

Infection Control: Is it worth Screening for MRSA?

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8 September 2011

FIDSSA Congress

Contact Transmission in Healthcare Facilities

Patient 1

Healthcare Worker

Patient 2

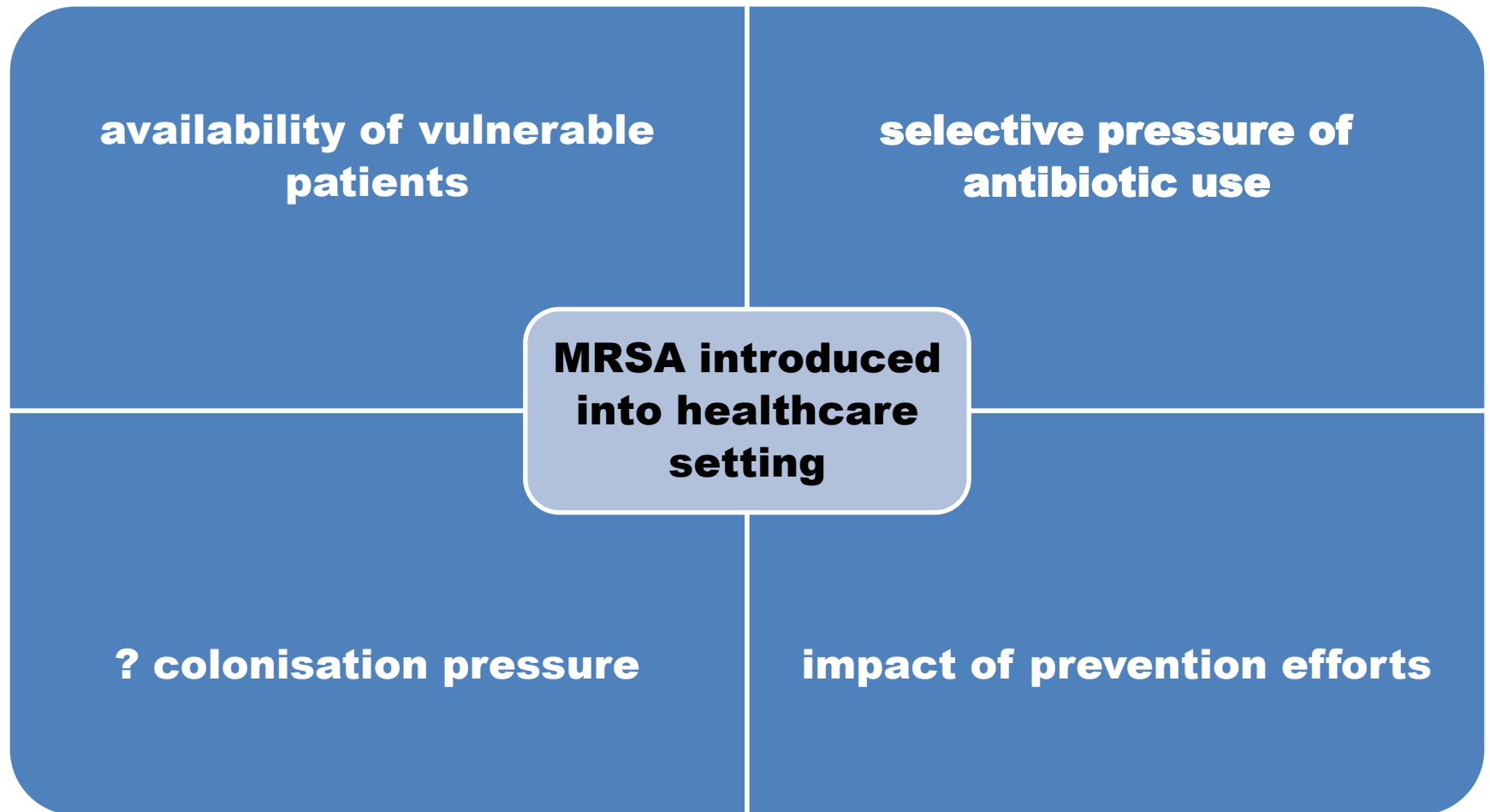
- cohorting of staff
- rates of contact between HCWs and patients
- adherence to hand hygiene
- pathogen colonisation pressure

Pathogen Colonisation Pressure

Supported by 2 principal epidemiologic findings:

- **Higher colonisation rates increase the risk of transmission of MRSA between patients**
- **MRSA colonisation is a significant risk factor for developing subsequent infection with MRSA**

Transmission and Persistence in Health Care Facilities



**Which of the 4 does screening
by active surveillance cultures
address?**

colonisation pressure

But Is Active Screening Cultures the Answer ?

- **Premise:**
 - **to detect patients who are colonised with MRSA and isolate from other patients**
- **Goal:**
 - **?prevention of transmission**
 - **?prevention of infection**

To screen or not to screen ?

