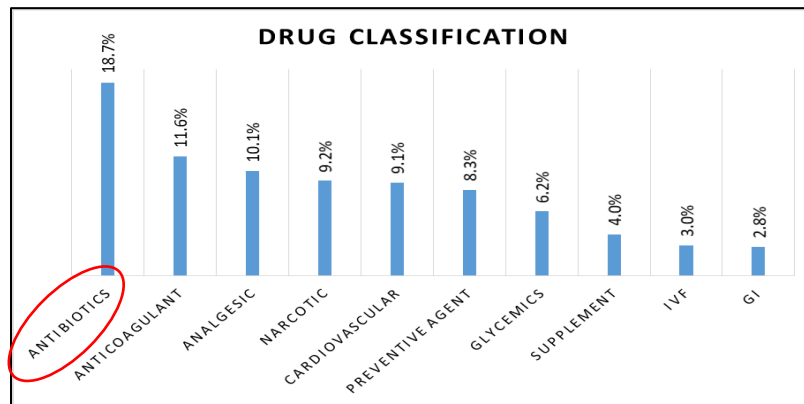


Patient Safety Learning Series

Topic: Why are antibiotics so prevalent in reported safety events?

Over the last several reporting periods, we have noticed that the classification of Antibiotics has been at or near the top of the list regarding medication error reporting. Of the 25,000+ safety events reviewed, the top 10 most commonly reported drug classifications in medication errors are:

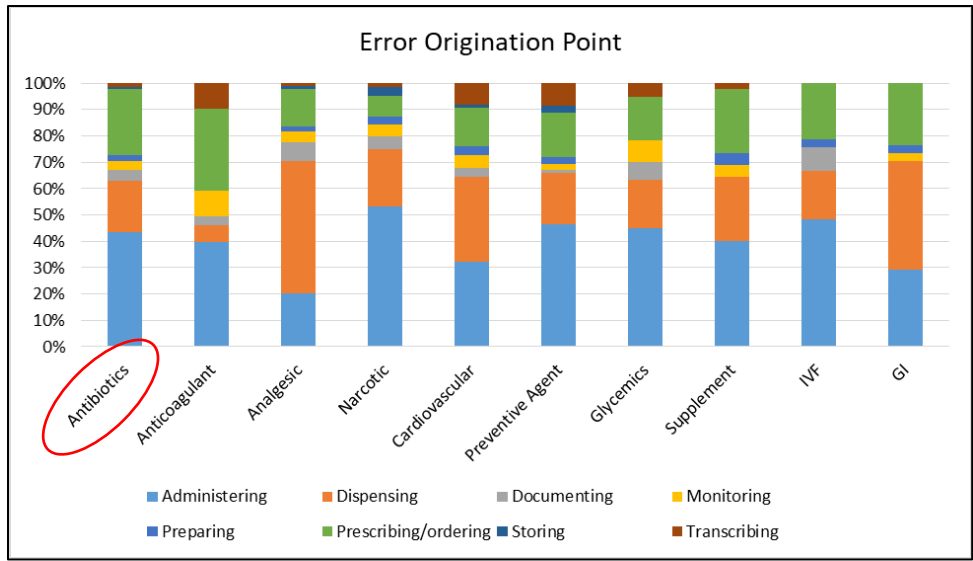


CRICO released a report in 2016 ⁽¹⁾ that described the most commonly identified drug categories associated with med-mal claims, and Antibiotics were No. 3 at 13%, second only to Analgesics (18%) and Anticoagulants (17%). While the numbers are similar by way of overall trends, we would expect some differences here due to other factors such as the level of harm, with either an initial safety event or a lawsuit much later. Moreover, in recent interviews and investigations, the fact that Antibiotics were so highly prevalent in both claims reports and safety event reports has surprised many clinicians. So it begs the question why. Why are Antibiotics so highly problematic? The first and most obvious reason is volume. Still, for Antibiotics to be such a safety issue, it is worth understanding the other factors that surround medication errors that involved Antibiotics versus some of the other more common high-alert medication classifications.

