



# Antibiotics are go...

## Examining the time from prescription to administration in an acute medical unit

By: Patricia Wells, Annie-Rose Toms Whittle, Gabrielle Churchhouse

**Safety concern :** Early appropriate antibiotics are the key to improved sepsis outcomes

**AIM:** Ensure 80% of first dose antibiotics are given within 60 minutes of prescription on ACUC by March 2016

**Methods:** Identification of stakeholders and formulation of driver diagram with Plan Do Study Act (PDSA) cycle planning (see figure 1). Baseline line data taken from 2015 fab60/HAPPI audit. Proforma adapted and two key data collectors identified. Cycle 1 and Cycle 2 each audited over 1 week with daily data collection of all patients on Acute care unit C. Type of antibiotic and time difference from prescription to administration recorded.

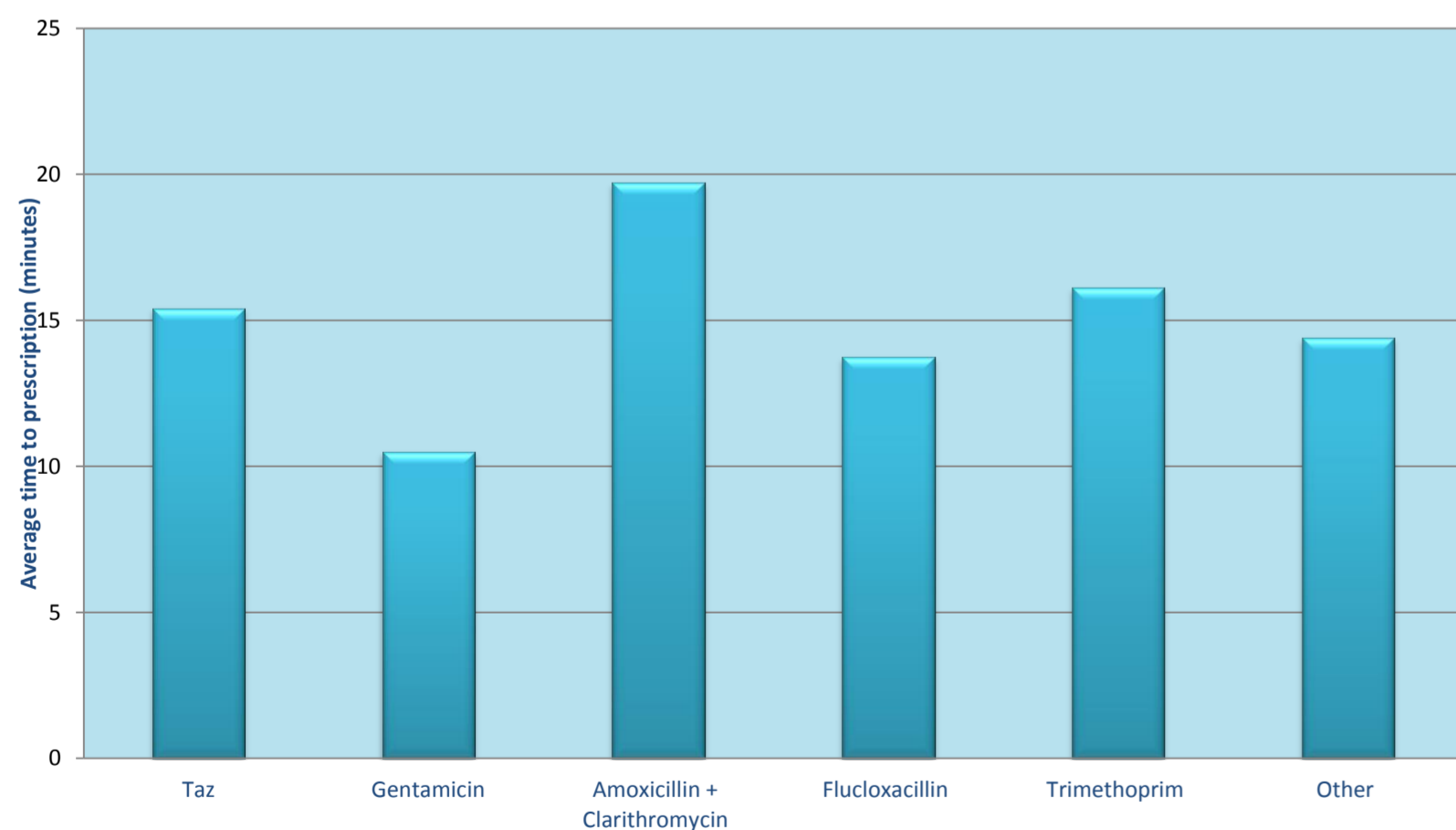
Data analysed using Excel and Run diagram developed. Additional data collected re 'Red Flag' sepsis on final data collection

