Antimicrobial shortages and the impact on the Richmond/Clarence HSG

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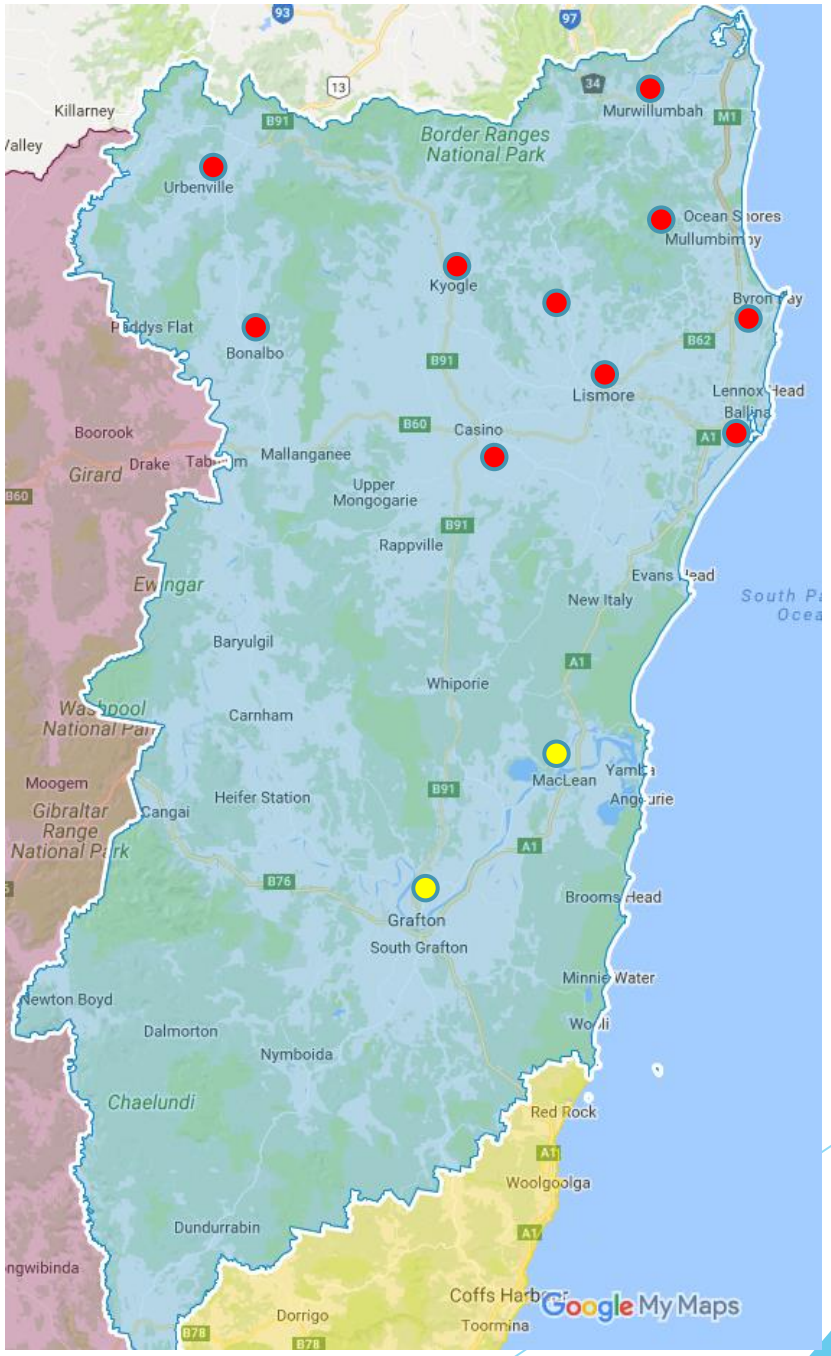
Richmond/Clarence Overview

