

BACKGROUND

- *Clostridium difficile* infection (CDI) is an important cause of mortality and morbidity amongst hospital patient groups (1).
- Antimicrobial therapy is a significant risk factor for the development of CDI; therefore NHS trusts must abide by strict antimicrobial stewardship (AMS) to meet agreed local and national targets for CDI (2,3).
- A period of increased incidence (PII) is defined as two or more new cases of CDI (occurring >48 hours post admission) within a ward, diagnosed within 28 days (4).
- At University Hospitals Birmingham (UHB), 5 wards with a recent PII underwent a Snapshot audit of antimicrobial prescribing within the affected clinical area.

PURPOSE

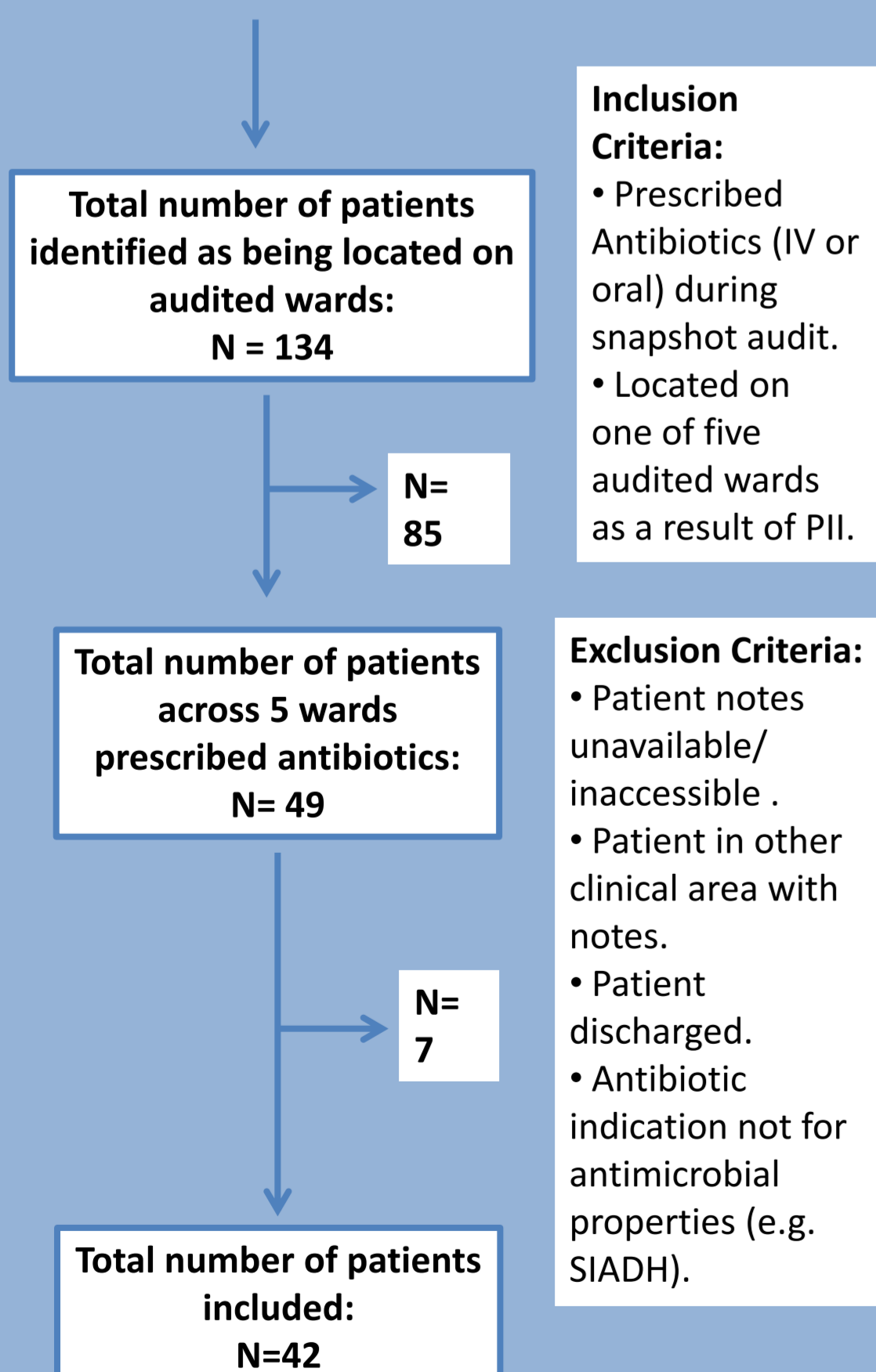
- Conducting an audit in clinical areas with a PII allows for the identification of inappropriate antimicrobial prescribing, clinical improvement, accountability, and the opportunity to improve practice and prevent further CDI (4).

