

# PHARMACIST-LED ANTIMICROBIAL STEWARDSHIP INTERVENTION ON APPROPRIATENESS OF POST-SURGICAL ANTIMICROBIAL PROPHYLAXIS IN A TERTIARY CARE CANCER HOSPITAL: A PRE-POST STUDY

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## OBJECTIVE

Post-surgical antimicrobial prophylaxis plays a critical role in preventing surgical site infections (SSIs), which remain a significant cause of morbidity and healthcare burden. Optimal timing, selection, and duration of prophylactic antibiotics are essential to ensure efficacy while minimizing resistance.

We aimed to evaluate the impact of pharmacist-led interventions on post-surgical antimicrobial stewardship and assess patient outcomes following these interventions in surgical procedures.

## METHODS

A prospective pre & post intervention study was conducted. Data from 1<sup>st</sup> August, 2024 to 31<sup>st</sup> October, 2024 (Pre-intervention) and 1<sup>st</sup> November, 2024 to 31<sup>st</sup> January, 2025 (Post-Intervention) was retrieved from hospital information system (HIS). Post intervention phase was divided into two parts, the interim phase (1<sup>st</sup> month post intervention) and the late phase (2<sup>nd</sup> & 3<sup>rd</sup> months post intervention). Information related to antibiotic prescribing patterns, including the duration of therapy and %age usage, was collected for adult patients following surgical procedures. Prescribing practices were compared with international guidelines like (Infectious Disease Society of America) IDSA and American Society of Health-System Pharmacist (ASHP) prescribing guidelines. Statistical package for the social sciences (SPSS) V. 27.0 was utilized for statistical data processing.

## INTERVENTION

- Presentation of antibiotic prescribing trends in the infection control committee
- Designing of institutional guidelines
- Intervening the prescribed orders of antibiotics deviating form guidelines.
- Training and reminders to the surgical team through official email correspondence.
- Real-time discussions with prescribers regarding antibiotic duration during on-call consultations

TABLE 1. PRE-INTERVENTION

Type of Surgery	Percentage of Usage	Average Duration of Use (Days)
Breast Surgery	10%	6.71
Orthopedic Surgery	71%	5.2
Urology Surgery	88%	5.7
Gastrointestinal Surgery	33%	4.97