- **Who is to be screened ?**
- **What method will you use to screen?**
- **Which organisms to screen for?**
- **Which sites to sample?**
- **When to screen?**
- **How frequently to screen?**
- **How will results be communicated to the HCW?**
- **What interventions will be undertaken based on results?**

ASC and Interventions ?

Screening

screening and
isolation

screening,
isolation and
decolonisation

In addition:

- Increase in staff: patient ratio
- Increased space between beds
- Increased adherence to hand hygiene protocols
- Increased staff education

Studies

- **most report at least 5 interventions and ASC**
 - **complicates interpretation of value of specific interventions**
- **sampling sites**
 - **nose vs throat vs perineum vs all**
- **interventions**
 - **isolation**
 - **mupirocin**
 - **chlorhexidine**
 - **vancomycin**

‘Success Stories’

- **The Netherlands, Belgium, Denmark, other Scandinavian countries**
 - **implementation of aggressive and sustained infection control interventions**
 - **preemptive use of contact precautions upon admission until proven culture negative**
 - **ASC**
 - **reported reduced rates of MRSA transmission**

Eradication of Endemic MRSA in 2 NNICUs

- **ICU 1:**
 - **ASC**
 - **contact precautions**
 - **improved surveillance**
 - **improved attention to recommended practice**
 - **reduction in overcrowding**

- **ICU 2**
 - **ASC**
 - **contact precautions**
 - **surgical face mask**

Systematic Review

- **20 papers included of 2578 reviewed**
 - **1955 through Sept 2007**
- **study design**
 - **no randomised controlled trials**
 - **16 observational studies**
 - **only 2 with control group**
- **none ‘good quality’**
 - **‘fair’**
 - **uncontrolled study design**

Concluded that:

- **ASC reduces incidence of MRSA infections**

BUT

- **overall quality of evidence is poor**
- **reduction of infection may be due to other interventions**
- **definitive evidence-based recommendations cannot be made**

ASC for MRSA at admission

- **Tacconelli *et al.* Lancet ID 2009; 9: 546-54**
- **Systematic review and meta-analysis**
 - **heterogeneity of available evidence**
 - **costly**
 - **policymakers should be aware of limitations**

Universal Screening vs Targeted Screening

- **ethical issues**
 - **compromised health care vs benefit to patient**
 - **universal screening of pxs vs staff**

Adverse Effects of Isolation

- **additional costs**
- **reduced frequency of visits by HCWs**
- **anxiety**
- **depression**
- **higher rates of bedsores and falls**
- **increased antibiotic (mis)use**

Healthcare workers: source, vector, or victim of MRSA

- **Albrich and Harbath. Lancet ID 2008;8:289-301**
- **Review of 127 studies Jan 1980 to March 2006**
- **Risk factors**
 - **poor hygiene**
 - **chronic skin disease**
 - **previously worked in endemic countries**
- **Transmission to patients**
 - **93% of studies**

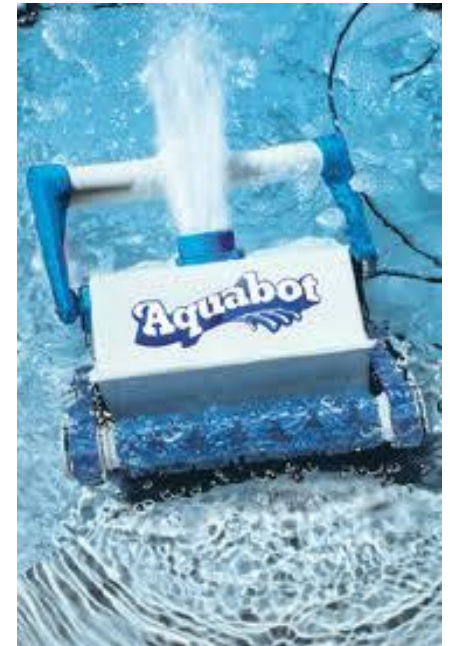
Legislation for MRSA (ARO)

- **In SA: None**
- **US:**
 - **Society for Healthcare Epidemiology of America**
 - **2003 guidelines for MRSA detection**
 - **supports ASC plus other basic IPC measures**
 - **The Centre for Disease Control and Prevention**
 - **more conservative -2nd tier intervention**
 - **after basic primary interventions**

The Prototype Poolcleaner

Kreepy Krauly





Baracuda Pool Cleaners

Baracuda Pool Cleaners
-the best on the market!





