

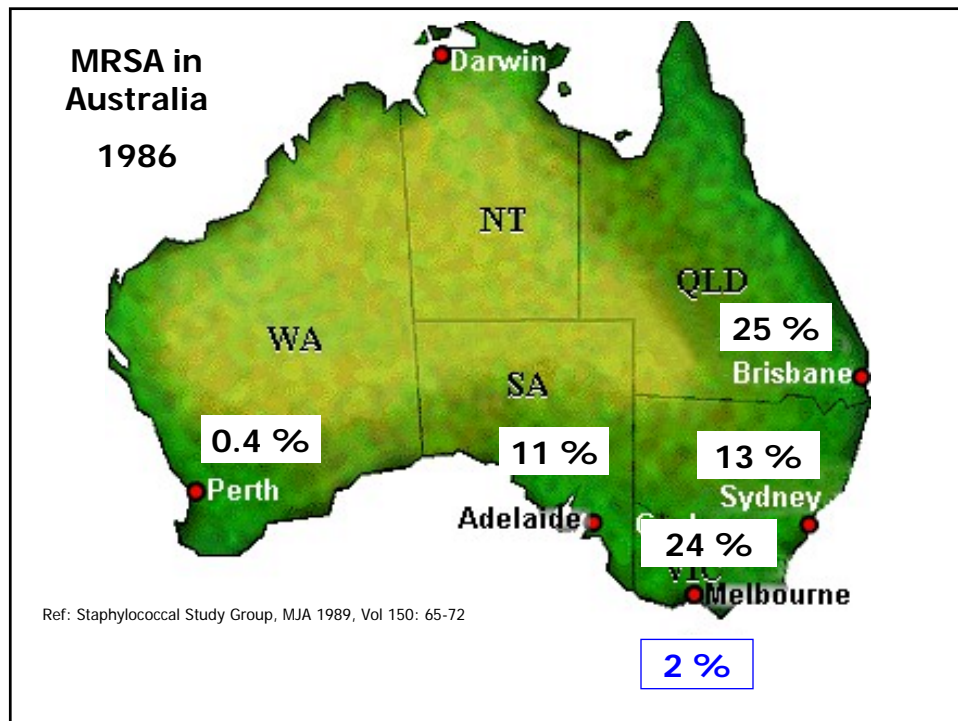
# MRSA Surveillance: Sampling and Denominator Data