METHODS

- Antimicrobial stewardship (AMS) was assessed using a Snapshot Audit tool.
- The Snapshot audit tool analysed AMS across 5 wards with a recent PII.
- Four outcomes were measured:
 - 1) The use of stop dates put in place during antibiotic prescribing.
 - 2) Documentation of indication for antibiotic use in patient notes.
 - 3) Appropriate use of microbiology samples.
 - 4) Compliance with HEFT guidelines.
- A Red Amber Green (RAG) rating was calculated for each ward. This is a combined percentage of the four audited criteria, resulting in a Red (<70%), Amber (70-90%) or Green (>90%) rating.

Figure 1: Audit Process

Ward	Ward	Ward	Ward	Ward
2:	3:	4:	18:	22:
N= 32	N= 32	N= 26	N= 27	N= 17



Inclusion Criteria:

- Prescribed Antibiotics (IV or oral) during snapshot audit.
- Located on one of five audited wards as a result of PII.

Exclusion Criteria:

- Patient notes unavailable/ inaccessible.
- Patient in other clinical area with notes.
- Patient discharged.
- Antibiotic indication not for antimicrobial properties (e.g. SIADH).

RESULTS

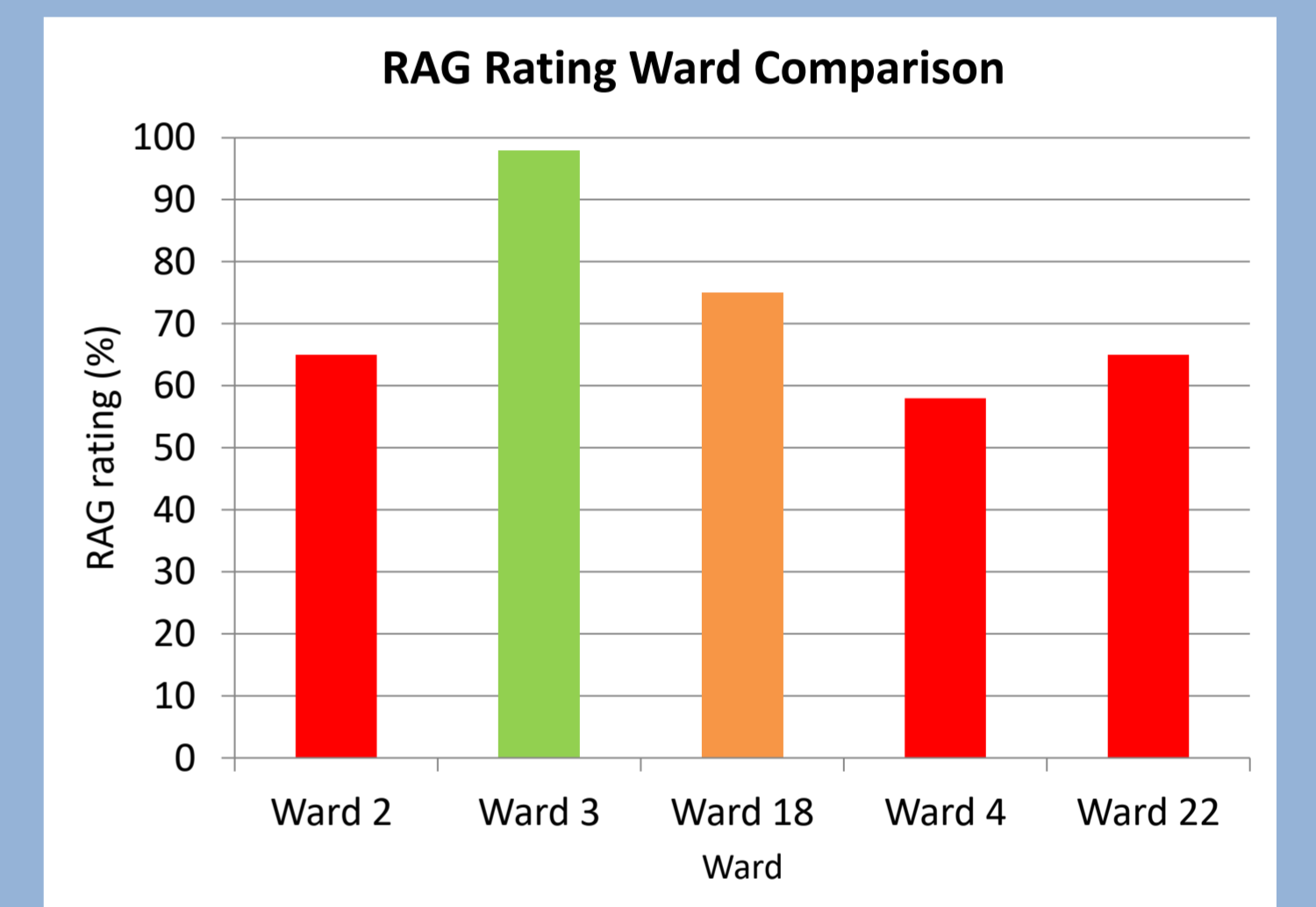
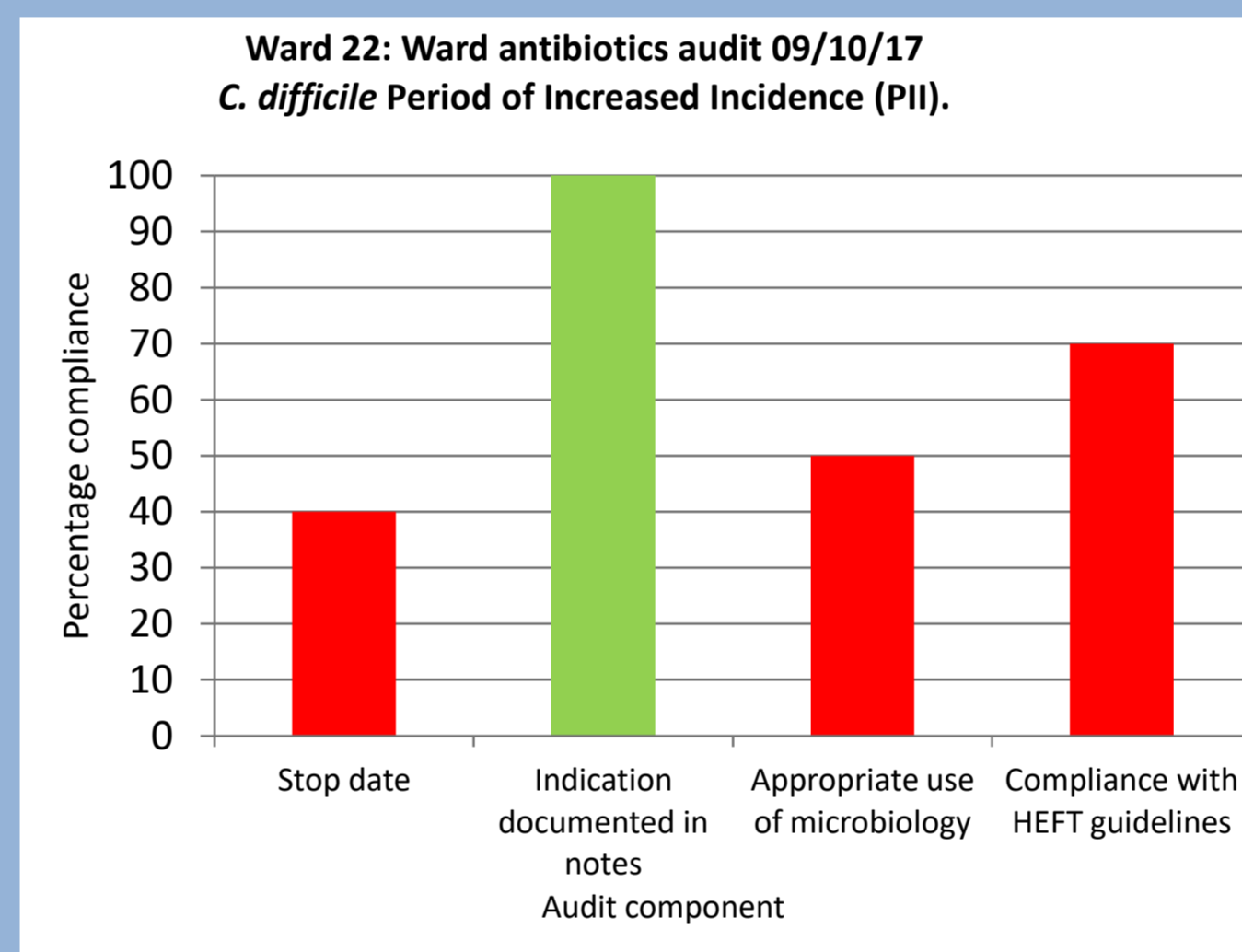