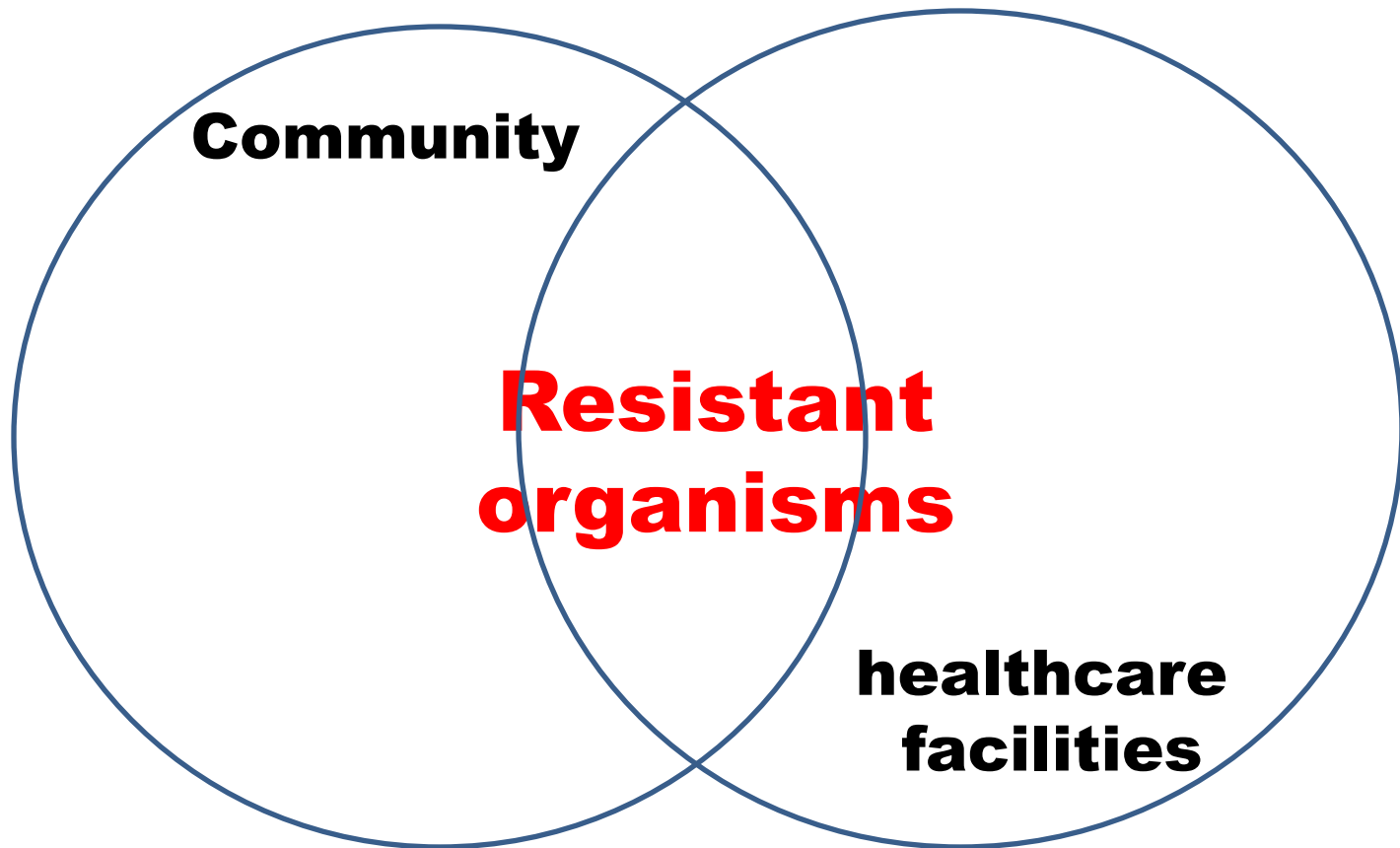
Methicillin-resistant
staphylococcus aureus

Is MRSA the Real Bully ?



Antibiotic Resistance in South Africa

- **August 2011: Supplement to SAMJ: Global Antibiotic Resistance Partnership (GARP)**
- **situational analysis of antibiotic use and resistance in South Africa**
- **report on antibiotic resistance for ARIs, diarrhoeal infections, STIs and nosocomial infections**



Community

**Resistant
organisms**

**healthcare
facilities**

Nosocomial Infections

2009 NHLS Susceptibility Data: Public sector

- ***K. pneumoniae***
 - highly resistant nosocomial pathogen
 - >50% ESBL producing
 - 32-63% susceptible to gentamicin
 - 54-80% susceptible to ciprofloxacin
- ***E. coli***
 - 6-16% ESBL producing
 - 76-91% susceptible to gentamicin
 - 78-92% susceptible to ciprofloxacin

2009 NHLS Susceptibility Data: Public sector (contd)

- ***Acinetobacter* spp**
 - **20-40% susceptible to carbapenams**
- ***P.aeruginosa***
 - **40-97% susceptible to pip/taz**
 - **57 -100% susceptible to cetazidime**
 - **48-93% susceptible to gentamicin**
- ***S.aureus***
 - **60% susceptible to cloxacillin**

Conclusion

- **MDR organisms**
 - **major impact on in-patients**
 - **not restricted to MRSA**
 - **ASC for all MDRO not feasible**
 - **control is imperative**
 - **upscale 1st tier interventions**
- **Rational and evidence based approach**

ASCs for MDRO

- **must be based on evidence**
- **need more studies**
 - **precise outcome measures**
 - **transmission vs infection**
 - **sound methodology**
 - **RCT**
 - **different interventions separately**
 - **clear definition of ASCs**
 - **screening**
 - **screening and isolation**
 - **screening, isolation and decolonisation**

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