



## Background:

Assessing antimicrobial prescribing in small Australian hospitals can be labour intensive and, whilst satisfactory for basic benchmarking purposes, provides too few data points to inform Antimicrobial Stewardship (AMS) quality improvement (QI) and clinical indicators. Traditional methodologies for small hospital antimicrobial prescribing audit concentrate assessment of prescriptions to early in the therapeutic course, limiting the ability to assess the quality of antimicrobial prescribing throughout a patient's inpatient journey.

## Method:

The most common infective principal diagnoses for small Australian hospitals were used to retrospectively identify prescriptions for audit. The PJPA method assessed the patient's prescriptions at three time points through the patient's therapeutic course: at 24hrs, 72hrs and final day or intended duration on discharge. These were defined the "Empiric" (assessed 8am on day two), "Review of Treatment" (assessed 8am on day four), and "Duration" (assessed 8am on the final day of therapy or on discharge script duration) assessments respectively. (See Figure 1) NAPS prescribing assessment definitions were used.

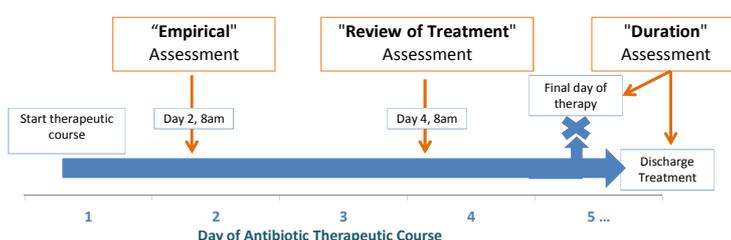
Assessments for the same identified patients were also made on a specific weekday (Tuesday in this instance) if admitted to comprise the "Once a Week" dataset.

Comparison between the PJPA and "Once a Week" methodology was performed against their abilities to statistically inform AMS QI & Clinical indicators (appropriateness of empirical prescribing, appropriateness of de-escalation of both route & spectrum, and appropriateness of duration). Time spent on both audit methods were estimated based on current and past experience. Indication spread was compared between PJPA and current recommended methodology for small hospitals, Repeat Point Prevalence (RPP) methodology.

## Aim:

We aimed to describe an alternative antimicrobial prescribing audit method, based on an adapted National Antimicrobial Prescribing Survey (NAPS) methodology, with view to increase validity of data for AMS QI indicators, whilst limiting additional resources required for audit. We defined this method as the Patient Journey Prescribing Assessment (PJPA).

Figure 1: Patient Journey Prescribing Assessment (PJPA) Method



## Results:

### Audit Time and Yield

The PJPA methodology identified a larger number of prescriptions and patients for inclusion and took less time to complete compared to the "Once a Week" methodology. (See Table 1)

Table 1: Methodology Time and Prescription Yield

	Methodology		% change vs Once a Week
	PJPA	Once a Week	
<b>Audit Time (hrs)</b>	42	54	-79%
<b>Patient episodes</b>	89	32	+278%
<b>Prescriptions assessed</b>	337	75	+449%

### AMS Quality Improvement and Clinical Indicator Assessment

PJPA methodology ascertained between 5 and 14 times more assessable prescriptions for each of the quality improvement and AMS clinical indicator data points, thereby increasing the statistical robustness of data compared to the "Once a Week" method. Only 75% of the prescriptions from the "Once a Week" methodology (55/75) could be used to inform Empiric, Review of Treatment or Duration quality indicators compared to 100% of the PJPA method (n=337) due to ad-hoc sampling days throughout therapeutic course in the "Once a Week" methodology. Review of Treatment was difficult to assess at all in the "Once a Week" method (4 versus 56 prescriptions). (See Table 2).

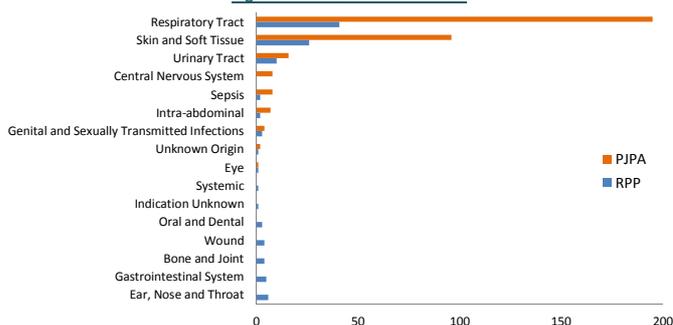
Table 2: Assessable prescriptions for AMS QI & Clinical Indicatory Analysis

AMS QI & Clinical Indicators	Methodology		% change vs Once a Week
	PJPA	Once a Week (assessable prescriptions)	
<b>"Empirical" Prescribing</b>	163	29	+562%
<b>"Review of Treatment" Prescribing</b>	56	4	+1400%
<b>"Duration" Prescribing</b>	118	22	+536%
<b>Compliance with Guidelines</b>	332	75	+443%
<b>Appropriateness of Prescription</b>	333	75	+444%
<b>Indication Documented</b>	337	75	+449%
<b>Review of stop date documented</b>	337	75	+449%

### Indication based Assessment

The indications represented by PJPA methodology in general were similar to those identified for the most common indications in RPP. Larger numbers of prescriptions were identified for the most common indications, allowing rigorous review of for QI purposes. The small number of indications captured by RPP that were not identified by PJPA did not allow for robust indication based assessment. (See Figure 2)

Figure 2: Indications identified



## Conclusion:

The PJPA methodology offers greater prescription ascertainment across all current AMS QI indicators with less resources required for audit compared to current methods, whilst preserving the ability to benchmark these indicators across organizations. PJPA represents a patient-centred approach to assessing antimicrobial therapy throughout a patients' inpatient journey and intended continuation upon discharge.