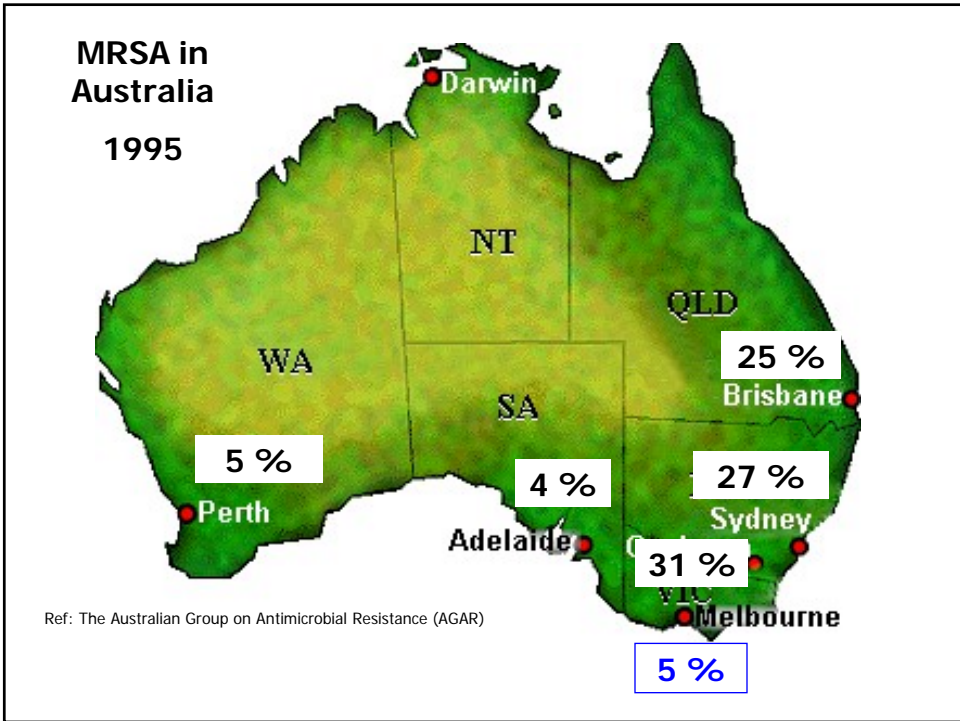
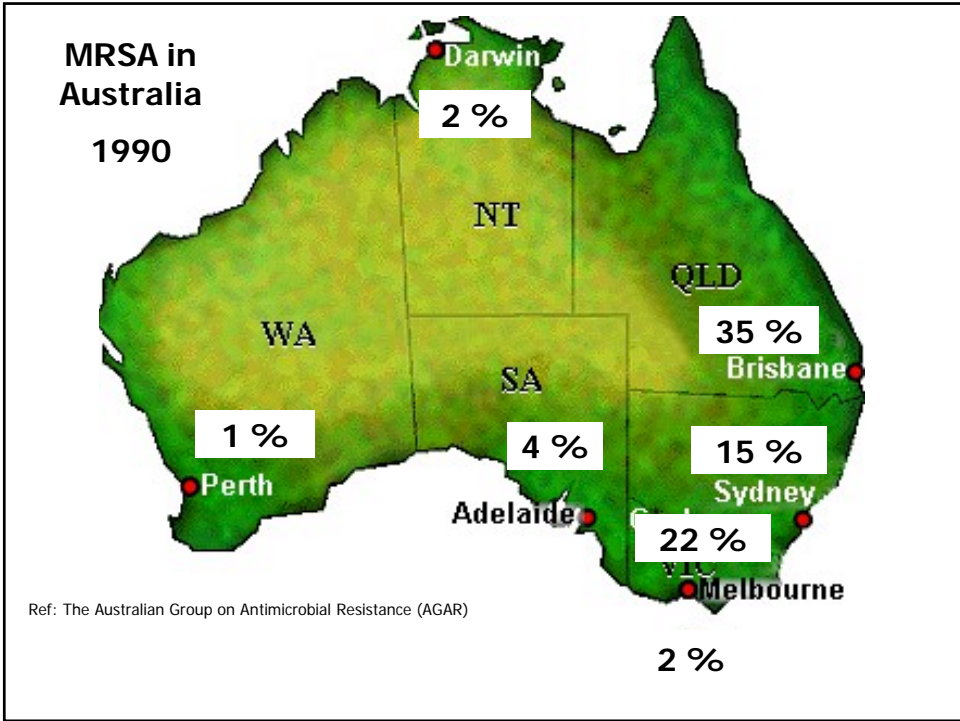
**A\Professor Mary-Louise McLaws**

