

Using Clinical Decision Support Tools to Reduce Over-testing for Clostridium Difficile







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Background

The New York State Department of Health (NYSDOH) flagged the organization for having Clostridium Difficile Infection (CDI) rates above the state benchmark for two years in a row. A interdisciplinary team was formed, which consisted of nursing, information technology (IT), environmental services, and infection prevention, to review the current screening and ordering process; track and trend numerous data points associated with CDI; and engage front line staff regarding current protocols associated with patient care. During the analysis, the team discovered opportunities to enhance the current clinical decision support system (CDSS) in place, known as Best Practice Alerts (BPA). With this in mind, the team

developed a nurse driven Clostridium Difficile (C. diff) Protocol that empowered frontline staff to autonomously screen patients and place

C. diff Protocol panel orders. For patients who warranted no testing, the nurse was able to select the exclusion criteria. The team decided to use the Define, Measure, Analyze, Improve, and Control (DMAIC) methodology to help track the changes and determine whether further action would be needed [4].

Project Goals

- 1. Create BPA to reduce time to identify, treat and isolate C. diff positive patients
- 2. Increase compliance and understanding of the C. diff Protocol for adult patients
- 3. Decreased inappropriate test for C. diff
- 4. Standardize workflows across the system
- 5. Improve communication among staff

Evidence-Based Practice

- 1. Research has shown that over testing for CDI has been an attributing factor and is an area that facilities should consider when investigating high CDI rates [5].
- 2. CDSS benefit organizations by increasing the quality of care, enhances health outcomes, facilitates the avoidance of errors, adverse event, and improves efficiency, cost benefits, provider and patient satisfaction [3].
- 3. BPA's are built in a manner where information is filtered, organized, and presented to the right user through appropriate channels at the correct step of the workflow [3] [1] [2].

Define

1. High rates of hospital onset (H/O) CDI

2. High rates of non-compliance with the C. diff Protocol for adult patients

Hospital Onset CDI Rate

Greater Hudson Valley Health System

Hospital Onset CDI Rates

*% decrease of HO CDI Rate from Jun-Dec 2017 to Jun-Dec 2018: 66.81% (statistically significant difference, p-value < 0.0001, incidence density rate comparison).

C. diff Testing Rates

2017-2018 Data

Greater Hudson Valley Health System

Total Number of C. difficile Tests

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Greater Hudson Valley Health System

Dec-17 Jan-18 Feb-18 Mar-18 Apr-18 May-18 Jun-18 Jul-18

/ Implementation (2018)

% decrease of CDI Testing Rate from 2017 to 2018: 46.57% (statistically significant difference, p-value < 0.0001, comparison of two rates)

- 3. High rates of testing
- 4. Variance in workflows across the system
- 5. Discrepancies in data documented in chart

Measure

1. Rate of H/O CDI

C. diff Testing

decreased by

Rapid-cycle evaluations began

- 2. a) Rate of ordering the complete 'Initiate C. diff Panel' order b) Rate of appropriate stool documentation
- 3. Rate of orders that do not meet C. diff ordering criteria
- 4. Number of orders available outside of system-wide protocol
- 5. Rate of RN vs provider orders

Analysis

Comparison of defined measures from before/after BPA, BPA updates, and provider BPA implementation.

December 2016:

Screening - ADMIT SCREENINGS

Have you had 3 or more loose stools in

the last 24 hours?

Time taken: 1228 (S) 1/23/2017

Yes No Other (Comment)

January 2018:

Stool Observation

November 2015: C. diff protocol order panel Go-live. June 2016: C. diff screening began in the ED. December 2016: IP screening on admission started.

June 2018:

Stool Observation

Department C-Diff Interventions

October 2017: IP and ED department specific interventions. BPA implemented for C. diff screening in the ED and IP units. Updates to stool observation.

Improvement Timeline

December 2017: Patient isolation status added to header. BPA updated to notify RNs once the criteria testing for C. diff have been met (3 loose and/or watery stools within 24 hours).

