

C. Ierano^{*1,2,3}, R. Cheah^{1,4}, R. James¹ and K. Thursky^{1,2,5}

1. National Health and Medical Research Council Centre of Research Excellence: National Centre for Antimicrobial Stewardship (NCAS), Peter Doherty Research Institute for Infection and Immunity Melbourne, Victoria, Australia,

2. Department of Medicine, Royal Melbourne Hospital, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Parkville, Victoria, Australia

3. Pharmacy Department, Alfred Health, Melbourne, Victoria, Australia

4. Pharmacy Department, Monash Health, Clayton, Victoria, Australia

5. Department of Infectious Diseases, Peter MacCallum Cancer Centre, Melbourne, Victoria, Australia.

Key contact: cierano@student.unimelb.edu.au

Introduction

Surgical antimicrobial prophylaxis (SAP):

- leading indication for antibiotic use in hospitals
- high rates of **inappropriateness**^{1,2}

Topical antimicrobial prophylaxis (TAP)

- **Not recommended** in national guidelines³
- Exception for use in ophthalmological procedures
- Limited evidence for other applications of TAP **BUT** is considered 'common practice'

Identifying TAP use in surgical procedures represents a niche target for antimicrobial stewardship (AMS) programs⁴.

Methods

- Surgical National Antibiotic Prescribing Survey (**Surgical NAPS**)
 - SAP appropriateness assessed utilising a consensus-derived appropriateness framework
- Data collected January 2016 - December 2019
- Exclusions: TAP prescribed for ophthalmological procedures

Results

- **223 facilities** contributed to Surgical NAPS audits
- Total **27,762** prescriptions:
 - 19,283 procedural prescriptions
 - 8,479 post-procedural prescriptions
- TAP accounted for:
 - **1.8%** (n=348) of procedural SAP
 - **4.1%** (n=347) of post-procedural SAP

References

- 1) Melbourne Health. Surgical prophylaxis prescribing in Australian hospitals: Results of the 2017 and 2018 surgical national antimicrobial prescribing surveys. Melbourne, Melbourne Health; 2020. Available from: <https://irp-cdn.multiscreensite.com/d820f98f/files/uploaded/Surgical%20NAPS%20Public%20Report%202017-2018.pdf>.
- 2) Australian Commission on Safety and Quality in Health Care. Surgical National Antimicrobial Prescribing in Australia: Results of the 2016 Pilot. In: ACSQHC, ed. Sydney: Australian Commission for Safety and Quality in Health Care; 2017.
- 3) Antibiotic Expert Groups. Therapeutic Guidelines: Antibiotic. Melbourne: Therapeutic Guidelines Limited; 2019. Available.
- 4) Ierano C, Thursky K, Peel T, Rajkhowa A, Marshall C, Ayton D. Influences on surgical antimicrobial prophylaxis decision making by surgical craft groups, anaesthetists, pharmacists and nurses in public and private hospitals. *PLOS ONE*. 2019;14(11):e0225011. doi: 10.1371/journal.pone.0225011.

Results

Appropriateness

(n=577 prescriptions assessed)

- **General TAP (Topical)**
 - **16.3%** (15/92) procedural TAP
 - **26.1%** (88/337) post-procedural TAP
- **Peri-operative TAP (Topical- other)**
 - **29.7%** (38/128)

Common procedures

with low rates of appropriateness:

- plastic and reconstructive (**9.6% appropriate**)
- cardiac (**34.5%**)
- head and neck surgery (**22.5%**)

Post-operative TAP duration

- range: 1-36 days
- median= 5 days.

Figure 1. TAP Appropriateness per timing and route (n=557)