TABLE 2. POST-INTERVENTION (INTERIM PHASE) (1 MONTH POST) DATA

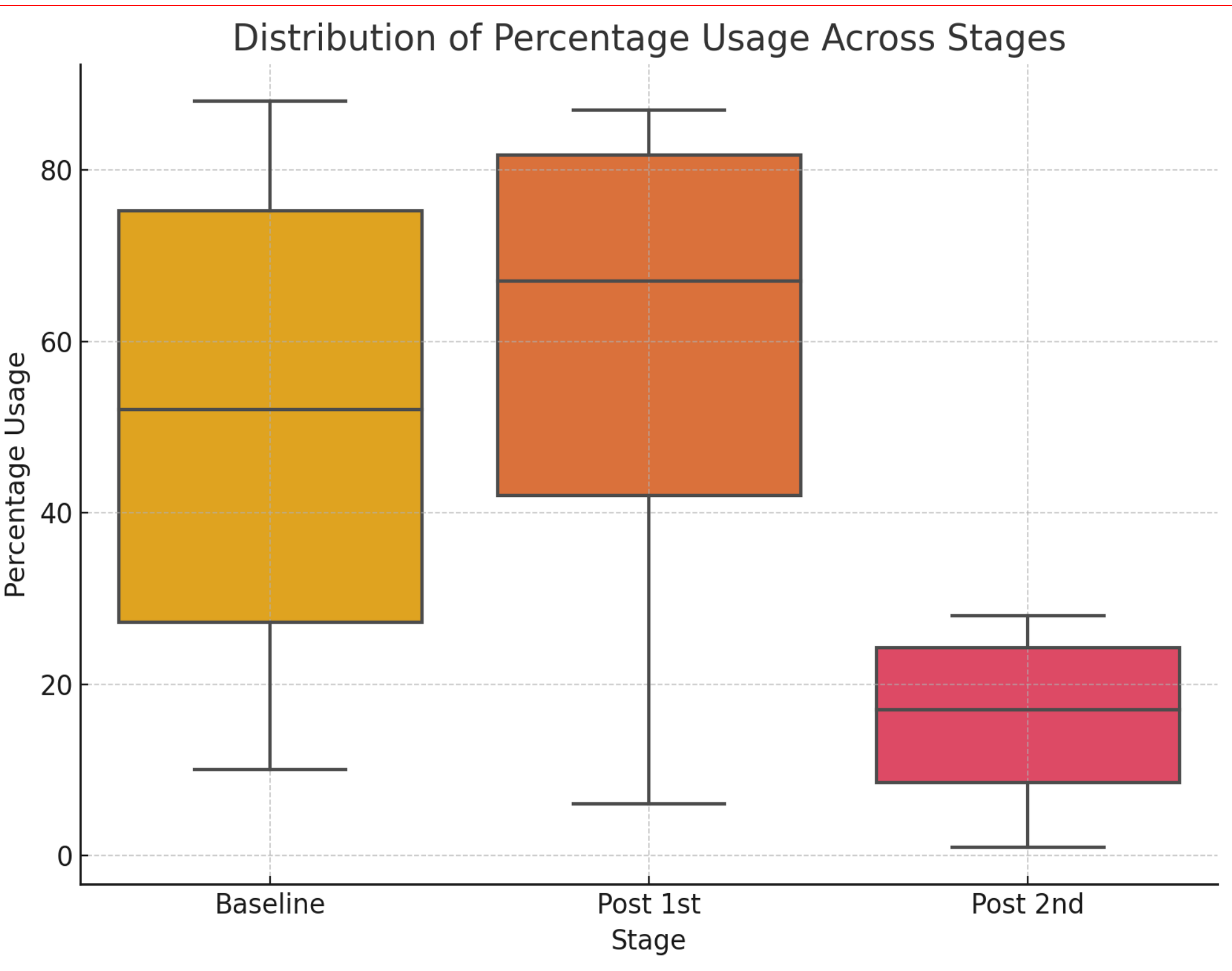
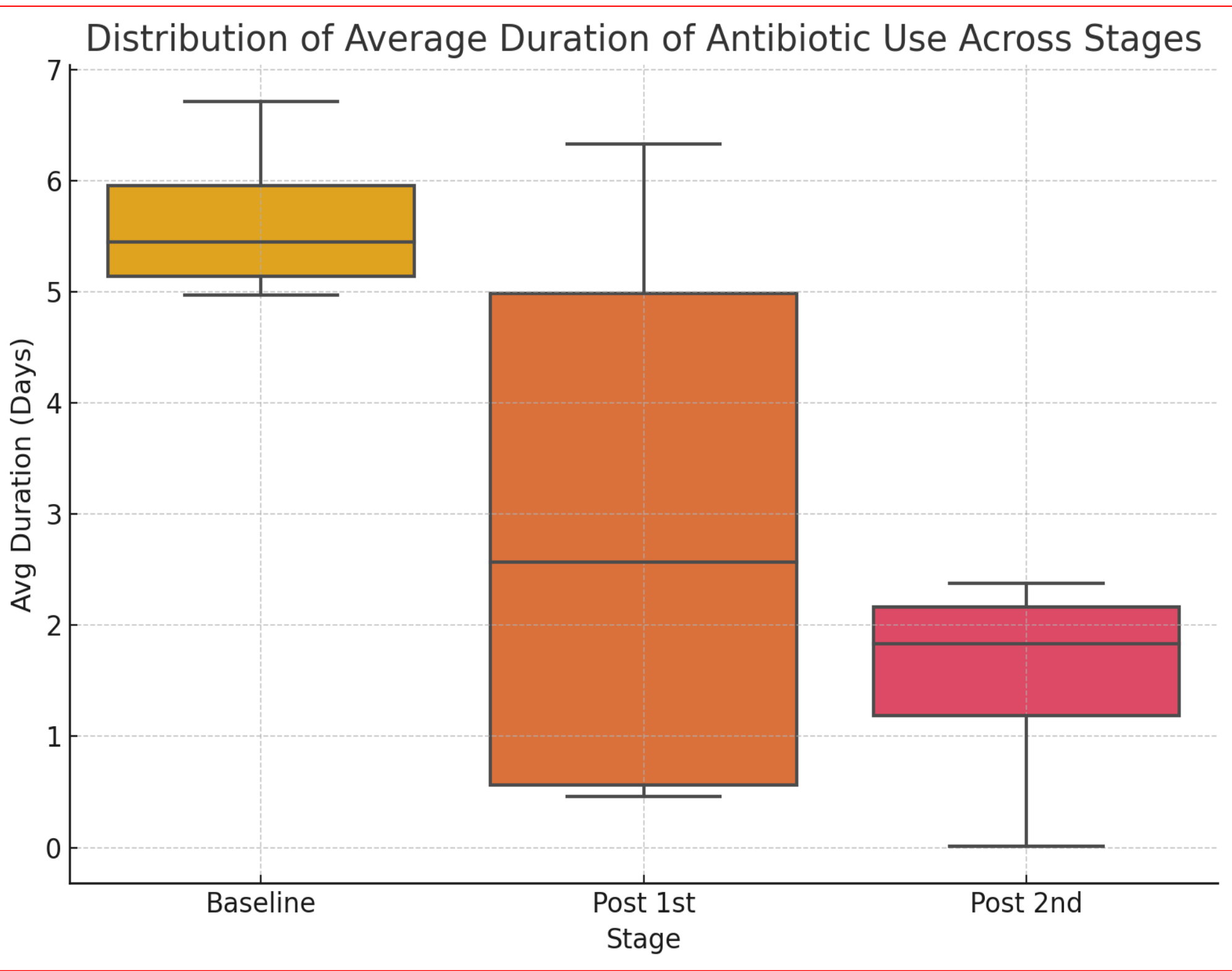
Type of surgery	Percentage of Usage	Average Duration of Use(Days)
Breast Surgery	6%	0.46
Orthopedic Surgery	83%	6.33
Urology Surgery	73%	4.54
Gastrointestinal Surgery	14%	0.6

TABLE 3. POST-INTERVENTION (LATE PHASE) (2<sup>ND</sup>-3<sup>RD</sup> MONTHS) DATA

Type of Surgery	Percentage of Usage	Average Duration of Use(Days)
Breast Surgery	1%	0.014
Orthopedic Surgery	67%	2.38
Urology Surgery	28%	1.58
Gastrointestinal Surgery	36%	2.09

## RESULTS

- A total of 326 patients from pre- and 300 patients from post-intervention phase were identified. After, pharmacist intervention,
- The average duration of antibiotic use decreased notably from 5.5 days to 2.5 days after the first month. Although there was greater variability post-intervention, the overall trend indicates shorter antibiotic courses.
  - Initially the %age usage was higher and more variable (post interim phase), while it significantly decreased and became more consistent after the intervention (late phase).



## CONCLUSION

Pharmacist-led interventions effectively reduced both the percentage and duration of antibiotic use. Our study shows that through monitoring prescriptions, providing feedback, and educating healthcare teams, pharmacists can significantly optimize antibiotic use, minimize resistance, and enhance patient outcomes.

