Antimicrobial Stewardship in Practice

Lydia Scott
Joshua Lumby

WACHS Kimberley

Kimberley Regional Physician Team 2017

Consultants

Jaye Martin

Christian Brincker

Lloyd Nash

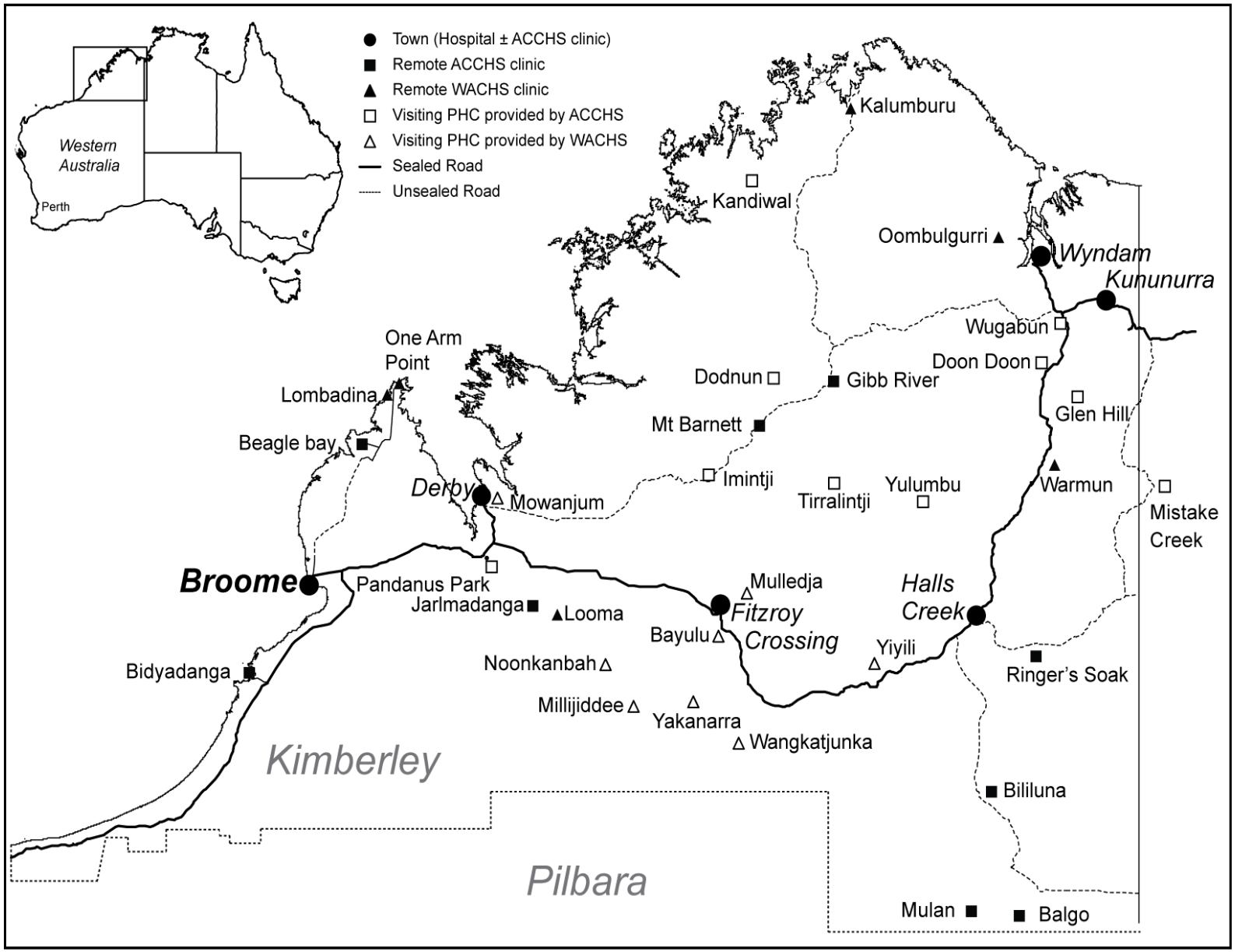
Lydia Scott

Registrars

Sarah Straw
Feb-July

Eliza Briggs
Aug-Jan

On call physician: via Broome Hospital switch 08 9194 2222


Western Australia
Perth
Town (Hospital ± ACCHS clinic)
Remote ACCHS clinic
Remote WACHS clinic
Visiting PHC provided by ACCHS
Visiting PHC provided by WACHS
Sealed Road
Unsealed Road
Kalumburu
Kandiwal
Oombulgurri
Wyndam
Kununurra
Wugabun
Doon Doon
One Arm Point
Dodnun
Gibb River
Lombadina
Glen Hill
Mt Barnett
Beagle bay
Imintji
Yulumbu
Warmun
Derby
Mowanjum
Tirralintji
Mistake Creek
Broome
Pandanus Park
Mulledja
Halls Creek
Jarlmadanga
Looma
Fitzroy Crossing
Bayulu
Yiyili
Noonkanbah
Ringer's Soak
Bidyadanga
Millijiddee
Yakanarra
Wangkatjunka
Kimberley
Bililuna
Pilbara
Mulan
Balgo

Regional AMS Activity

- Regional AMS committee
- Prescriber updates
- NAPS and SNAPS audits
- Regional AMS prescriber survey
- Consumer education
- Inpatient AMS rounds

Broome Hospital AMS Rounds

- Pharmacist, physician/RMD, JMO
- Biased selection
- Review 1-3 current cases
- Using standardised appropriateness definitions
- Weekly email to prescribers

INTEGRATED PROGRESS NOTES

WARD _____

DOCTOR _____

DATE & TIME	ALL ENTRIES MUST BE SIGNED AND DESIGNATED
7/12/16 1200	**ANTIMICROBIAL STEWARDSHIP ROUND** [WILLSON, OLIVER, CARROLL]

Problem (R) submandibular swelling + fever → presumed odontogenic infection

Allergies NKDA

Weight

Creat 61
eGFR >90
CrCL —

Antibiotic history

	dose	started - ceased
METRONIDAZOLE	500mg IV Q12H	6/12 - to date
BENZYLPEN	1.2g IV Q6H	6/12 - to date

Abn LFTs

Microbiology/WBC/CRP

No micro available
No dental drainage as yet

Therapeutic Guidelines recommendation

DEEP ODONTOGENIC INFN WITH POSSIBLE AIRWAY COMPROMISE

⇒ METRONIDAZOLE 500mg IV Q12H
BENZYLPEN 1.2g IV Q6H

Appropriateness of antibiotic choice

(1) OPTIMAL
- antibiotics as approved by TG.

Recommendations

(1) De-escalate to oral as soon as tolerating food + drink
→ PENICILLIN V 500mg PO Q6H

(2) Needs source control of dental treatment.

HOSPITAL NAPS National Antimicrobial Prescribing Survey

Appropriateness definitions

GUIDANCE | NCAS

			If endorsed guidelines are <u>present</u>	If endorsed guidelines are <u>absent</u>