- Northern NSW LHD
- Amalgamation of 2 HSGS: Clarence and Richmond
- Encompasses 9 Hospitals:
  1. Grafton Base Hospital
  2. Lismore Base Hospital
  3. Casino & District Memorial Hospital
  4. Nimbin Multi purpose centre
  5. Bonalbo Hospital
  6. Kyogle Memorial Hospital
  7. Maclean District Hospital
  8. Urbenville Rural Hospital
  9. Ballina Hospital
- Home to the Bundjalung Nation

Our distribution structure

- Centralised out of Two Base Hospitals
  - Lismore Base Hospital
  - Grafton Base Hospital



Recent Antimicrobial Shortages of concern to Richmond/Clarence

1. Ampicillin/Amoxycillin
2. IV Vancomycin
3. Piperacillin/Tazobactam
4. IV Aciclovir
5. IV Fluconazole
6. IV Metronidazole
7. Po Metronidazole
8. IV Azithromycin
9. Daptomycin
10. Amikacin
11. Tigecycline
12. Norfloxacin

Advantages of Antimicrobial shortages

- Rationalisation of Antimicrobials
  - 22% of Antimicrobial usage in Australian Hospitals is inappropriate (NAPS 2015)
- Utilisation of more narrow spectrum agents
  - Only when Broad spectrum therapy unavailable
- Utilisation of more effective agents
- Changes in Epidemiology/ sensitivity changes
  - Eg Decrease in c diff rates during Piperacillin/Tazobactam shortage (Mendez et al . 2006)

Disadvantages of Antimicrobial shortages

- Increased costs
  - Analysis Premier Healthcare Alliance found shortages cost US$200 million annually (Antimicrobials account 13% - 20%)
- Utilisation of less effective treatments
- Utilisation of potentially toxic therapies
  - eg: Gentamicin
- Utilisation of more broad spectrum therapies
  - “Squeezing the balloon”
- Epidemiology/sensitivity changes

Planning and actioning the shortages

- Wide distribution network - needs to be robust
- Cost effective solutions
- All involved: AMS committee, Pharmacy, Procurement, Nursing staff and Medical Officers

1. Reviewing usage
    1. Is the shortage of concern?
    2. **NB: Usage will decrease during shortage due to awareness and essentially rationing eg: Metronidazole IV usage halved during shortage in RCHSG**
    3. Expected duration of the shortage
        1. Stock on hand
2. Sourcing alternatives/stock
    1. Brand or SAS product available
    2. Cost
    3. Placing back orders
3. Controlling/Regulating use
    1. Removal from imprest
    2. Placing restrictions on use

Planning and actioning the shortages

4. Communication
    1. Raise awareness through:
        1. Global emails
        2. Relevant committees
        3. Signage at stock holdings
    2. Avoid recommending “Blanket alternatives”
        1. Encourages off guideline prescribing
        2. Develop interim local guidelines
    3. Liaise and update relevant advisory groups
        1. CEC, NCAS, TAG
5. “Trimming the fat” / governance during Antimicrobial shortage
    1. Review appropriateness:
        1. Piperacillin/Tazobactam 19.9% inappropriate, IV Azithromycin 33.6% inappropriate, Vancomycin 18.9% inappropriate
        2. Most common reasons for inappropriate use:
            1. Empiric choice to broad/ Failure to de-escalate to Microbiology
            2. Duration excessively long

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Table 4: What action did you take because of the shortage?

Borrowing stock from another pharmacy	1%
Use second/third line medicines	6%
Use an alternative medicine of equal efficacy	7%
I have no alternatives	12%
Procuring stock through SAS	13%
Switch to a different dose form/strength	15%
Using emergency stock	20%
Using an alternative brand	26%

Table 5: Action taken for most common medicines shortages

Procuring stock through SAS	20.2%
Use an alternative medicine of equal efficacy	6.5%
Using an alternative brand	17.8%
Use second/third line medicines	5.7%
Using emergency stock	31.0%
Switch to a different dose form/strength	10.9%
Borrowing stock from another pharmacy	1.1%
I have no alternatives	6.8%

Table 6. Did this action increase costs?