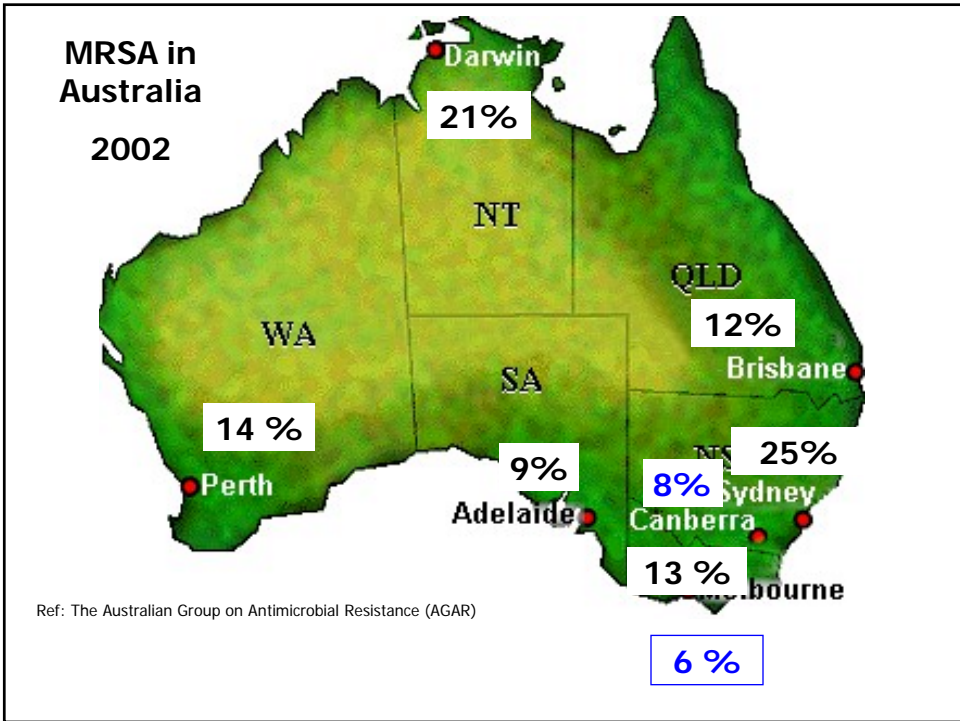
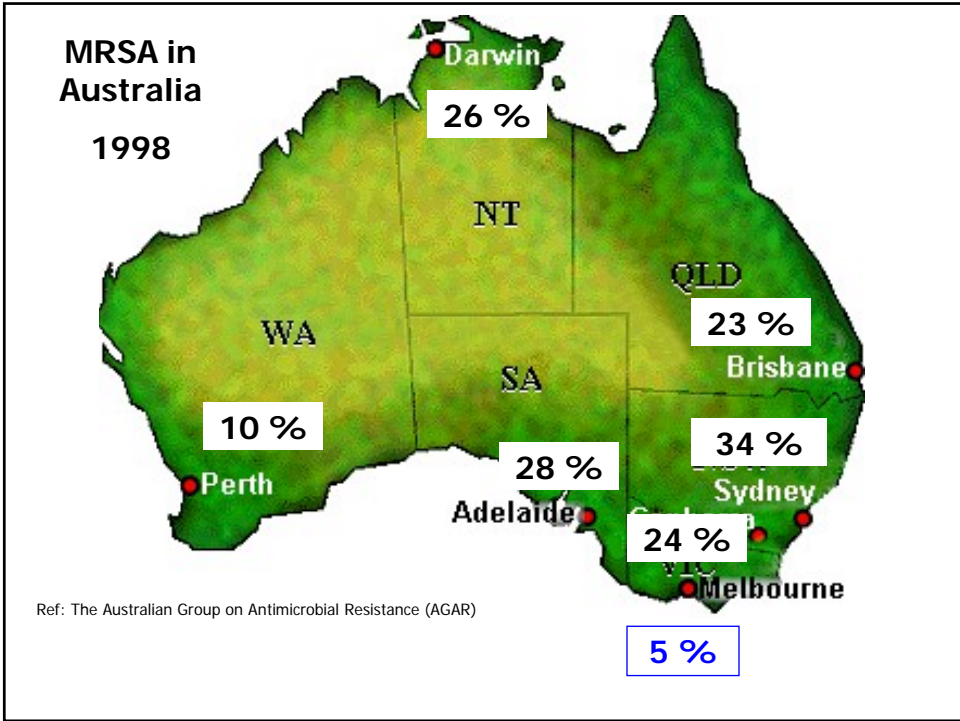
UNSW