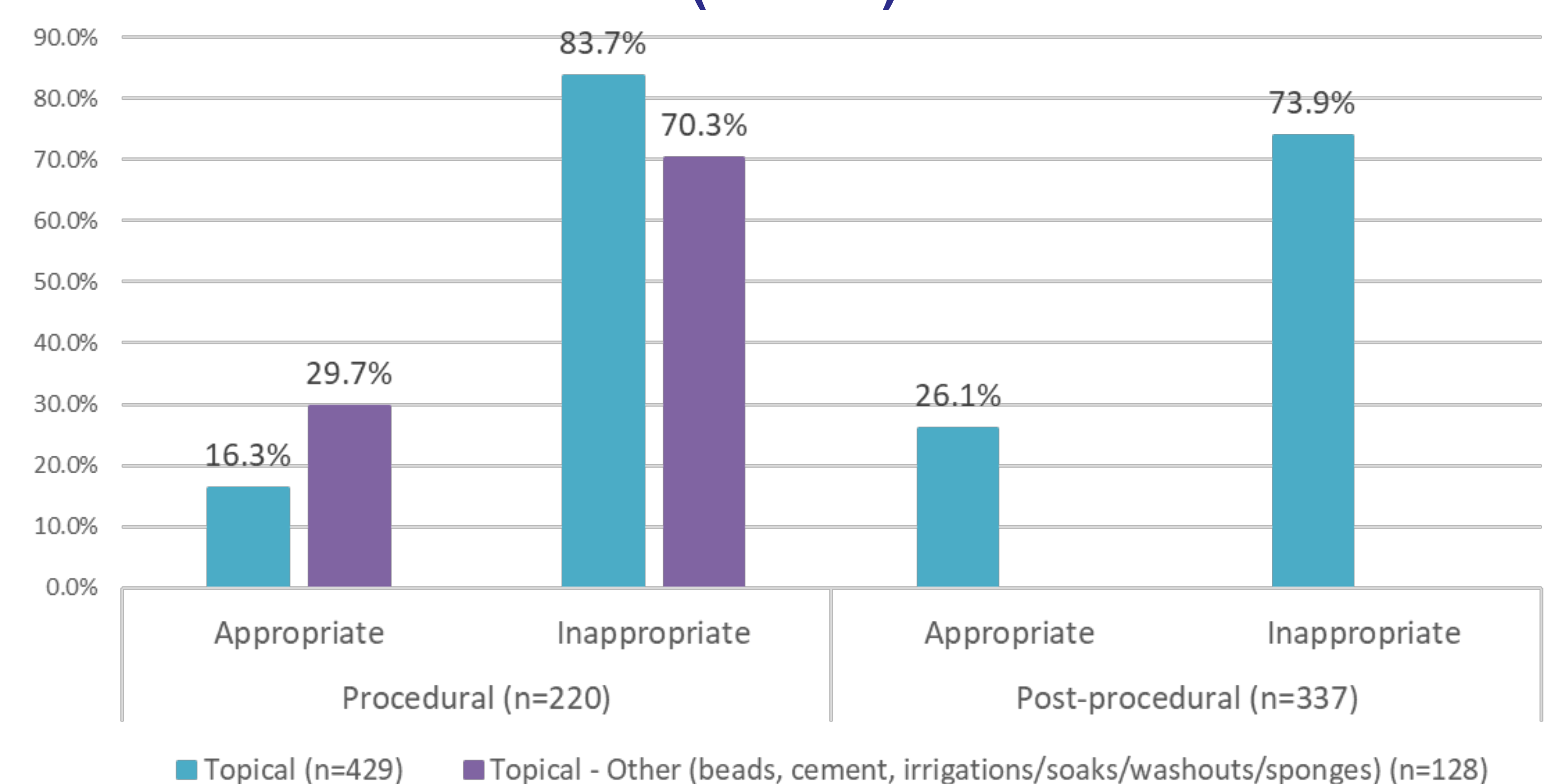


Figure 2. TAP Appropriateness per Surgical Procedure Group (n=548)