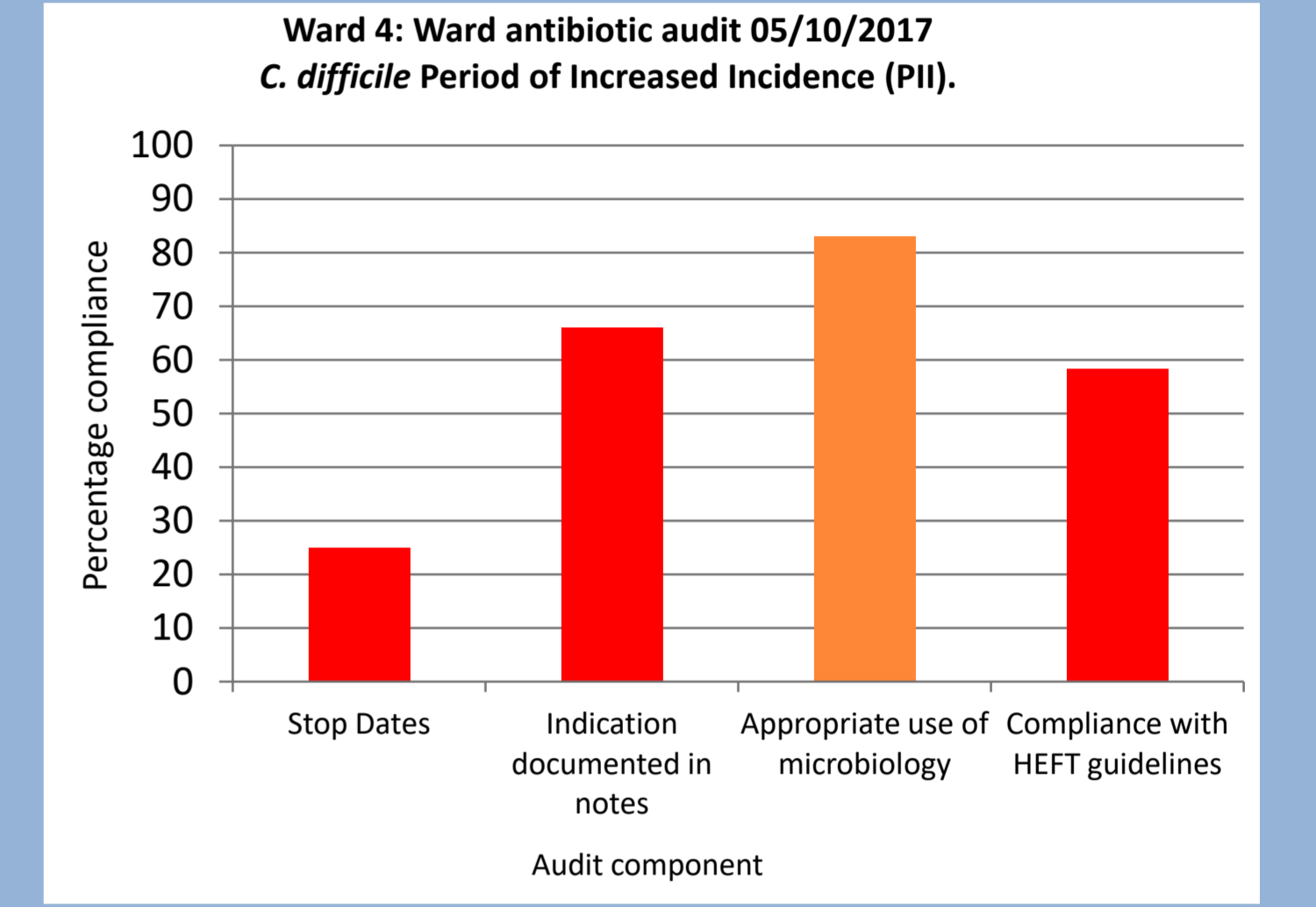
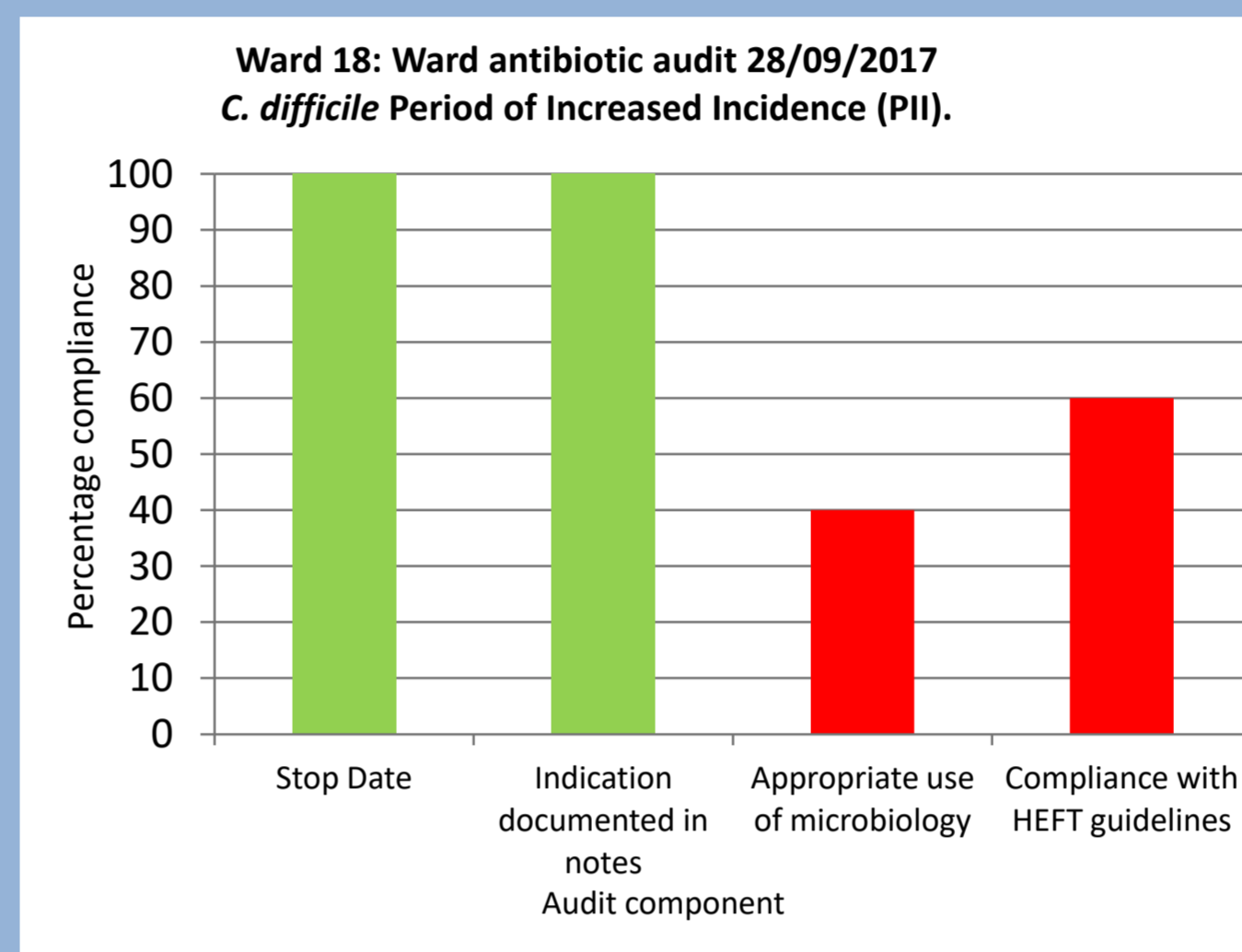
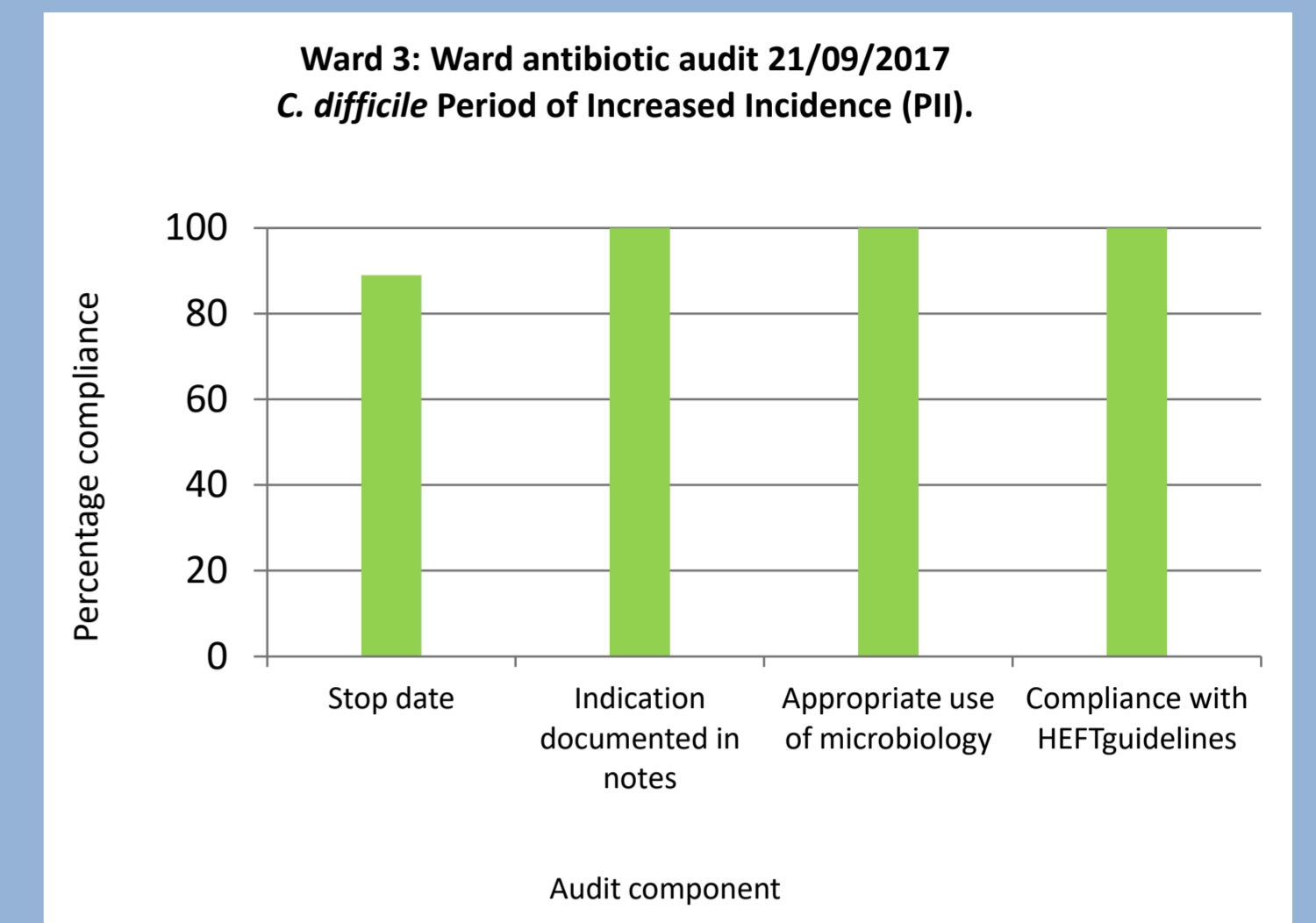
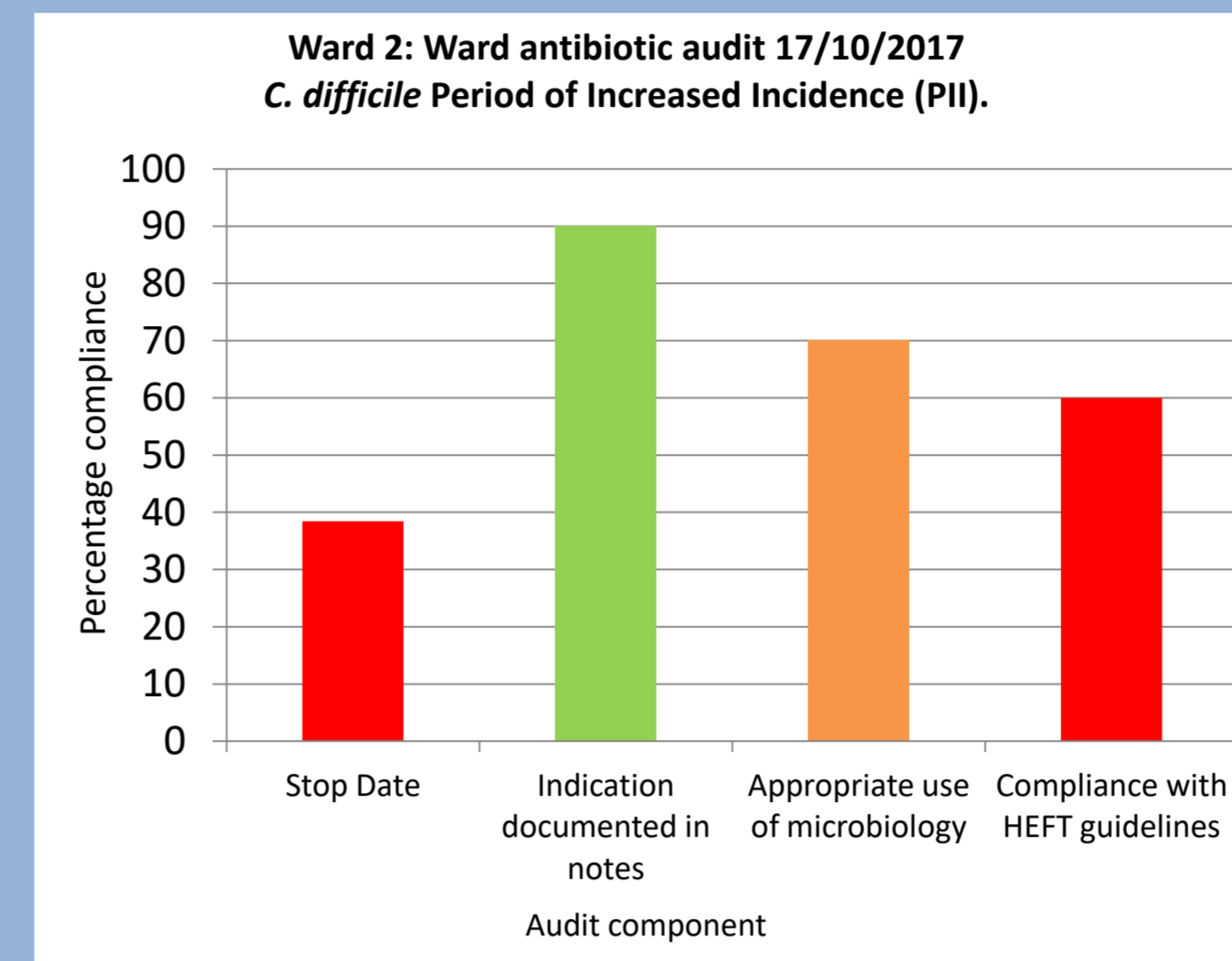
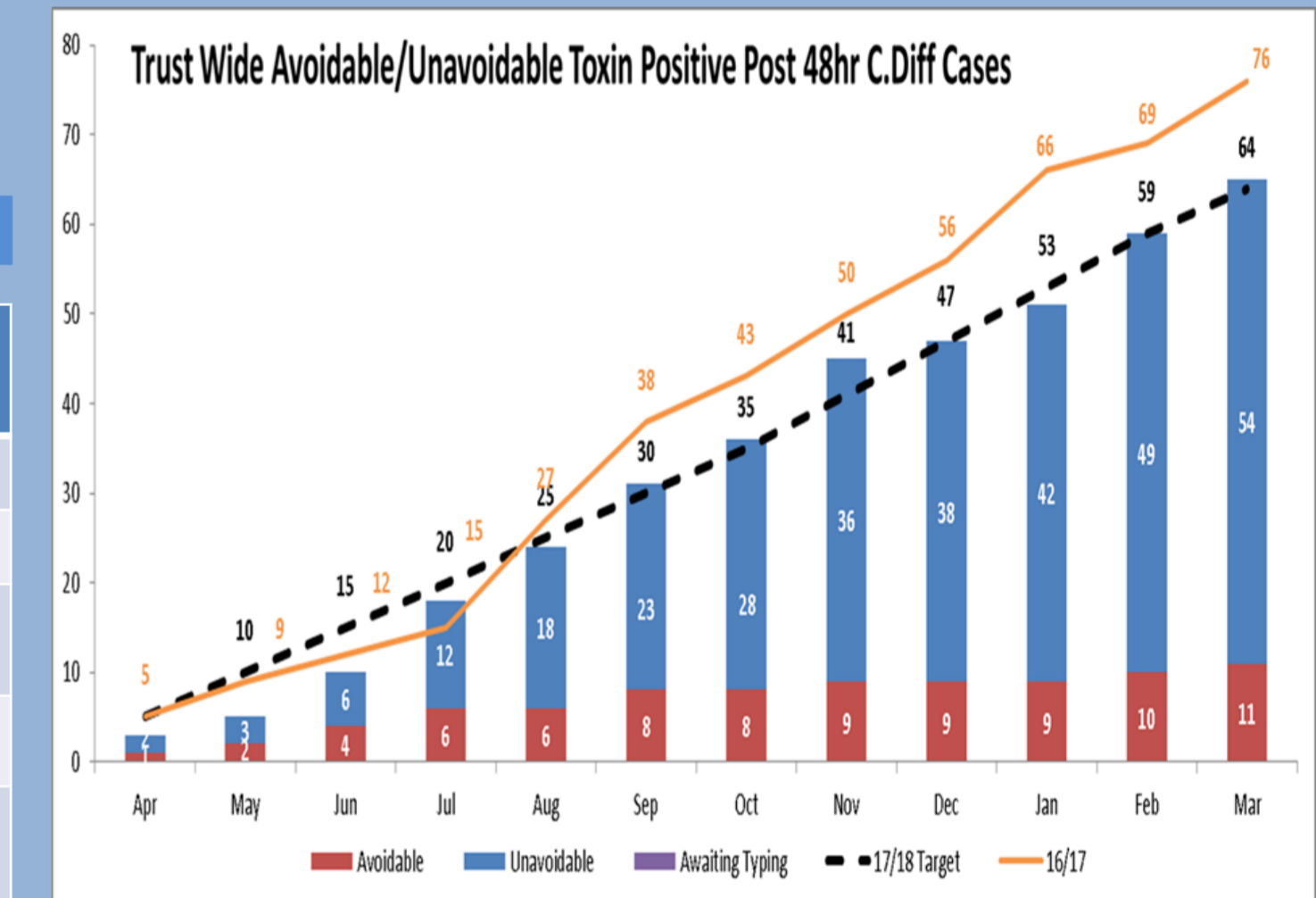