Nurse Documentation

Nurse Driven Protocol

Inpatient Nurse BPA

2/15/2019 1410 2/15/2019 1500 2/15/2019 1511
Stool Appearance: (!) Loose (!) Loose

Order Do Not Order Applicant C-DIFF PROTOCOL PANEL

Enema within Bowel prep within 48 hours | Small bowel obstruction within 7 days | Surgery W/I | SEE COMMENTS

Last CDIFF, Collected: 1/20/2017 2:01 PM = Negative Prev CDIFF, Collected: 12/20/2016 1:53 PM = Positive

June 2018: BPA updated to not fire for patients who had one of the set list of alternate known cause of loose/ watery stools. Additional BPAs were created for providers attempting to place an order for C. diff testing when the criteria for testing have not been met or testing is not indicated which removes the order for them. July 2, 2018: Beginning of rapid-cycle evaluations and regular updates to BPAs.

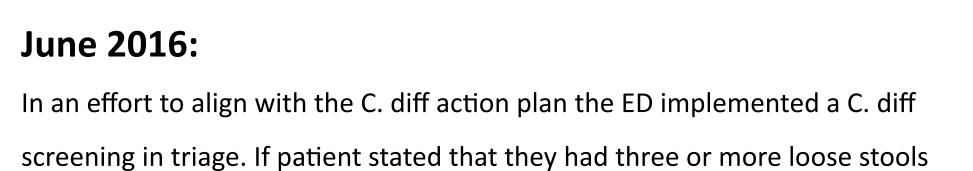
H/O CDI Rates decreased by November 2015: 2017-2018 Data An order panel was created with five defaulted orders to correlate with the organizations C. diff policy. **Greater Hudson Valley Health System** C-Diff Protocol Panel Initiate C-Difficile Protocol STAT, ONCE First occurrence Today at 1515 CD Contact Isolation Status STAT, CONTINUOUS starting Today at 1515 Until Specifie

STAT, ONCE First occurrence Today at 1515 vancomycin (VANCOCIN) capsule 125 mg 125 mg, Oral, EVERY 6 HOURS SCHEDULED (4 times per day), First Dose Today at 1800, For 24

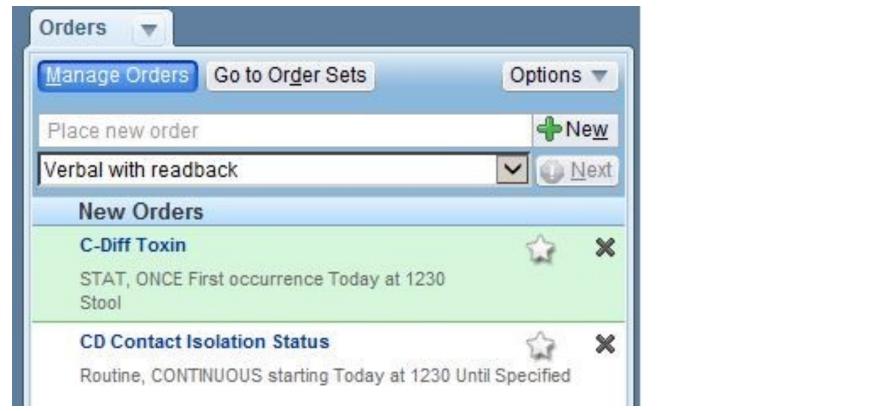
the question cascaded for ED specific interventions.

STAT, UNTIL DISCONTINUED starting Today at 1515 Until Specified Notify physician when C-Difficile protocol has been initiated.

