Decrease of Hospital-Onset *Clostridium difficile* through Enhanced Electronic Decision Support

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**ABSTRACT**

**Decrease of Hospital-Onset CDIF through Enhanced Electronic Decision Support**

**Background:**

Utilization supports appropriate testing as a key factor affecting hospital-onset (HO) *Clostridium difficile* (CDIF). It was recognized that our institution's SIR was a significant outlier in the CDIF with a standardized infection ratio (SIR) of 2.567 in the second quarter of 2016 compared to a national SIR of 0.997. A February 2015 – April 2015 line list of CDIF laboratory events was pulled from the National Healthcare Safety Network (NHSN) and medical records were reviewed for test appropriateness based on CDC/IDSA guidelines. Of these, 50% were related to inappropriate testing. Infection Prevention and Quality identified this as an opportunity for improvement and Executives dedicated resources to reduction efforts.

**Methods:**

A report was created using our data warehouse to mock specimens that were not collected within 24 hours of an order, as well as patients that were testing done in the previous 7 days. Physician and nurse education was completed on appropriate testing criteria for CDIF, clinical symptoms and specimen collection. An enhanced order set was launched which embedded the testing algorithm into a series of cascading questions and best practice alerts (BPAs) which prompt the provider to reconsider ordering if the patient has less than 2 episodes of diarrhea in a 24-hour period, and/or has alternative explanations for diarrhea, including tube feedings and/or laxatives. Any CDIF test results from the past 30 days appear on the order screen to further guide physician ordering.

**Results:**

Retrospective review indicated a high rate of patients being inappropriately tested. Infection Prevention and Quality identified this as an opportunity for improvement and Executives dedicated resources to reduction efforts.

**Conclusion:**

By implementing targeted education and a sophisticated order entry process that includes decision support, as well as recent improvement feedback on findings of HO infections, CDIF cases are being appropriately ordered and collected, ensuring appropriate classification within NHSN and decrease in overall SIR.

**UPDATED CLOSTRIDIUM DIFFICILE ORDER**

- 删除 inquire series of questions guiding appropriateness was embedded into the order.
- BPAs fire if the patient does not meet criteria, as well as if they have alternative explanations for diarrhea (i.e. laxatives, tube feedings).
- Empiric contact precautions are included in the CDIF order set.

**RESULTS**

**CONCLUSIONS**

- ID CDIF cases have been reduced by 50%, achieving an SIR below the national median for two consecutive calendar year quarters.
- Reduction of pertinent information within the order, as well as focused education, has supported appropriate ordering.
- Continuous review and real-time feedback on findings of HO IDAB cases is necessary to achieve sustainment.

**LESSONS LEARNED**

- Multidisciplinary engagement is necessary to reduce HO CDIF.
- Ensuring appropriate ordering may reduce HO CDIF and unnecessary antimicrobial treatment of colonized patients.