Yes	51%
No	37%
N/A	13%

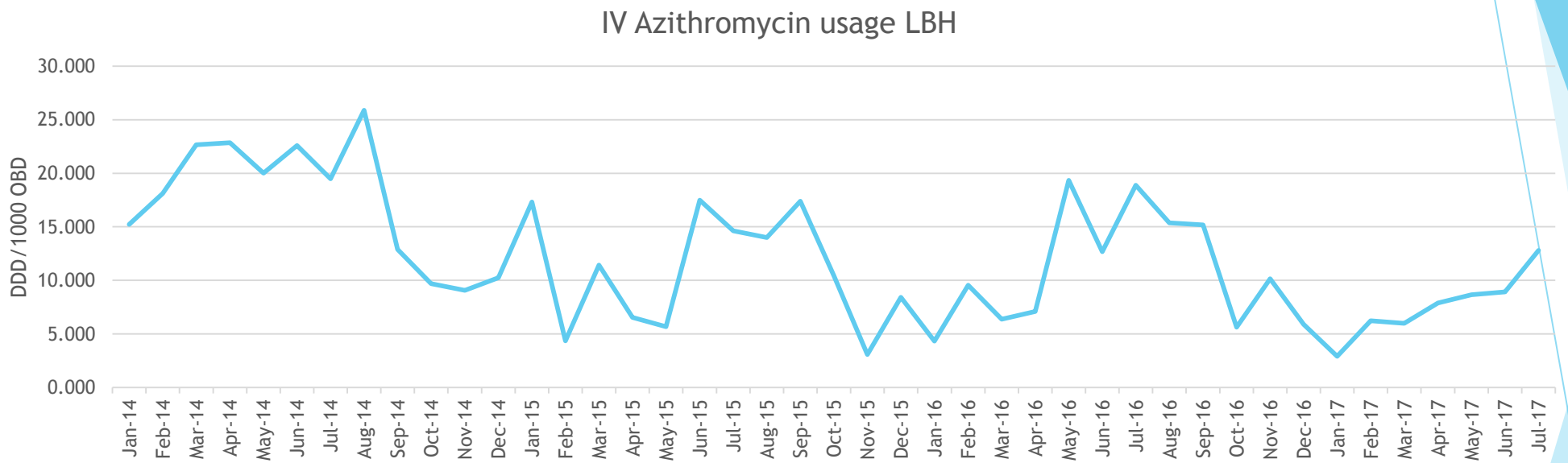
Impact on our Antimicrobial Stewardship Program

- Positive effects
  - AMS involvement in initial prescribing.
    - “What Antimicrobial would you suggest then?”
  - Reduction in inappropriate use
    - 25-26% of all Antimicrobial prescribing is inappropriate in Richmond/Clarence area
    - Gave us control over one “Green” antimicrobial: Metronidazole
  - Adherence to guidelines
  - Increased use of oral agents
  - Potential long term prescribing change
    - “All our patients didn’t die without IV Azithromycin”
  - Reductions in treatment duration
    - Transition to oral sooner
  - Increase in Microbial yield to direct therapy
    - Reluctance to commence patients on antimicrobials until necessary, thus we actually cultured something

Impact on Antimicrobial Stewardship Program

- Negative effects
  - Increase in costs
    - Metronidazole 300%
    - NB: Formulary transitional period, so costs difficult to compare
  - Increased labour
    - Sourcing alternatives
    - Recommending alternatives
  - Restriction associations
    - Metronidazole off imprest (difficult to overcome as Nursing saw this as an act of stewardship, to inconvenience them)
    - SAS forms

IV Azithromycin example



- During the period of shortage inappropriate use dropped 4.0% at LBH