New Orders







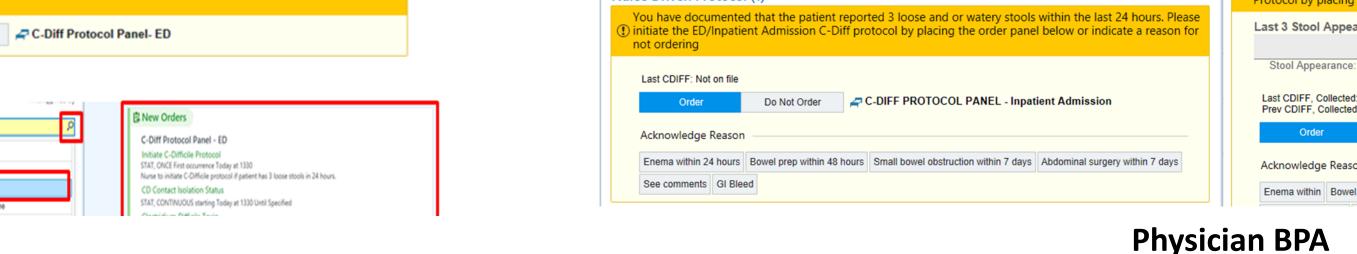
ours, please follow your hospitals protoco Request Private Room Order CD contact isolation per protocol Follow Hospitals Protocol Please follow the hospitals protoc Last BM Date (not for daily assessment) Have you had 3 or more loose stools in **October 2017:**

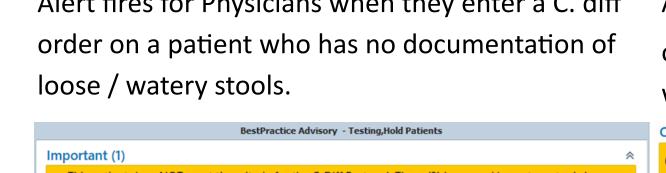
Stool Documentation ED Nurse BPA BestPractice Advisory - Tpa,Assess BestPractice Advisory - Cake,Orderstwo

