

Point prevalence survey on perioperative antibiotic prophylaxis in a German hospital

Geyer¹ B, Schubert² H, Schorer¹ M, Mayer¹ S, Krötsch¹ U

¹ Johannes-Apotheke, Gröbenzell, Germany

² Klinikum Fürstfeldbruck, Fürstfeldbruck, Germany

Background and Objective

An adequate perioperative antibiotic prophylaxis (PAP) has been shown to be an effective measure for preventing surgical site infections. Thus, the correct use of the PAP in terms of indication, selection, timing, dosage and duration is highly relevant.

Purpose

The objective of this study was to screen patients with the need for PAP in order to record (1) indications, (2) antimicrobial substances used, (3) time of administration and (4) to draw conclusions regarding the appropriate use of antibiotics within this setting. Our overall aims are: to improve patient safety and to promote implementation of instruments for a rational use of antibiotics.

Method

Point prevalence survey on PAP in a German hospital. Interdisciplinary development of a standardized 2-sided data entry form (4 categories, 32 items overall) to determine the use of antibiotics per patient currently or during their stay. Data were collected on 7 random days (sept, oct 2013) in an acute care hospital with surgical, gastrointestinal and cardiological main departments. Patients from all wards were involved by reviewing their medical records and anaesthesia protocols as far as available. All cases with surgical interventions were discussed with a physician.

Results

Of 269 patients (12 wards) screened, 53% did not receive any antibiotics. Within the antibiotic population, 10% received only PAP for surgery, 29% were prescribed antibiotic therapy as nonsurgical treatment and 8% had both (figure 1).

