



Global  
**Antibiotic  
Resistance**  
Partnership



# Infection Prevention & Control Initiatives in SA and Antimicrobial Resistance

Adriano G Duse - Chair: GARP South Africa  
NHLS & University of the Witwatersrand  
Meeting 8-9 February 2010, Stellenbosch

**CDDEP** THE CENTER FOR  
DISEASE DYNAMICS,  
ECONOMICS & POLICY  
WASHINGTON DC • NEW DELHI



# Anti-infectives resistance policy strategies:

- Strategies that reduce demand
  - Extending the therapeutic life of existing drugs by reducing need for anti-infectives
    - Reduction of anti-infectives prescribing + ? other strategies: topical, antimicrobial impregnated devices, immunomodulation, probiotics)
    - Lower burden of infections and therefore need of antimicrobials (immunization, infection control)
    - Determine role of cycling, combination therapies & antibiotic heterogeneity, to delay emergence and spread of resistance
- Strategies that address supply
  - Development of new antimicrobials
  - Reduce incentives to oversell existing drugs

# Infection Prevention & Control (IPC):

- Challenges:
  - Focus is on mainly HCFs
  - Reluctance to invest in IP&C programs because:
    - Often cheaper to use antibiotics
    - IP&C costs are borne by the HCFs
    - Anti-infectives prescribing covered by health insurers

# Challenges of reducing AMR:

QUALITY HEALTH CARE; ECONOMICS (VESTED INTERESTS); NATIONAL, GLOBAL CONCERNS...

PREVENT TRANSMISSION

RESTRICT/OPTIMIZE USAGE

COMMUNITY



HOSPITAL



AGRICULT/  
VETERINARY

SURVEILLANCE: LOCAL, NATIONAL,  
GLOBAL

COST EFFECTIVENESS; EFFICACY;  
ACCOUNTABILITY/RESPONSIBILITY; RESEARCH

# The Reality of the Risk:

- 7.6 % adult patients in UK & Ireland
- 8.2% adult patients in England  
(3<sup>rd</sup> National Prevalence survey 2006)
- A proportion of patients who develop HCAI will die and for many others it is a major contributory factor in their death

# IP&C in South Africa:

- Extent of the problem of HCAs poorly defined
- Adequate surveillance systems are weak or non-existent
- Outbreak responses **GENERALLY REACTIVE, NOT PROACTIVE**
- Education, political support, staffing, and infrastructure **POOR**
- Whose responsibility is it? Lack of accountability

# Gauteng's hospitals of neglect

Patients and their families tell of ordeals in provincial health institutions on the first day of public hearings

BY BRUCE WALKER

HEALTH CARE AT some of the most neglected of institutions in the province of Gauteng has been the subject of an inquiry into the health care system in the province.

During an investigation carried out by the Health Commission, the Commission found that the health care system in the province is in a state of neglect.

At one of the hospitals, the Commission found that the health care system is in a state of neglect. The Commission found that the health care system is in a state of neglect.

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“Why was my sister left to rot to death?”



WIN!

Pierre Cardin hampers

RANDS & SENSE

Manuel on SA's four-letter word

PAYDUTS ON PAGE 2

HEIRS AND GRACES

Why Harry's crazy over local babe



# Sunday Times

December 12 2004 / R7.50 INC. VAT

## Killer bugs strike hospitals

One in seven patients at risk of picking up life-threatening infection

LOTTO 6 13 21 23 30 48 + 22

NEW TREASURES

Lost Bosman works discovered P13



# Sunday Times

JULY 10 2005 / R8.50 INC. VAT

Sw yet sca

ANGIU TASCHICA RE KEETON

They asked if her two-infected with death-steris the doctor's that she was not

or baby Kiara was

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Another 21 babies Mahatma Gandhi tal north of Durban

report released on ed that in the reovir the babies died

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events that, over five he hospital where, once you enter you eath warrant".

HE 20 Ellen Sturm, a med- ist from the Univers- ally-Natal's medical a fax from Dr Sibon- r general manager health services, ap- eard of a compilation the deaths of the 22



UNDER THE MICROSCOPE: The neonatal nursery at Mahatma Gandhi Memorial Hospital where 22 babies died recently

## Hospital diagnosis is no comfort to bereaved parents

Chlorobeta pneumoniae bacteria that were also found in 17 of the babies. "Aseptised bottles did not give the bacteria as the manufacturer took place in the ward during the handling of the bottles and not at the production plant," Sturm said. "Minister of Health Manto. The babies-Minimum said the team's re- port did not have any single in- dividual or section of the hospital responsible."

The reasons it reported for the outbreak included:

- Multiple use of units of intravenous medication in one hospital suite.
- Inadequate hand-washing practices and facilities.
- Reliance on alcohol disinfectant solution instead of hand-washing at bedside.
- Inconsistent availability of the disinfectant solution and staff not rubbing it into their hands properly.
- Inappropriate use of sterile gloves.