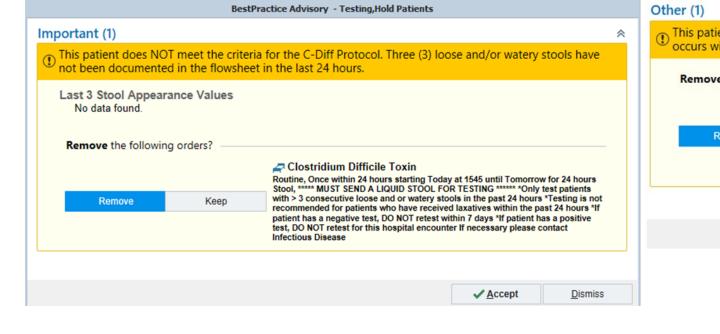
√ 1m 5m 10m 15m 30m 1h 2

1144 1820 0500

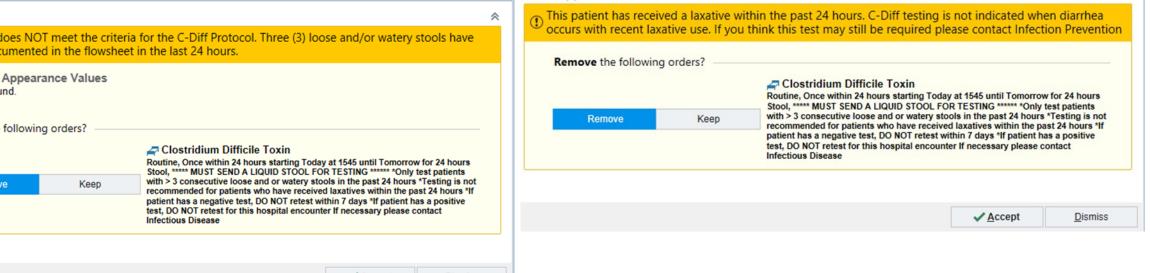
! Loose ! Loose ! Loose







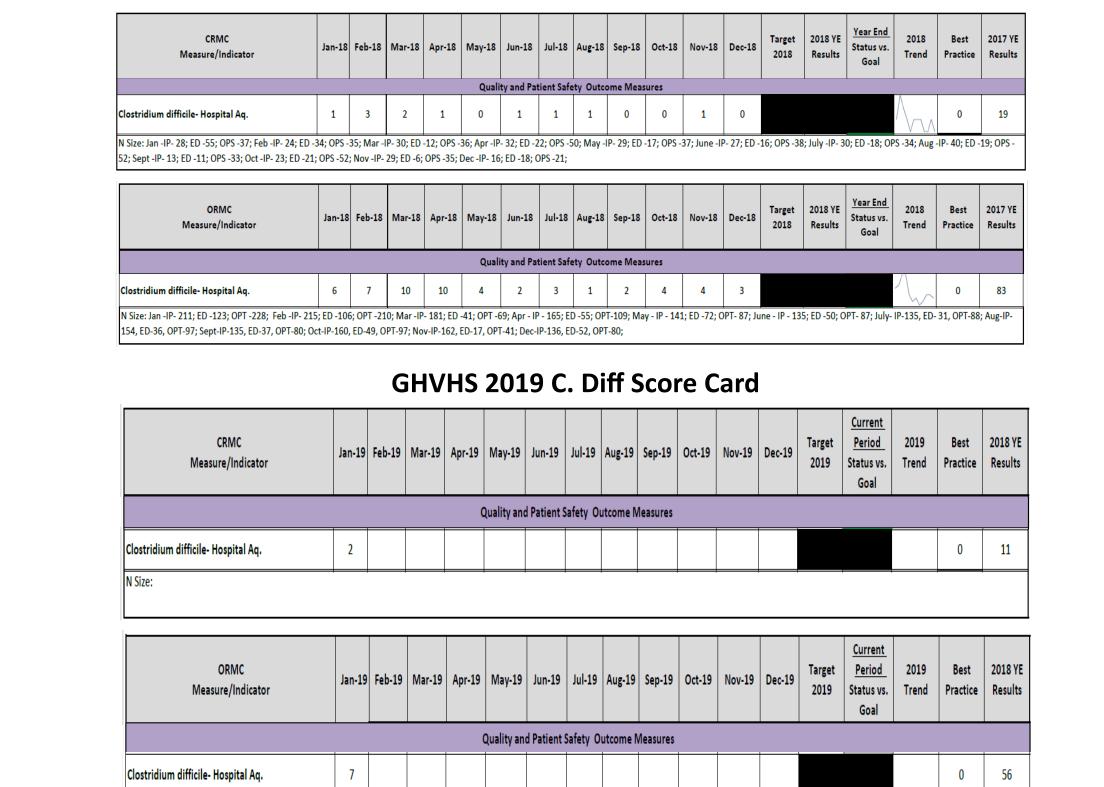
Alert fires for Physicians when they enter a C. diff Alert fires for Physicians when they enter an order for C. diff on a patient who has had laxatives



Control

- 1. H/O CDI Rates
- 2. CDI Process Compliance Score Cards
- Scores increased but decreased back to baseline

GHVHS 2018 C. Diff Score Card



- 3. Sustainability Plan:
- Included as part of initial Epic training
- Annual education of staff
- . Monthly meetings to review rates
- . Changes made as proposed by monthly meetings

Lessons Learned

- . Progress was substantially expedited once rapid-cycle evaluations and weekly review between IT and Infection Control began.
- 2. Staff workarounds to changes in workflow must be

CONSIDERATIONS:

1]Agency for Healthcare Research and Quality. (2018). Clinical decision support. Retrieved from https://www.ahrq.gov/professionals/prevention-chronic-care/decision/clinical/index.html

- Campbell, Robert James. (2013). The five rights of clinical decision support: CDS tools helpful for meeting meaningful use. Journal of AHIMA, 84(10), 42-47. Retrieved from http://library.ahima.org/ doc?oid=300027#.W3L2Dc5KhhE
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- differences in clostridium difficile infection rates associated with disparity in testing. Emerging Infectious Diseases, 24(3), 584-587. https://dx.doi.org/10.3201/eid2403.170961.

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- accounted for at every stage of this process.

- UV light usage