**Dr David McGechie**

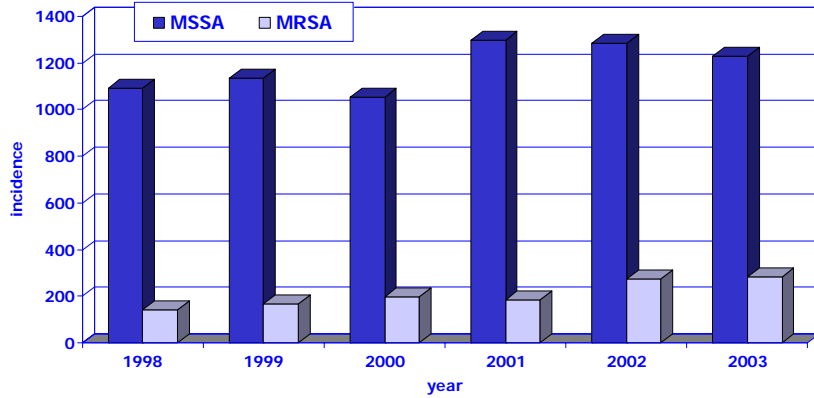
Fremantle Hospital & Health Service



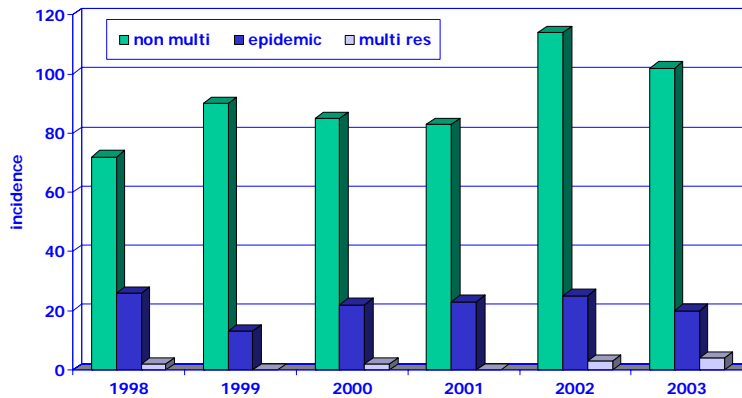




## *S. aureus* 1998-2003 Fremantle Hospital and Health Service

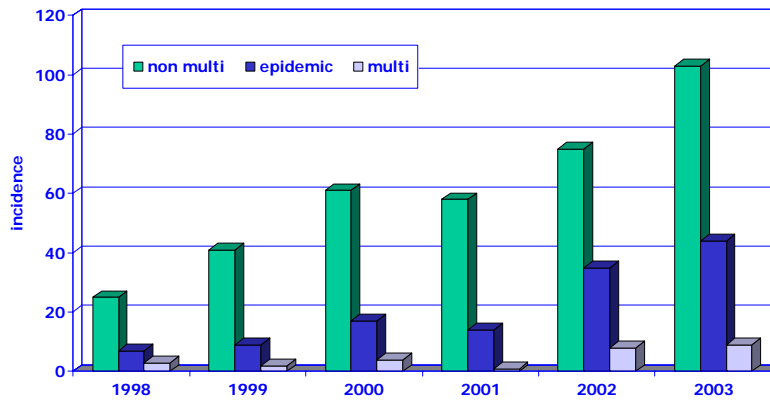


## MRSA from Clinical Specimens Fremantle Hospital and Health Service



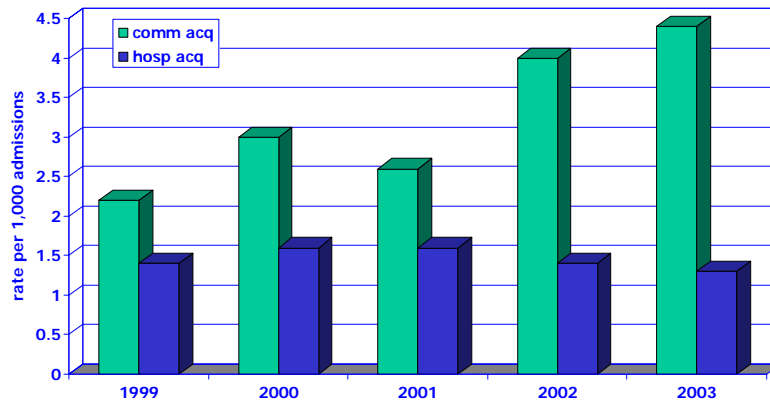
## MRSA from Screening Specimens

Fremantle Hospital and Health Service

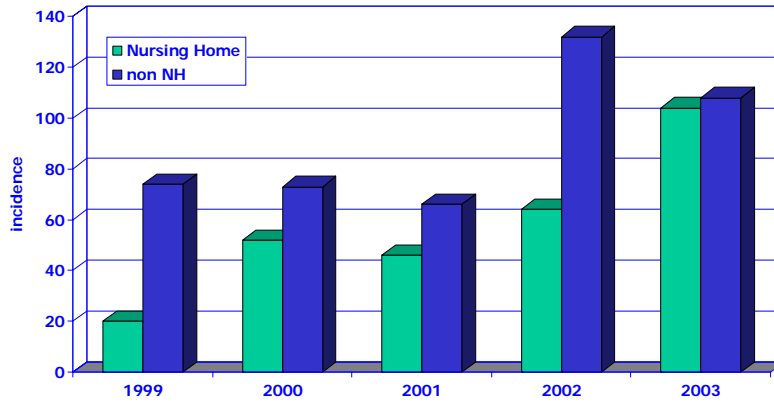


## MRSA Rates

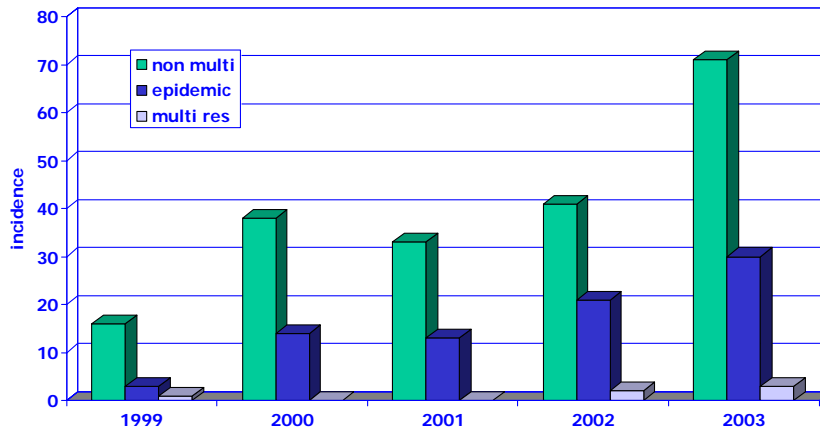
Community Acquired/Hospital Acquired



## Community Acquired MRSA Nursing Home/Non-Nursing Home Residents

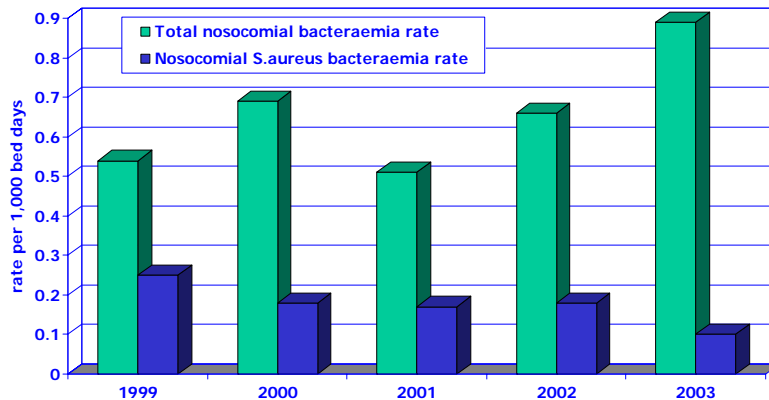


## Community Acquired MRSA in Nursing Home Residents



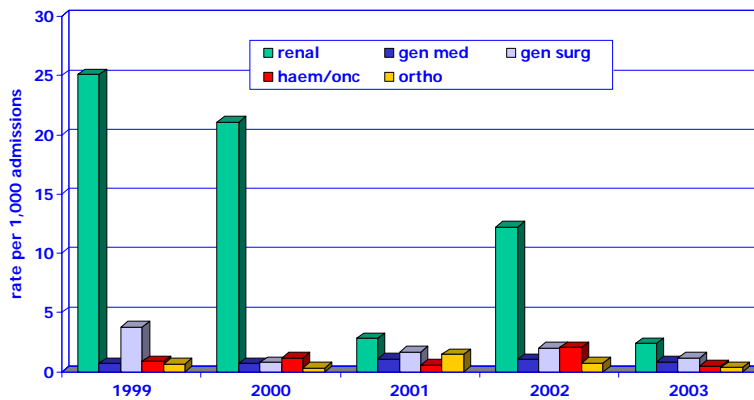
# Nosocomial Bacteraemia

Fremantle Hospital and Health Service



Rate/1,000 bed days (calc: [bactx1000]/[adm x mean LOS])

# Nosocomial S. aureus Bacteraemia Rates by Specialty



## What are the questions?

- Proportions
  - MRSA, MSSA
  - Different strains
  - Community/Hospital
- Incidence
  - MRSA, MSSA
- Rates
  - Bacteraemia
  - Line related
  - Specialty related
  - Colonisation/Screening

- Rate of MRSA in - dialysis outpatient
  - hospital-in-the-home patient