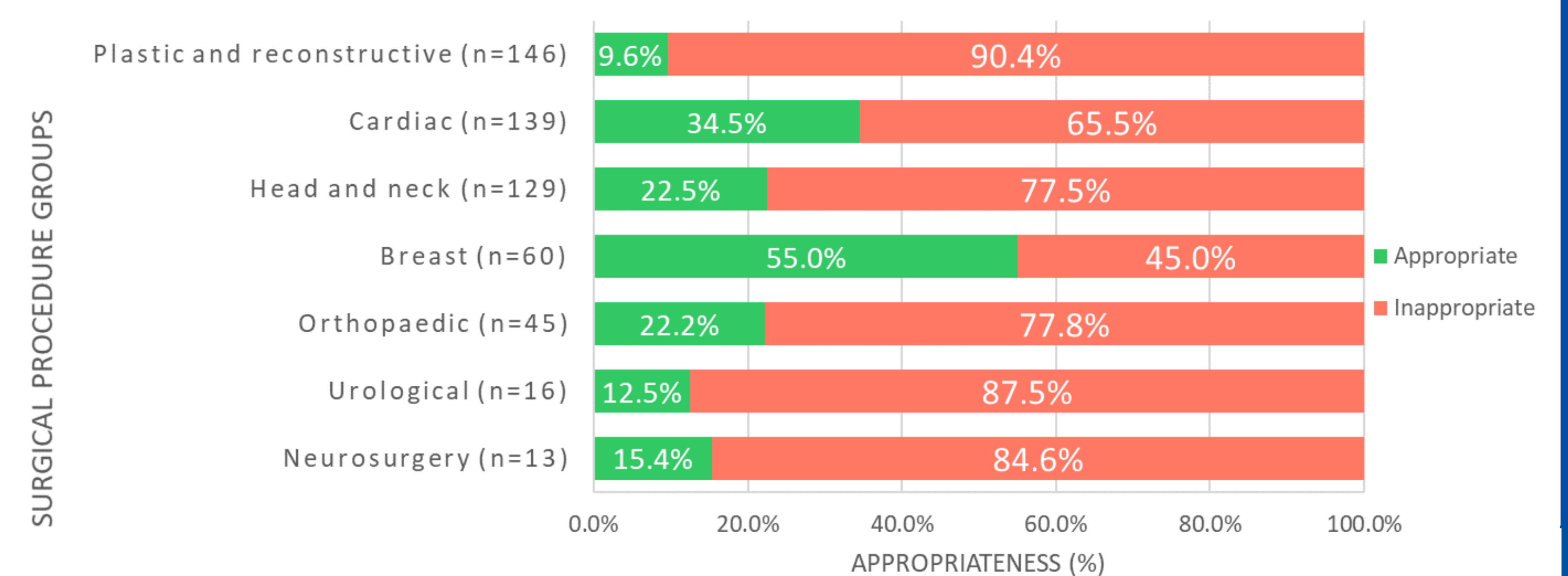
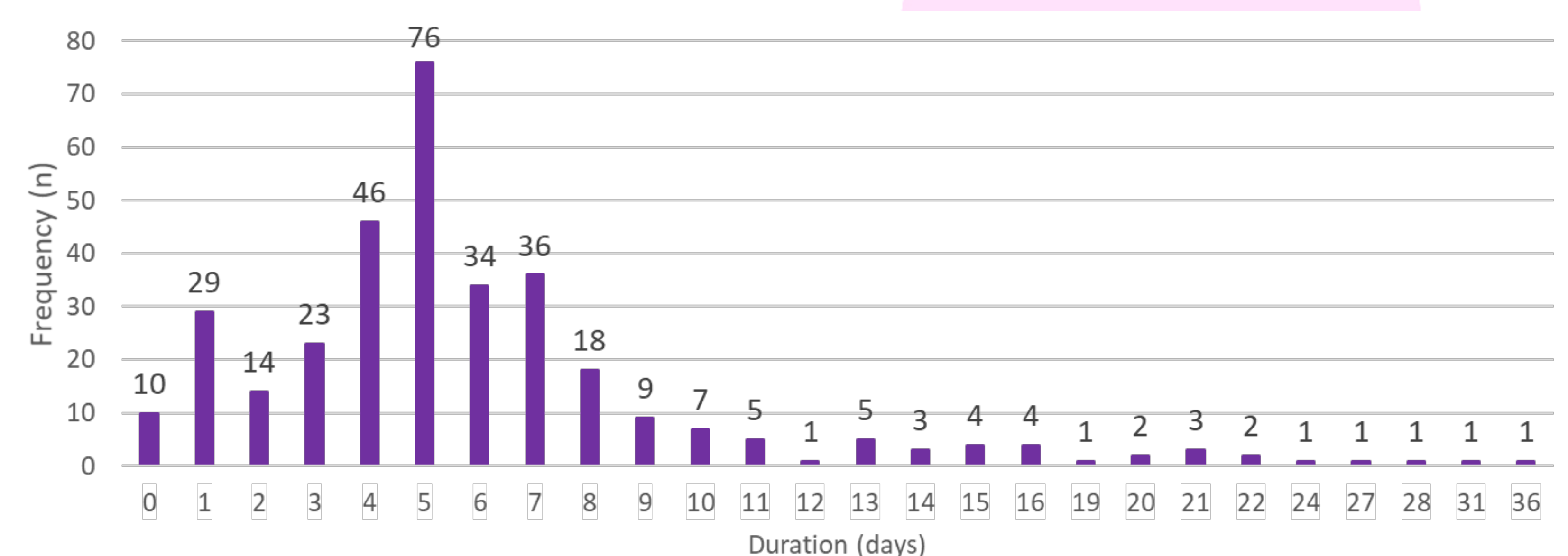


Figure 3. Post-operative TAP Duration



Summary

- Appropriateness of TAP is varied, yet **predominantly suboptimal** as it is not routinely recommended by Australian national guidelines (Therapeutic Guidelines)³.
- End users require support to collect further TAP data to facilitate ongoing analysis and intervention development.
- Identifying surgical procedures that commonly use TAP enables a **targeted approach** to developing AMS interventions to **optimize the use of TAP**.