Table 1: Measured outcomes from Snapshot Audit tool displayed as percentages.

	WARD 2	WARD 3	WARD 18	WARD 4	WARD 22
RAG RATING	65%	98%	75%	58%	65%
STOP DATES	38%	90%	100%	25%	40%
DOCUMENTED INDICATION	90%	100%	100%	66%	100%
USE OF MICROBIOLOGY	70%	100%	40%	83%	50%
COMPLIANCE WITH HEFT GUIDELINES	60%	100%	60%	58%	70%



CONCLUSIONS

Based on RAG ratings, 4 out of the 5 audited wards did not achieve trust targets, indicating need for improvements in AMS. Focused antibiotic stewardship programs can contribute towards a decline in CDI outbreaks (5). Therefore staff members on wards rated amber/red should undergo education to ensure AMS improves. There are further risk factors contributing to CDI which could also be audited to assess potential contribution: PPI use, IBD, gastrointestinal surgery, ileostomy, steroid use, cleanliness, and hand washing (3). Additional findings of note include a lack of documentation of CURB-65 to assess the severity of pneumonia (with CURB-65 score being important for severity rating, and resulting antibiotic choice). Lack of appropriate MC&S for suspected hospital acquired pneumonia for 2 patients. A patient with a negative MC&S was continued on antibiotics for a UTI for 4 days following the negative results being available. Limitations included the use of a snapshot audit, across one day per ward, as well as the relatively small sample size. The snapshot audit should be repeated to check that recommendations have been implemented. 80% of wards audited did not achieve expected AMS standards. 3 wards were rated red, 1 was rated amber and 1 was rated green. It is likely that improved adherence to local AMS protocols would lead to reduced PII incidence.

RECOMMENDATIONS:

- Stop date and indication should be documented for every patient prescribed antibiotics, as per hospital policy.
- Appropriate microbiology samples should be sent for all patients where relevant, following national and trust guidelines.
- UHB guidelines should be complied with in all prescriptions, unless advice has otherwise been sought from microbiology (in which case this should be documented). Relevant staff should be reminded of where to find guidelines.
- Results will be presented to local microbiology team in due course.
- Relevant wards should be re-audited to evaluate success of re-education.

BIBLIOGRAPHY

REFERENCES

1. Wilcox, M. H., Hawkey, P. M., Patel, B., Planche, T., & Stone, S. (2013). Updated guidance on the management and treatment of *Clostridium difficile* infection. *Public Health England*, 1-29.
2. Piacenti, F. J., & Leuthner, K. D. (2013). Antimicrobial Stewardship and *Clostridium difficile*–Associated Diarrhea. *Journal of pharmacy practice*, 26(5), 506-513.
3. NHS England. (2014). *Clostridium difficile* infection objectives for NHS organisations in 2014/15 and guidance on sanction implementation.
4. Saeed, K., Gray, H., Dryden, M., Swanson, L., Lucero, S., & Davis-Blues, K. (2015). *Clostridium difficile* period of increased incidence in hospitals. *Journal of infection prevention*, 16(1), 42.
5. Napolitano, L. M., & Edmiston, C. E. (2017). *Clostridium difficile* disease: diagnosis, pathogenesis, and treatment update. *Surgery*, 162(2), 325-348.