- Rate of community-acquired MRSA
- Rate of Staphylococcus aureus/ MRSA / MSSA
- What is the resistance patterns by State/Territory
- What is the national resistance pattern



*Rate* ⇒ Speed of an event for a given time and for a given population for comparison within the population or between populations

- Numerator & Denominator
  - Numerator must be patients from denominator (i.e. same time & place)
  - Denominator must be *easy* to calculate & represent those *at-risk* of becoming a *case*

## Denominators

**Tricky unless captive population**

**Captive (e.g. lab base-data) problematic if several populations cant be easily teased out**

**Choice**

- make it easily repeatable
- will not be perfect
- possibly "Sentinel Populations"

- Rate MRSA dialysis outpatient

Problem: admitted for a week or outpatients

In common: MRSA as a result of medical intervention  
Experience was dialysis

Data Source: numerator = all hosp micro labs  
denom = renal unit/OutPt clinic for OBD

Rate: *Medically-acquired* MRSA in dialysis patients

- Rate MRSA hospital-in-the-home patient

Problem: different exposures

could be community- or medically-acquired

In common: MRSA as a result of medical intervention

Data Source: numerator = all hospital labs  
denom = patients identified through  
specific units?  
TPN patients found on theatre  
list?

Rate: *Medically-acquired* MRSA hospital-in-the-home

- Rate community-acquired MRSA

Problem: different exposures  
different source: hosp or medically-acquired  
different laboratories

Possible solution: Sentinel community lab

Source of data: numerator = which labs identify the majority of possible community-acquired MRSA?  
which labs have biggest service?  
which lab identifies high-risk pop (Torres Strait Isl.) ?  
denom = State pop/ Area Health pop

- Rate Staphylococcus aureus/ MRSA / MSSA

Problem: different laboratories different systems  
different case-mix  
is a positive isolate infection or colonisation?

Possible solution: Sentinel labs for case-mix infection

Source of data: numerator= sentinel labs chosen from primary referral, metro & district hosp  
*from bacteraemia & sterile site*  
denom = OBD for these sentinel hosp

### Uses & limitations

If consistent in use of:

- same sentinel hospitals by strata
- study period
- denominator (e.g. OBD)
  
- & sentinel strata have similar case-mix

then *national rate* can be estimated from lumping  
sentinel hospital strata

(e.g. lump all sentinel primary referral hosp)