Appropriate	1	**Optimal**[1]	Antimicrobial prescription follows either the Therapeutic Guidelines[2] or endorsed local guidelines *optimally*, including antimicrobial choice, dosage, route and duration[3]	The antimicrobial prescription has been reviewed and endorsed by an infectious diseases clinician or a clinical microbiologist **OR** The prescribed antimicrobial will cover the likely causative or cultured pathogens ***and*** there is not a narrower spectrum or more appropriate antimicrobial choice, dosage, route or duration[3] available
	2	**Adequate**	Antim crobial prescription does not optimally follow the Therapeutic Guidelines[2] or endorsed local guidelines, including antimicrobial choice, dosage, route or duration[3], however, is a ***reasonable*** alternative choice for the likely causative or cultured pathogens **OR** For surgical prophylaxis, as above ***and*** duration[3] is less than 24 hours	Antimicrobial prescription including antimicrobial choice, dosage, route and duration[3] is not the most optimal, however, is a ***reasonable*** alternative choice for the likely causative or cultured pathogens **OR** For surgical prophylaxis, as above ***and*** duration[3] is less than 24 hours
Inappropriate	3	**Suboptimal**	There may be a mild or non-life-threatening allergy mismatch **OR** Antimicrobial prescription including antimicrobial choice, dosage, route and duration[3], is an ***unreasonable*** choice for the likely causative or cultured pathogens, including: • spectrum excessively broad or an unnecessary overlap in spectrum of activity • failure to appropriately de-escalate with microbiological results	
	4	**Inadequate**	Antimicrobial prescription including antimicrobial choice, dosage, route or duration[3] is ***unlikely*** to treat the likely causative or cultured pathogens **OR** An antimicrobial is not indicated for the documented or presumed indication **OR** There may be a severe or possibly life-threatening allergy mismatch, or the potential risk of toxicity due to drug interaction **OR** For surgical prophylaxis, the duration[3] is greater than 24 hours (except where local guidelines endorse this)	
	5	**Not assessable**	The indication is not documented and unable to be determined from the notes **OR** The notes are not comprehensive enough to assess appropriateness **OR** The patient is too complex, due to multiple co-morbidities, allergies or microbiology results, *etc.*	