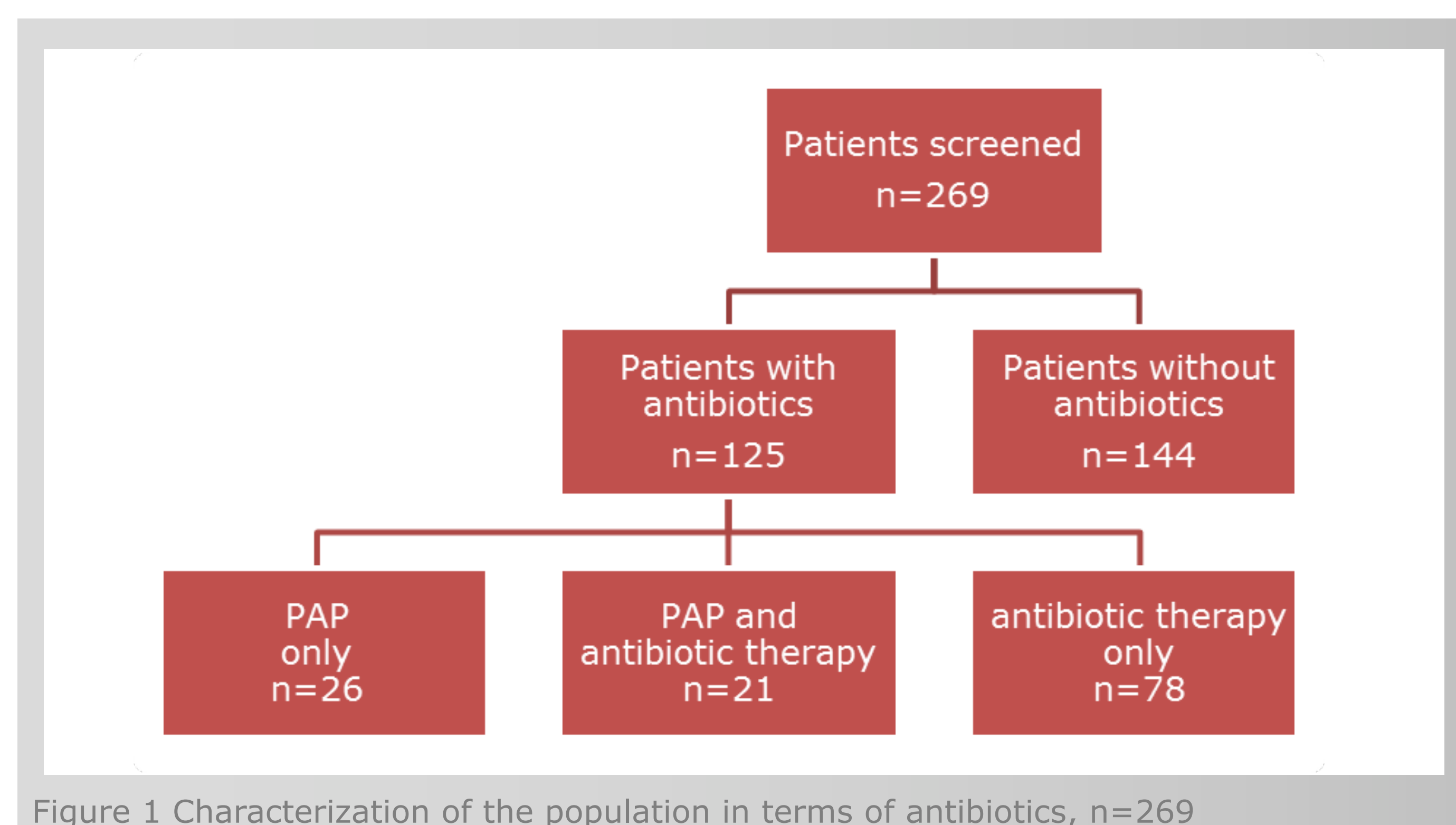


Figure 1 Characterization of the population in terms of antibiotics, n=269

In 64 procedures PAP was indicated; 89% of those were administered. 7 patients failed to receive PAP or documentation was missed (figure 2).

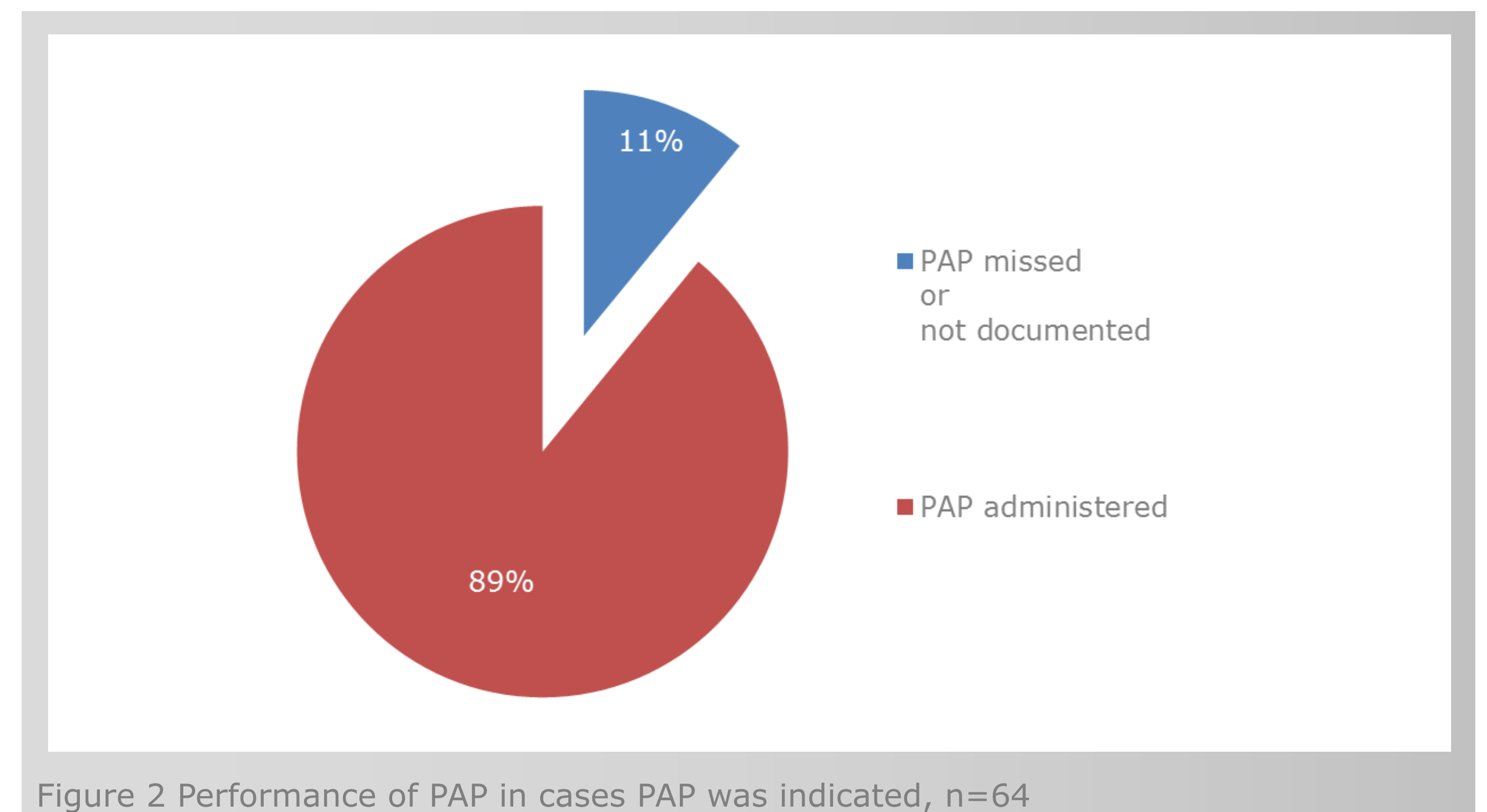


Figure 2 Performance of PAP in cases PAP was indicated, n=64

The following drugs were used: 78% cefuroxime, 10% ampicillin/sulbactam, 6% cefuroxime in combination with metronidazole, 4% ceftriaxon, and 2% vancomycin (table 1). Generally, the intravenous route is recommended in order to achieve adequate drug levels.

