

ABSTRACT

Background: Antibiotics are routinely used in the hospital. In accordance with antimicrobial stewardship principles, it is important to ensure appropriate use on antibiotics. Inappropriate antibiotic use can lead to untreated infections, adverse effects, and antimicrobial resistance. In November 2019, an antimicrobial indication system was implemented in the electronic medical record requiring providers to choose an indication for each antimicrobial ordered. This mandatory indication system aimed to improve communication between healthcare providers and clearly identify the indication for an antibiotic order. **Methods:** This is a retrospective chart review study using data from April 1-April 30, 2020 at a 450-bed community teaching hospital in central Illinois. All patients between the ages of 0-99 who received an antibiotic during that timeframe were included in the study. Each indication selected by a provider using the electronic health record was paired with the corresponding indication that was described or listed in the patient's documentation or diagnosis code. Pairings were labeled as either a match or not match and were deemed appropriate or inappropriate, respectively. Based on these numbers, the percentage of antimicrobials deemed appropriate or inappropriate were calculated. **Results:** A total of 4178 antimicrobials were administered during the timeframe were included during the timeframe and included in the study population. Of these orders, 715 (17.1%) did not match the selected indication. The most common indication in which discrepancies were noted was 'other' accounting for 43.5% (311/715) of discrepancies. This was followed by 'ID consult' with a 12.45% (89/715) rate of inconsistency. **Conclusion:** In conclusion, 82.9% of the antibiotics ordered were appropriately matched to the documented indication. However, some indications had inconsistencies. For this reason, some changes may need to be made to the indication options available for providers to select from and further education may also be necessary for ordering providers.

BACKGROUND

- Antibiotics are widely and routinely used in the hospital system
- Improper use of antibiotics can lead to untreated infections, adverse effects, and antimicrobial resistance.
- A mandatory antibiotic indication system was implemented in November 2019 at St. John's Hospital, a 450-bed academic hospital in central Illinois, to potentially decrease the rate of inappropriate antibiotic use and antimicrobial resistance
- With this system, providers are required to input an indication they are treating prior to being able to complete an antibiotic order

PURPOSE

The purpose of this study was to determine the rate at which providers accurately or inaccurately pair a patient's documented indication with what is listed in the patient's medical record when using the hospital's antibiotic indication system. This information will be used to determine if additional indications and/or education is needed.

METHODS

- **Inclusion Criteria:** All patients 0-99 who received an antibiotic between April 1st and April 30th, 2020
- 4178 separate antimicrobial orders were identified during the time frame
- For each individual order, the patient's chart was looked through to determine the actual indication based on ICD-10 codes, chart notes, or other means
- The results were then compiled into a spreadsheet for data analysis where the indication selected by the provider was compared to what was found in the electronic health record and determined to be either appropriately matched or not
- Secondly, we evaluated which indications had the highest number of discrepancies to determine where additional indications or education is needed

RESULTS

Number of Errors Identified by Indication Selected

Selected Indication	Number of Errors
'Other'	311 (43.5%)
ID Consult	89 (12.45%)
Fever/Sepsis	63 (8.81%)
Pneumonia, HAP/VAP	59 (8.25%)
Pneumonia, Community Acquired	51 (7.13%)
Bloodstream/Line Infection	43 (6.01%)
Intra-abdominal Infection	17 (2.38%)
Upper Respiratory Tract Infection	12 (1.68%)
Bone/Joint Infection	11 (1.54%)
All other indications	59 (8.25%)

Table 1.

RESULTS

Percent Total of Errors Identified by Indication

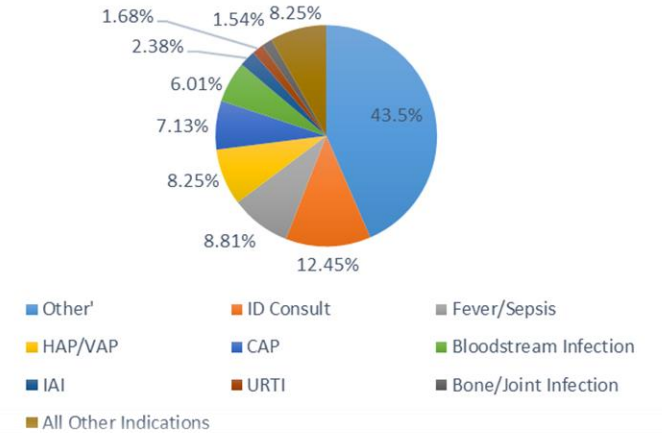


Figure 1.

Other Indications Include: AECOPD, *C. difficile*, History of MDR Infection, Endocarditis, Genitourinary Infection, Lower Respiratory Tract Infection, Surgical prophylaxis, Skin and Soft Tissue Infection, and VRE infections.

CONCLUSION

- From the data evaluated, 82.9% of the antimicrobials ordered matched the indication when ordered to what was listed in the patient's chart.
- Of the indications provided, 'other' had the highest number of inconsistencies at 311 (43.5%), followed by ID Consult with 89 (12.45%).
- After reviewing the data, we feel that further indications to select when ordering an antibiotic are needed as well as further education to providers about the purpose and importance of the antibiotic indication system.
- A possible solution to the system interface would be to allow the provider to type their own custom indication when selecting the 'Other' indication option.