ORIGINATION POINTS OF ERROR

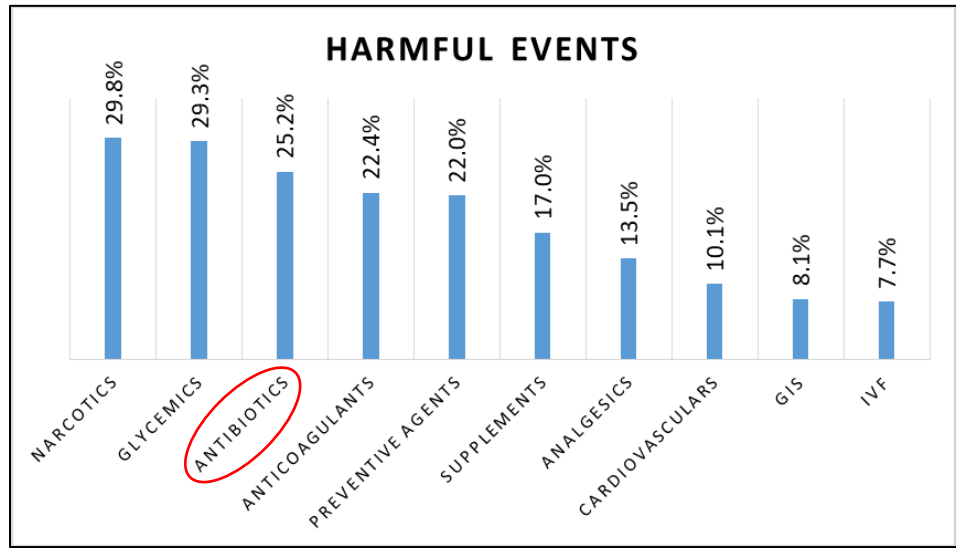
One consideration is to look at where the errors are occurring. In the chart below and on the following page, we can see that there are three (3) main areas where Antibiotic errors occur: Administering, Ordering, and Dispensing. If we compare the top three (3) categories in this graph by error origination, there are some differences in terms of frequency, yet the same origination points appear within each of the categories, which would suggest that there are numerous error pathways:

Antibiotics	Anticoagulants	Analgesics
Administering	Administering	Dispensing
Ordering	Ordering	Administering
Dispensing	Monitoring	Ordering