**Results:** No significant difference found between antibiotic type and administration time (see figure 2). 89.1% of antibiotics had a time prescribed documented. 97.6% of these were administered within 60 minutes (see figure 3). This equates to 87.0% of all antibiotics recorded.

Primary Drivers	Secondary Drivers	Change Ideas
Prescription of antibiotics	Weight reliance	<ul style="list-style-type: none"> <li>Agreed STAT dose of gentamicin to avoid weight</li> <li>Weigh patient on admission to hospital</li> </ul>
	Drug chart	<ul style="list-style-type: none"> <li>Sepsis section on drug chart</li> </ul>
	Prescription of time	<ul style="list-style-type: none"> <li>Education</li> <li>Intranet flag with antibiotics guidelines</li> </ul>
	Communication of prescription to nursing staff	<ul style="list-style-type: none"> <li>Education</li> <li>Sepsis tray/board</li> </ul>
	Motivation	<ul style="list-style-type: none"> <li>Daily update/ encouragement at handover</li> </ul>
Making Up IV antibiotics	X 2 trained person available	<ul style="list-style-type: none"> <li>Staffing levels</li> <li>Junior Dr training for administering IV antibiotics</li> </ul>
	Understanding of urgency	<ul style="list-style-type: none"> <li>Education</li> </ul>
	Time for reconstitution	<ul style="list-style-type: none"> <li>Pre made Antibiotics</li> </ul>
Administration of IV antibiotics	Cannula	<ul style="list-style-type: none"> <li>Check list on prescription</li> <li>Reminder on sepsis board</li> </ul>

Figure 1: Driver diagram , Plan Do Study Act cycles identified by numbered markers

Figure 2: Average time from prescription to administration by antibiotic type



### Conclusion

- >80% of patients on ACUC received antibiotics within 60 minutes
- Type of antibiotic no affect on time
- Limited room for significant improvement
- Need to focus on identification of sepsis
- Importance of stakeholders