While costs went to the root of the hospital not being removed before staff entered the nursery, and

Understaffing. The team recommended that neonatal nursery staff should be forbidden to wear long sleeves as these prevented proper hand-wash- ing. Watches and rings should be removed for the same reason.

It suggested the infection-control officer at the hospital be given more authority to stop any malpractice she observed and that training in infection-prevention practices be stepped up throughout the province.

But for the Pillays, the recom- mendations are old comfort. "The R200 they gave us means nothing," said Katie Pillay. "Kiara

# SA's deadly new plague

Top doctor warns that hospital infections could soon rival Aids and malaria

DOMINIC MAHLANGU and CLAIRE KEETON

Memorial Hospital, where the 22 babies died, has found that the place still needs a major clean-up.

KILLER infections picked up in hospitals are fast becoming South Africa's new epidemic.

December 12 2004

NEWS

Sunday Times 5



## THE SUPERBUG MENACE

Superbugs are bacteria that are resistant to one or

# Worldwide alarm at virulence of bacteria

Misuse of antibiotics spawns bugs immune to every weapon in medicine's arsenal

CLAIRE KEETON and MEGAN POWER

RESISTANT bacteria are threatening to make drugs useless against them. Amid a worldwide battle between antibiotics and bacteria, South African doctors are being forced, in the case of

to resort to a toxic anti- biotic developed in the 1940s. Antibiotics failed against 70% of 135 samples of this super-resistant bug tak- en from a trauma intensive-care unit this year.



antibiotics," said Peter He said the Infectious Diseases Society of America had alerted authorities "at which it was focusing on the threat of this-terro- r anthrax and smallpox, but now infectious diseases, it is a greater threat from

in health-care facilities. The president of the South African Association of Hospital and Institutional Pharmacists, Barbara Rafteranah, said: "If nothing is done about this problem we could get back to a pre- penicillin state where we don't have effective ways will we be then? It is a scary

Doctors not prescribing antibiotics properly.

Dr Derrick Burke, medical director of Solihull Health Risk Management, said: "It is a huge responsibility to prescribe antibiotics more appropri- ately."

"Everybody with a sore throat gets an antibiotic when only 10% are needed."

"There is no doubt many of the pills in hospitals are brought in inappropriate medical prac- tices," he said.

But, said Burke, patients had a right to know the infection rates at the hospitals to which they received treatment.

"The public needs to be empow- ered and encouraged to ask ques- tions."



# Gauteng Hospital Situational Analysis:

- Questionnaires sent to 18 HCFs in Gauteng
- 61%: NO established ICCs
- Hospitals with ICNs: 50% nil; 22% 1 ICN; 28% 2-3 ICNs
- 32% ICNs not trained; 21% 3-day training course; 36% 6-month training course; 11% “other”
- Surveillance: 11% nil; 30% lab-based; 24% comprehensive; 16% targeted; 19% “other”; 22% spent > 50% of time on surveillance
- % Time spent on Staff Education/week: 72% spent < 10% of time on Staff Education
- Other commitments: OH&S (~ 11% respondents spending > 50% of time on OH&S); waste disposal (ranged from 0-90%!, with ~ 17% of respondents spending > 50% of time on waste)

# THE MICHAEL EMMERSON

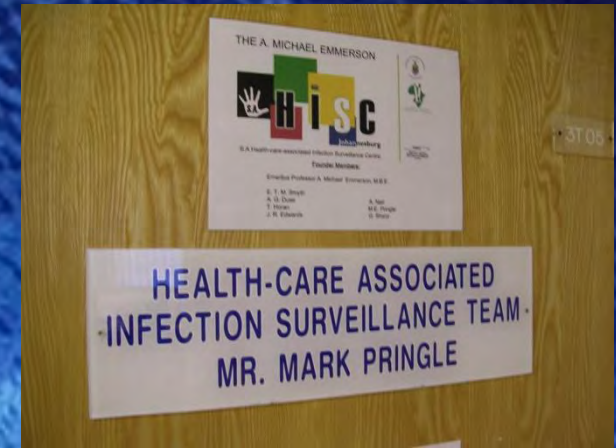


S.A. Health-care-associated Infection Surveillance Centre.