Substances	%
Cefuroxime	78
Ampicillin/sulbactam	10
Cefuroxime in combination with metronidazole	6
Ceftriaxon	4
Vancomycin	2

Table 1 Substances used for PAP (excluded 8 patients under antibiotic therapy), n=49

PAP should be applied 30 to 60 minutes before incision with the exception of glycopeptides. If surgery lasts < 3 hours and no significant blood loss occurs, a single dose of PAP should be preferred over multiple doses. In our study, only 41% of the antibiotics were administered within 30 to 60 minutes before skin incision. 10% of prophylaxis were given more than 60 minutes before, 46% were injected in the time window 0 to 30 minutes (figure 3).

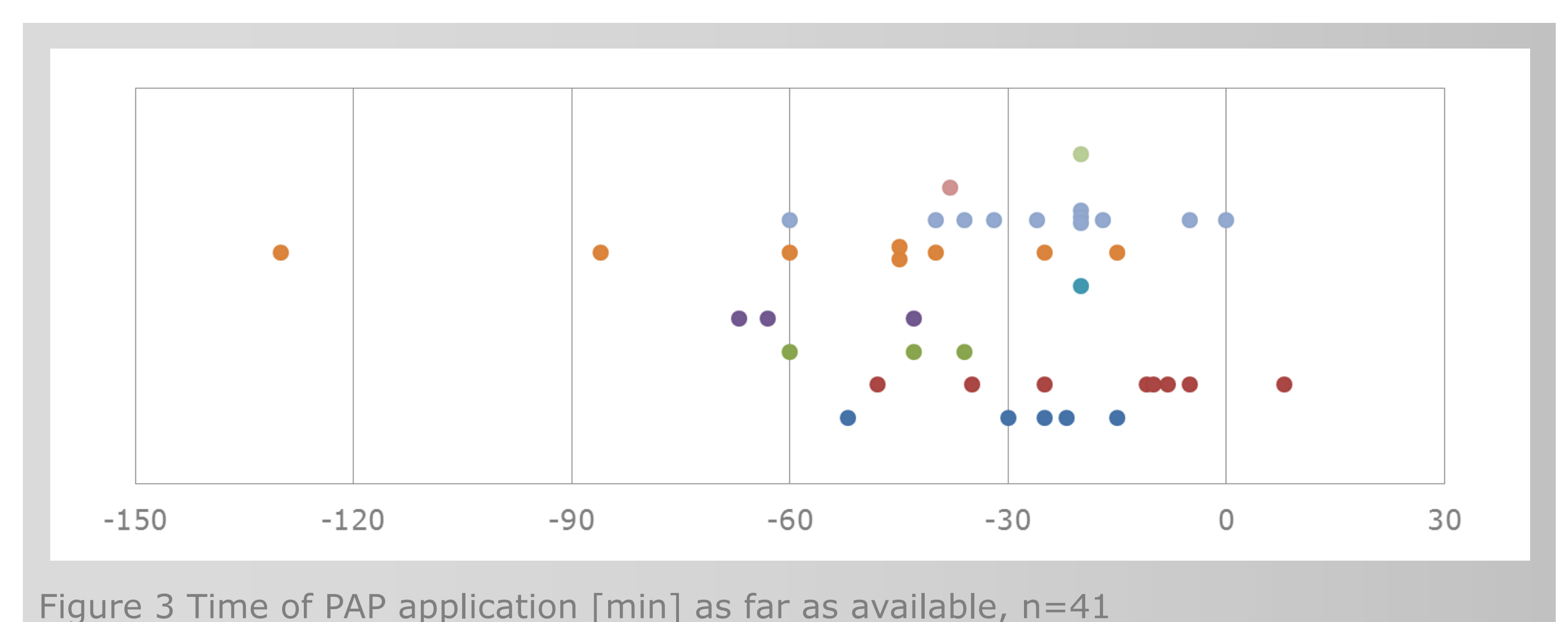


Figure 3 Time of PAP application [min] as far as available, n=41

Conclusion

The choice of antibiotics for PAP was predominantly in accordance with the hospital-wide guidelines. However, specific programmatic efforts are necessary to ensure the administration of PAP in the optimum time frame. Our study shows the need for continuing efforts to encourage anesthesiologists for the matter.