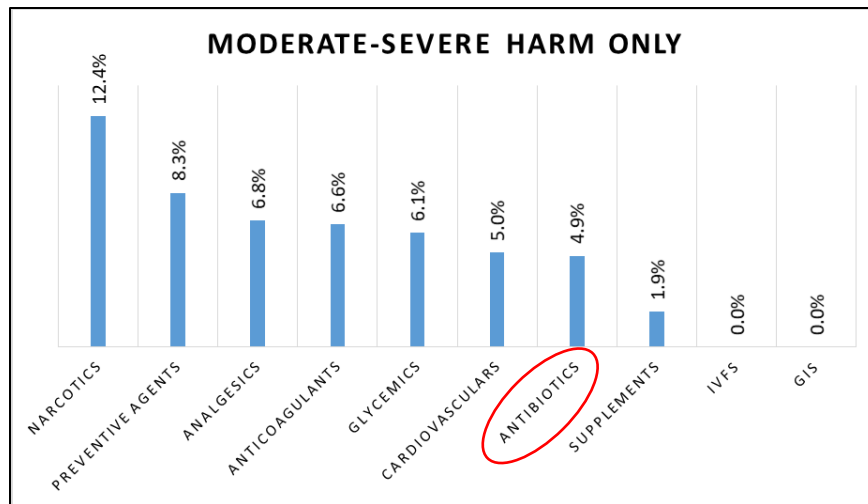


HARMFUL EVENTS

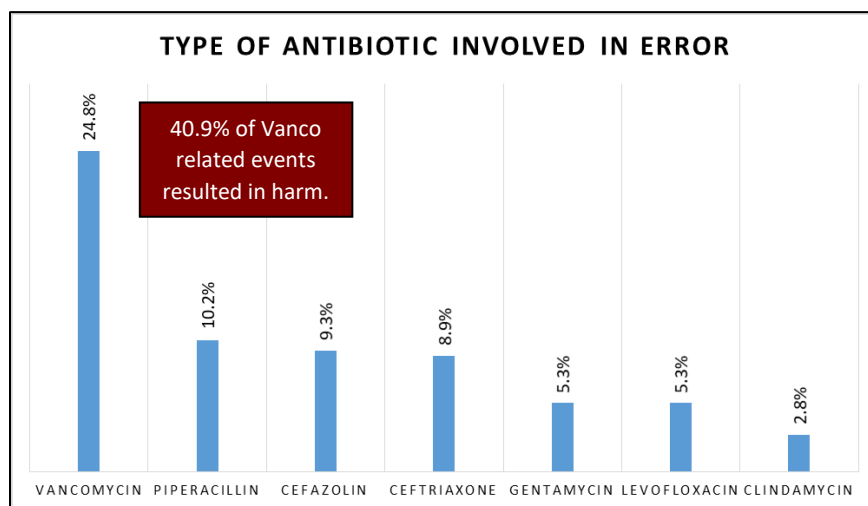
The graph below depicts the top 10 most commonly reported drug classifications and the frequency with which those safety events resulted in harm. The order does change a bit in terms of the most commonly reported drug class that results in harm. So while Antibiotics may be the most commonly reported safety events by volume, the Narcotics class has more events that resulted in harm to patients.



However, singling out only moderate-severe harm, Antibiotics play an even lesser role with respect to harm, and Narcotics remain the most commonly reported drug class resulting in moderate-severe harm, as seen on the following page.



Drilling further into specific drugs, Vancomycin is the most commonly identified drug in reported safety events at 24.8%. Of those Vanco events, 40.9% of them resulted in some type of harm to patient.



CONSIDERATIONS

How much does volume play a role? Often, this is the first question raised regarding frequency rates. The mere fact that Antibiotics are the most frequently reported drug classification, at least in this case, does not mean that they are the most frequently administered drug classification. One recommendation to providers is to look at your drug classifications in relation to the number of doses administered and derive a true rate. From here we can derive an error rate (number of medication errors per 1000 administered doses). From an individual/specific medication perspective, clearly Vancomycin represents a volume-related issue. We know this from review of Antibiotic ordering practices, and thus, there should be very routine practices that prevent errors related to Vancomycin administration.

A second recommendation would be to consider these practices surrounding Vancomycin, specifically: Routes of Administration. Routes for Antibiotics are frequently IV. This is true in the majority of the errors we've seen reported. Perhaps obvious, IV-related drug preparation and administration is a bit more invasive. However, it is worth restating that more care should always be rendered. There are still errors reported where IV line clamps were never unclamped, IV infiltrations occurred prior to/during infusion, as well as other types of errors (e.g., incorrect dosing, incorrect medication, incorrect patient).

From a harm perspective, it appears that Antibiotics may be less involved than other classifications such as Narcotics/Analgesics. However, as seen in claims reports, both of these classifications are among the highest correlations of medication errors and lawsuits. Moreover, there is evidence that the same error pathways may be present regardless of drug classification. Hence strategies for preventing errors in one classification may potentially be applied across the board. Examples include: dose control; algorithms built directly into the eMR or other practice/analytics tools; verification processes; and direct hand-offs with/without CDSSs.

RESOURCES

1. Medication-related malpractice Risks. CRICO 2016 CBS Benchmarking Report.
<https://www.rmhf.harvard.edu/Clinician-Resources/Newsletter-and-Publication/2017/SPS-Report-Medication-related-Malpractice-Cases>