

BACKGROUND

•Timely administration of first dose antibiotics is emphasized in severe infectious disease and considered a significant part of efficient interventions in infectious disease care. However, timely administration of subsequent dose is an area of growing interest, although results of clinical impact are conflicting.

•Two retrospective observational cohort studies in sepsis/septic shock patients associated a delay in second doses with increased hospital mortality. Other studies have shown that patients with serious infection admitted in the emergency department (ED) did not associate delays with mortality or worsening outcome.

•An evaluation of the prevalence of second dose delays will create quality improvement opportunities to assess and improve timeliness of care for patients at Northeast Georgia Health Systems (NGHS).

OBJECTIVES

•To evaluate the frequency of delays in antibiotic second dose administration and identify contributing factors associated with those delays

METHOD AND DESIGN

•A retrospective, single center, chart review of adult patients who received their first dose of an antibiotic at Northeast Georgia Medical Center, Gainesville, ED between May 1st, 2023, to July 31st, 2023.

PRIMARY ENDPOINT

- Frequency of second dose administration delay.

SECONDARY ENDPOINT

- Identify contributing factors in second dose delays .

RESULTS

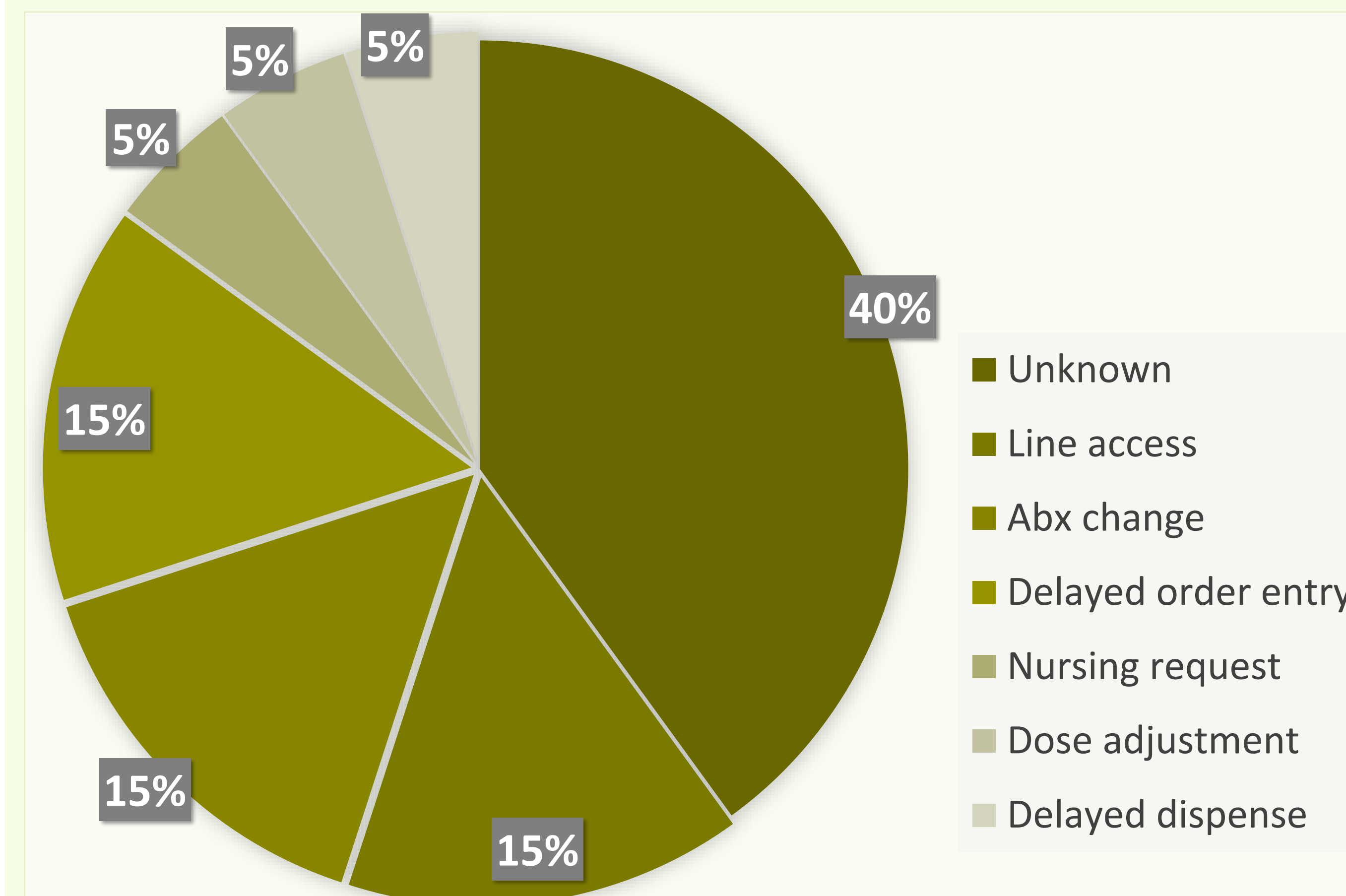
Table 1. Baseline Demographics

Baseline Demographics (N =50)	On-time (n=32)	Delay (n=18)
Male, n (%)	17 (53)	10 (56)
Age (years), median (IQR)	67 (22.5)	65 (26)
CrCl, median (IQR)	74 (81.5)	64 (62.5)
Charlson Comorbidity Index, n (%)		
0	3 (9.4)	3 (16.7)
≤2	5 (15.6)	2 (11.1)
≥ 3	24 (75)	13 (72.2)
Boarding time (h), median (IQR)	3.3 (5.5)	4.4 (12.4)
Total ED time(h), median (IQR)	7.3 (4.3)	8.3 (12.7)

IQR (Interquartile Range)

*p-values were not statistically significant

Figure 1: Delayed contributing factors



RESULTS

Table 2. Antibiotics Characteristics

Antibiotics Characteristics (N = 84)	On-Time (n=64)	Delay (n=20)
Antibiotic frequency, n (%)		
q6h	11 (17.2)	4 (20)
q8h	19 (29.7)	4 (20)
q12h	17 (26.6)	6 (30)
q18h	2 (3.1)	3 (15)
q24h	15 (23.4)	3 (15)
Initial dosing schedule, n (%)		
Once	39 (60.9)	17 (85)
Scheduled	25 (39.1)	3 (15)
Antibiotic location, n (%)		
Automatic Dispensing System	21 (32.8)	3 (15)
Central pharmacy	43 (67.2)	17 (85)
Administration location, n (%)		
Emergency Department	18 (28.1)	4 (20)
Observation Units	14 (21.9)	6 (30)
Intensive Care Units	4 (6.3)	2 (10)
Intermediate Care and Floor Units	28 (43.8)	8 (40)
Antibiotics changes, n (%)		
Yes	7 (10.9)	3 (15)
No	57 (89.1)	17 (85)

*p-values were not statistically significant

DISCUSSION AND CONCLUSION

•Overall, considering the number of antibiotics collected, the frequency of second dose antibiotics delay was 23.8%.

•Antibiotics characteristics, ED boarding time and total ED length of stay did not have an impact on dose delays, neither of which were statistically significant (Table 1. and 2.).

•Majority of factors contributing to delay was unknown. Other factors identified include issues with line access, timeliness of order entry or dispensing, dose adjustment, changes between antibiotics with the same coverage and nursing request (Figure 1.).

•This retrospective review highlights certain areas for improvement in timely administration of second doses. However, larger data needs to be evaluated to better assess consistent factors that can contribute to delays.

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