AMS round 24.5.17

Oliver, Stefanie

Sent: Wed 24/05/2017 2:21 PM

To: Andrews, Fintan; Leslie, Richard; Hellberg, Kai; Atkinson, Bradley; Berger, David; Hailes, David; Woodward, David; Forster, David; Levy, Yehuda; Ng, Kevin; Harris, Alex; Faa, Antony; Parker, Casey; Chapman, Ralph; Taverner, Gareth; Hanekamp, Wijnand; Cush, James; Thompson, Melanie (Broome Hospital); Cleland, Gavin; Nemba, Kuria; De La Lande, Maya; Hughes, Elystan; Phillips, Sue (BHS SMO); Gaskell, David (RMD - Kimberley); Quin, Eileen; Lumby, Joshua; Wilson, Penny; Loh, Wey; Morlet, Oscar; Bird, Carol; Melvin, Zebadiah; EK SMO; Gawn, Chris

Cc: Carroll, Jackson; Finnigan, Roy; Perry, Nikki (Broome); Scott, Lydia; Brincker, Christian; Straw, Sarah

Message | AMS round 24.5.17.pdf (963 KB) | Appropriateness definitions NAPS.pdf (724 KB) | staph bacteraemia WAIDPG guidelines.pdf (105 KB)

Dear all

AMS cases for today;

1.	Abdo pain, febrile ?appendicitis/HAP	Appropriate: 1) Optimal for both
2.	Severe cellulitis	Inappropriate: 4) Inadequate

For more detail on each case please see attached.

KEY POINTS

1. Just a reminder that vancomycin doses should be calculated using actual body weight.

For more information or any feedback please contact myself or other AMS round members for today, Dr Sarah Straw, Dr Christian Brincker (case 1 only).