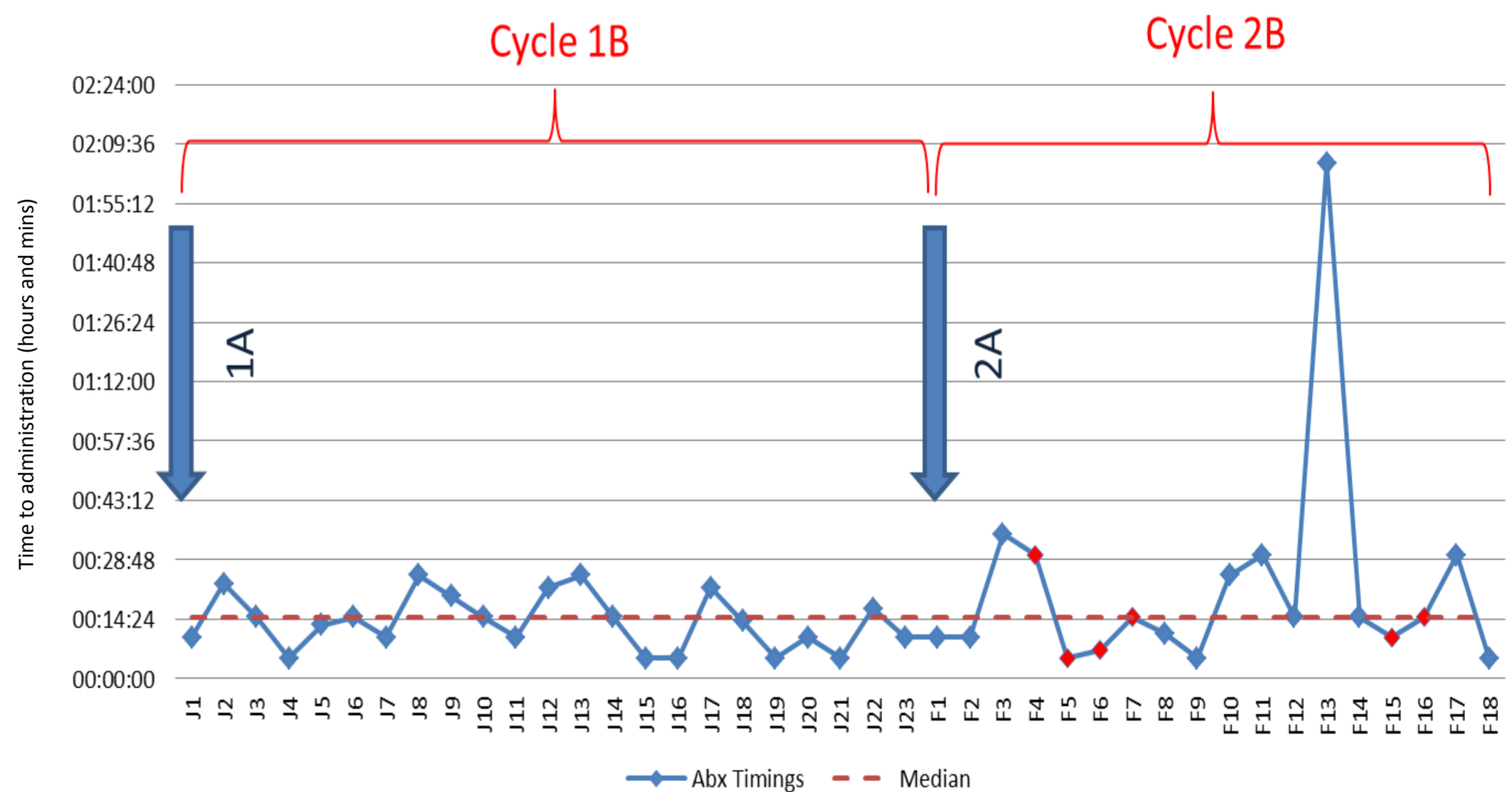


Figure 3: Run chart showing the time in hours and minutes from prescription of stat antibiotic to administration. Red points show cases of red flag sepsis. Annotated with timings of PDSA cycles

### Next Steps

- Address final areas on driver diagram: Intranet flag reminder, sepsis section on drug chart, cannula delays
- Re focus the aim
- Emergency department and Red flag sepsis

Preliminary data: 9/24 February data had red flag sepsis, 3/9 given antibiotics within 1hr of arrival.

Triage nurses

- Expand to examine general ward setting

### References and acknowledgements

1. Dellinger RP, Carlet JM, Masur H, et al: Surviving sepsis campaign guidelines for management of severe sepsis and septic shock. *Crit Care Med* 2004; 32:858-873
2. Kumar et al. Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med*. 2006 Jun;34(6):1589-96.

With thanks to Dr Candish, Alex Purcell and the pharmacy team for all their help