

Streamlining Diagnosis, Enhancing Stewardship: The REFLECT Mnemonic Helps Facilitate Decision-making in *Clostridioides difficile* Testing, Reducing Incidence and Preventing Harm

Carri Beshears, MPH, BSN, RN, CIC - Virginia Mason Franciscan Health
Mallory Somerville, MN, RN, ONC, CMSRN, CIC - Madigan Army Medical Center

Abstract

Background: The standardized infection ratio (SIR) exposed a notable issue of excessive *Clostridioides difficile* (CDI) testing, marked by frequent orders lacking clinical justification. This overutilization underscored a broader challenge associated with the prevalent one-step testing method, revealing limitations and diagnostic pitfalls in CDI testing protocols.

Methods: Infection Prevention reviewed tools available for direct care teams to determine appropriate CDI polymerase chain reaction testing. To improve understanding, the acronym REFLECT was created to include elements that should be considered before utilizing one-step testing methods: (R) – risk factors, (E) – exclusions, (F) – frequency, (L) – leukocytosis, (E) – elevated temperature, (C) – consistency, and (T) – tenderness. Providers received education about limitations of one-step CDI testing and were introduced to the REFLECT tool. The acronym was then socialized to frontline nurses through a newsletter and laminated pocket card dissemination.

Results: Testing appropriateness and hospital-onset CDI counts were reviewed one year before implementation (01/2022 – 12/2022) and followed for nine months after implementation (01/2023 – 09/2023). Results from the follow-up period were compared by quarter to the first nine months of the baseline period. The first and second quarters showed a 62.5% reduction in hospital-onset CDI incidence. The third quarter showed a 57.1% reduction, with an overall three-quarters reduction of 60.8% ($p < 0.001$).

Conclusions: This study reveals a pivotal shift in CDI testing practices, effectively addressing the identified overutilization by implementing the REFLECT tool. The results, demonstrating a 60.8% reduction in hospital-onset CDI incidence, underscore the efficacy of the mnemonic algorithm in promoting judicious testing. This study found that by incorporating risk factors, exclusions, frequency, leukocytosis, elevated temperature, consistency, and tenderness into the decision-making process, the REFLECT tool facilitates precise and clinically justified CDI testing. The implications of these findings extend to enhancing evidence-based practices, fostering a culture of diagnostic stewardship, and subsequently improving patient outcomes.

Objectives

- Upon completion, the participant will be able to verbalize an understanding of the importance of using additional clinical criteria before one-step CDI testing.
- Upon completion, the participant will be able to list the additional clinical criteria that should be considered prior to one-step CDI testing, thereby equipping them with a practical tool for their daily decision-making in CDI testing.
- Upon completion, the participant will be able to demonstrate the correct use of the REFLECT tool to determine its appropriateness for CDI testing.

Study Design

Type of Study: Pre-Post Intervention Analysis

Objective: To evaluate the impact of the REFLECT tool on CDI testing practices and hospital-onset CDI incidence.

Description:

- Intervention:** Introduction of the REFLECT mnemonic tool, designed to guide clinical decision-making in CDI testing. This tool includes criteria such as risk factors, exclusions, frequency, leukocytosis, elevated temperature, consistency, and tenderness.
- Educational Outreach:** Providers were educated on the limitations of one-step CDI testing and trained on using the REFLECT tool. The tool was disseminated through newsletters and laminated pocket cards to frontline nurses.

Data Collection:

- Pre-Intervention Period: January 2022 - December 2022
- Post-Intervention Period: January 2023 - September 2023

Analysis:

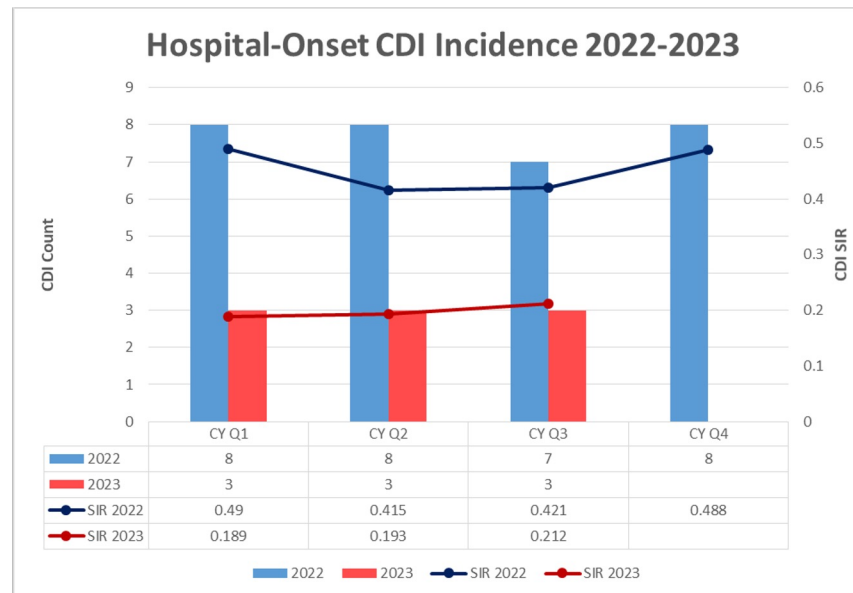
- Compared hospital-onset CDI counts and testing appropriateness during the post-intervention period against the baseline data from the pre-intervention period.
- Results analyzed quarterly to measure the reduction in inappropriate CDI testing and incidence rates.

Statistical Significance:

- Achieved a reduction of 60.8% in hospital-onset CDI incidence ($p < 0.001$) demonstrating significant improvement post-intervention.

Results

- R Risk Factors**
Sorel disease, previous CDI, antibiotic exposure, nursing home resident, chronic PPI use, advanced age
- E Exclusions**
Stool softeners/laxatives or new medication in last 24 hours, tube feeding or TPN, liquid diet, medications that cause diarrhea. **PAUSE, QUESTION, AND CONFIRM!**
- F Frequency**
Greater than 3 liquid stools in the 24 hours
- L Leukocytosis**
Elevated white blood cell count without other suspected cause
- E Elevated Temp**
Elevated temperature greater than 38/100.4 without other suspected cause
- C Consistency**
Type 7 stool on the Bristol Stool Chart
- T Tenderness**
Abdominal tenderness, pain, discomfort, or distension without other suspected cause



Disclosures

Disclosures: None. The authors declare no conflicts of interest relevant to this presentation.

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Conclusion

- Enhancing Diagnostic Accuracy:** The substantial decrease in hospital-onset CDI rates demonstrates that the REFLECT tool helps clinicians make more informed decisions, ensuring tests are ordered based on solid clinical justification rather than routine or non-specific symptoms.
- Promoting Stewardship:** Implementing the REFLECT mnemonic supports a culture of diagnostic stewardship, crucial in managing healthcare resources effectively and reducing the burden of antibiotic resistance.
- Improving Patient Outcomes:** By reducing unnecessary testing and potential misdiagnosis, the REFLECT tool contributes to more accurate patient management, leading to better health outcomes and minimizing the risk of harm from inappropriate treatment.
- Educational Impact:** The successful dissemination of the REFLECT tool through educational interventions like newsletters and pocket cards illustrates an effective strategy for changing clinical behavior. This approach can be a model for other institutions seeking to improve testing practices.
- Future Directions:** Continued monitoring and evaluation of the REFLECT tool's impact across different settings could further validate its effectiveness and adaptability. Additional research could also explore integrating this tool into electronic medical record systems to automate decision-making, potentially enhancing its use in real-time clinical scenarios.

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