Kind regards,

Stefanie Oliver
Senior Regional Clinical Pharmacist
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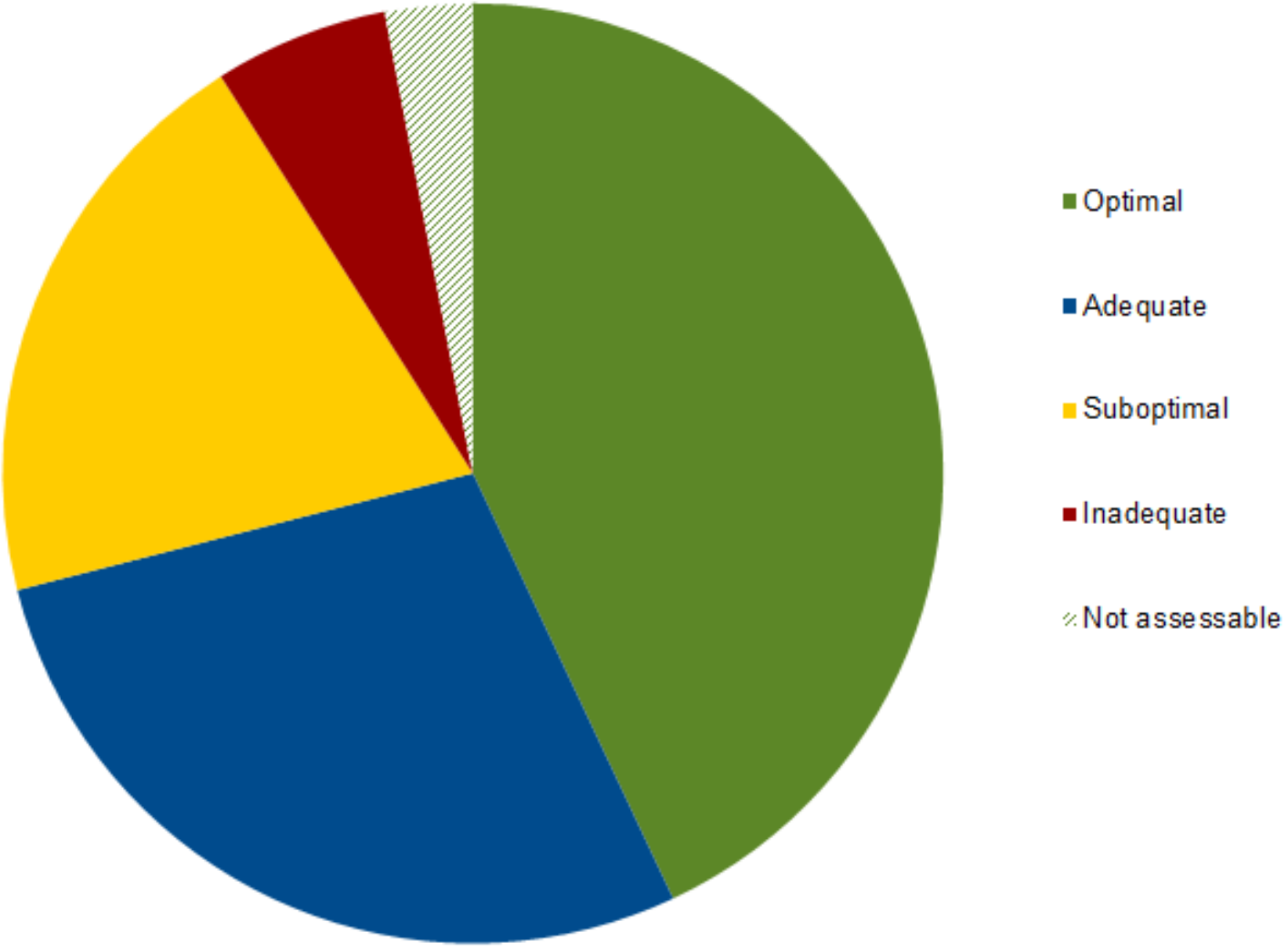
T: (08) 9194 2820 | F: (08) 9194 2824
E:Stefanie.Oliver@health.wa.gov.au
www.health.wa.gov.au

Response

- Good participation
- Engagement with email communication
- Provokes discussion
- “The weekly slap on wrist”
- Adapting for other sites
  - Pharmacy staff availability
  - Increased proportion of transient medical staff
  - Outpatient prescribing
  - Community prescribing

Diagnosis	Optimal	Adequate	Suboptimal	Inadequate	Not assessable	Total
Severe CAP tropical	2	5	1	1		9
Moderate CAP tropical	4	2	1			7
Mild CAP tropical	1					1
Severe CAP	1					1
Moderate CAP	3	1				4
Sepsis source unknown		2	3			5
Infective exacerbation of COAD	2	1	1	1		5
Osteomyelitis	1					1
Preseptal orbital cellulitis	1					1
Peritonitis/perforated viscus		1	1			2
Diabetic foot infection	4	1		3		8
Meningitis	3					3
Deep odontogenic infection with airway compromise	1					1
Sepsis respiratory cause		1				1
Severe cellulitis	2	2	2	1		7
Sepsis abdominal cause	1				2	3
Cholecystitis		2	1		1	4
Aspiration pneumonia	1					1
Boils	1	2	1			4
HAP	1	1	2			4
PID	2					2
Severe otitis externa		1				1
Appendicitis	1	1	1			3
Severe UTI	2	1	2			5
Febrile neutropenia	1					1
Sepsis skin source	3	1	1			5
recurrent impetigo (CHAMP guideline)	1					1
Presumed staph bacteraemia (WAIDPG guidelines)	1	1	1			3
Localised skin infection/mild-moderate cellulitis	1		1			2
Epididymo-orchitis	1					1
Bacterial gastroenteritis	1					1
Sepsis presumed urinary source		1	1			2
Severe contaminated wound		1				1
	43	28	20	6	3	100


