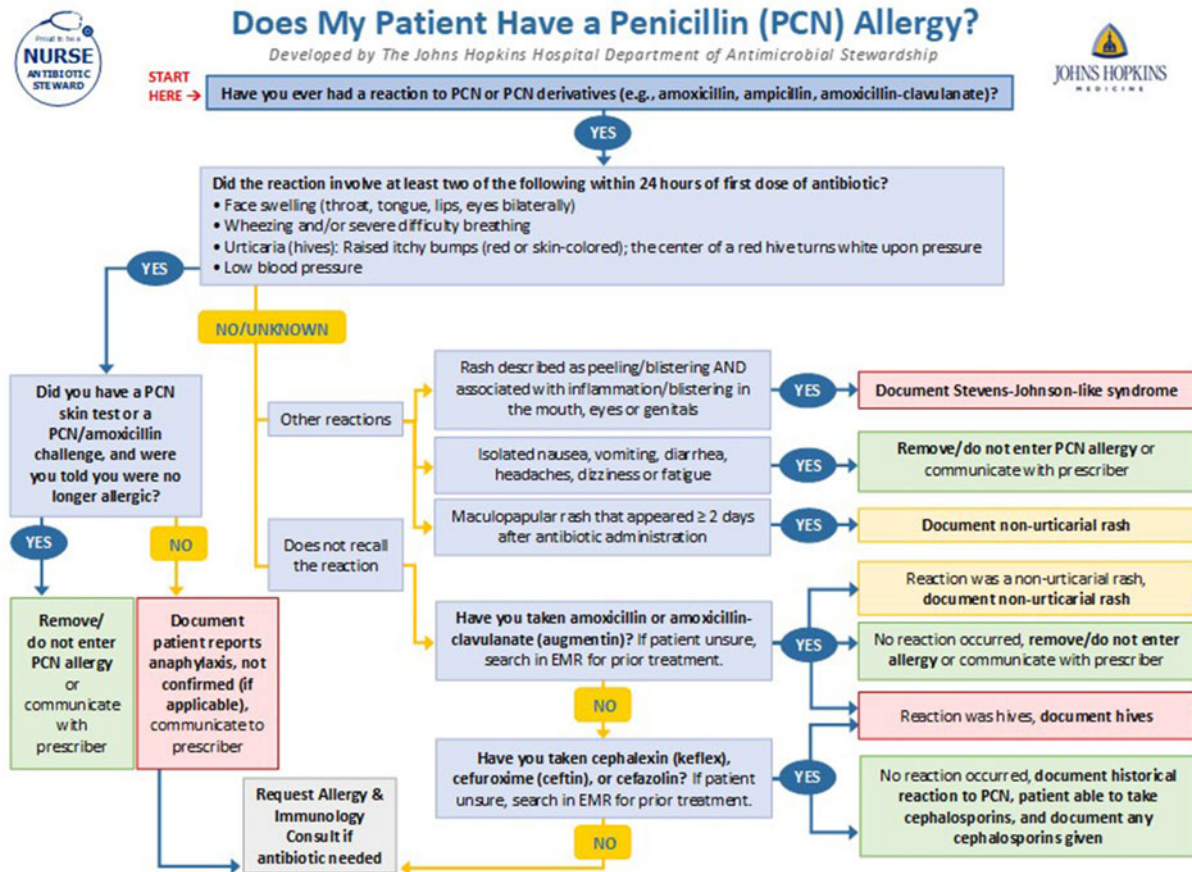
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Fig. 1.