Optimal
Adequate
Suboptimal
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Sepsis presumed urinary source		1	1			2
Severe contaminated wound		1				1

Recurring key messages

- Consider tropical infections and guidelines
- Dose adjust in renal impairment. Monitor for renal deterioration
- Document rationale for antibiotic selection
- Remember appropriate tests for melioidosis if considering melioid cover

Collated key messages

- Due to increasing rates of resistance among antibiotics used to treat skin infections in the region preservation of our antibiotics is needed. Please be mindful of this when choosing antibiotics for empirical therapy.
- While Vancomycin dosing has improved significantly we are still waiting for a WAHCS approved Vancomycin guideline. Don't forget to monitor renal function daily, and watch for changes in normal creatinine values even if creatinine is still within range.
- For penicillins always consider oral ABs over IV therapy when a patient is able to swallow.
- In patients with undifferentiated fever and otherwise stable, it is reasonable to 'watch and wait' while awaiting cultures rather than initiating IV therapy.
- To sum up the year thanks and well done to everyone for appropriate antibiotic choices, reflected in today's results.
- Don't forget to continue the good work - follow the guidelines, take as many cultures as possible and document clearly the
- Note that in both cases antibiotics were changed to an appropriate choice during admission on the respective wards. The above reflects antibiotics prescribed on initial presentation. (Refer to each case).
- There is no additional therapeutic benefit of pip/taz over 1st line triple therapy of gent/amox/metronidazole for query appendicitis, and in cases where there is no actual gentamicin contraindication.
- This is a timely reminder that wet season is upon us and tropical pathogens are more common, so the tropical guidelines for CAP are recommended.
- In treatment for CAP covering for melioidosis (i.e. tropical CAP guidelines with risk factors) a request for specific cultures is recommended.
- Just a reminder that vancomycin doses should be calculated using actual body weight.
- Keep up the good work!

- In bone and soft tissue infections with persistent fevers or poor clinical improvement despite appropriate cover with broad-spectrum IVABx, further investigation for deeper seated infection rather than continuing broadening of antibiotics (e.g. MRI, bone scan) should be considered.
- A reminder that clear documentation regarding clinical diagnosis and severity, and subsequent rationale for AB choice, assists greatly in continuity of care during admissions and for step down oral AB choice.
- Remember to dose adjust meropenem in renal impairment, depending upon the severity of impairment.
- Remember when deciding to prescribe meropenem (as per wet season guidelines for CAP in tropical regions), melioid cultures should be done at the time of this decision. That is, culture every fluid with a specific request for melioid.
- For case 1, well done to the prescribing doctor for documented consideration of individual and local factors as well as eTG in influencing empirical antimicrobial choices.
- For acute exacerbations of asthma/COPD chest x-ray will be definitive in differentiation of pneumonia complicating presentations and subsequent choices of antibiotics.
- Not all presenting cellulitis requires MRSA cover, it is dependent upon previous MRSA infection/history in individual patient AND/OR sepsis risk.
- Remember to consider tropical CAP guidelines in at risk people as per eTG, especially in wet season.
- Just a reminder to always check if antibiotics need dose adjustment in renal impairment, and to maintain routine monitoring of renal function whilst an inpatient in order to adjust antibiotic doses if renal function changes. Guidelines for dose adjustment in renal impairment can be found in eTG (Antibiotic/Renal Impairment and Antimicrobial dosing); Renal Drug handbook (hardcopy); Renal Drug Database (online WACHS library); AMH.
- Appropriate consideration was given to the decision to follow tropical guidelines and take required cultures for case 2, due to the wet season recently experienced. There is no formal cut off between wet and dry season with respect to using tropical guidelines.
- Clear documentation for suspected diagnosis, indication for ABX and rationale by admitting Dr in both cases made this round much easier – thankyou!

Other AMS round observations

- Documentation
- Tropical CAP confusion
- Transient staff
- ?fear of gentamicin
- Missing enterococcus
- Confusion over MRSA (when/how to cover)

Other AMS observations

- Vanc toxicity: 4 cases in 18mths
  - Baseline good creatinine without AKI/CKD history
  - Renal monitoring (inc clinically)
  - 1 in combo with taz
  - Awaiting WACHS guideline endorsement

Regional AMS