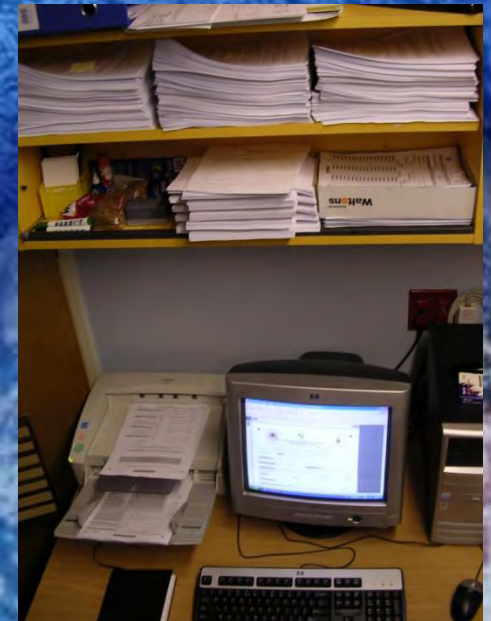
## Founder Members:

Professor Emeritus Michael Emmerson, O.B.E.

E.T.M. Smyth		G. McIlvenny
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# Considerations when creating a surveillance system:

- Goal of the surveillance system (why?)
- Engage the stakeholders (who?)
- Surveillance method (which?, how?, when?)
- Available resources

# Objectives:

- Reducing infection rates
- Establishing endemic baseline rates
- Identifying outbreaks
- Identifying risk factors
- Persuading medical personnel
- Implementing interventions
- Evaluate control measures (interventions)
- Satisfying regulators
- Document quality of care
- Compare hospitals' HCAI rates

# Surveillance surveys:

- Prevalence studies: initial benchmarking & ID of high-risk areas
- Periodically repeated for trends
- In-between prevalence studies: targeted surveillance
- Then aim towards incidence data: targeted by site

# Use of prevalence surveys:

- Show trends
- Estimate
  - distribution of HCAs
  - surveillance accuracy
  - antimicrobial usage patterns
- Raise awareness

# The surveillance loop:

Health care system

Surveillance centre

Event

Reporting

Data

Action

Feedback,  
recommendations

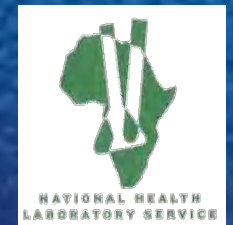
Information

Analysis,  
interpretation





# AN OVERVIEW OF THE GAUTENG PROVINCIAL MULTI-HOSPITAL PILOT SURVEY



# Aims of project: Pilot study 2005

- To pilot the tool that could be used for a Gauteng Provincial/National Nosocomial Infection Prevalence Survey
- To determine, hopefully more realistic, prevalence rates of uniformly defined NIs in South African health-care facilities
- From the above, where microbiology data is available, distinguish between colonization, pseudo-infection and infection
- Link antimicrobial resistance (AMR) profiles to colonizing versus infecting organisms to get a true perspective of the clinical relevance of AMR data

# Background:

- Study performed over a 3-month period, between March 2005 – May 2005
- Two academic, 2 provincial, 2 private hospitals
- Four NIs surveyed: BSIs, UTIs, LRTIs, SSIs
- Total number of beds surveyed = 2 672

# Overall prevalence rate for the 4 surveyed infections **9.73%** (260/2672)

Hospital	BSI rate	UTI rate	RTI rate	SSI-surgical	Prevalence rate for 4 active infections surveyed
Hospital #1 (731 beds surveyed)	6.7	1.1	1.2	1.4	9.05
Hospital #2 (593 beds surveyed)	4.9	3.0	4.4	2.9	11.17
Hospital #3 (376 beds surveyed)	10.4	0.5	3.2	2.8	15.73
Hospital #4 (532 beds surveyed)	1.5	0.8	0.6	1.7	15.42
Hospital #5 (214 beds surveyed)	1.9	3.7	10.7	1.5	5.08
Hospital #6 (226 beds surveyed)	2.2	0.4	1.8	0.9	4.02

# Service groups and infection rates:

Service groups	BSI rate	UTI rate	RTI rate	SSI-all	SSI-surgical	Prevalence rate for 4 active infections surveyed
Medical	4.7	3.0	1.6	0.3	0.5	8.7
Surgical	4.1	0.9	2.2	2.7	3.5	8.4
Intensive Care	12.5	4.5	17.9	1.8	2.3	28.6
Gynaecology and Obstetrics	0.6	0.6	0.9	1.7	3.3	3.5
Paediatrics	10.2	1.1	4.9	0.2	0.3	16.5
Other services	2.2	0.4	1.8	0.4	0.9	4.02

# Data collection form 1- general parameters:

- Patient demographics
- Medical risk factors
- Surgical risk factors & other invasive procedures
- Device-related risk factors
- Antibiotic and non-antibiotic therapy during admission

# Surveillance of Healthcare-Associated Infection

Surveillance Manual (Version 1.1)  
February, 2003

Developed by Infection Control Team  
The Royal Hospitals  
Belfast

The Royal Hospitals Trust  
Belfast BT12 6BA

## Hospital Infection Survey 2001

Q1/01/01

Q1 Survey date D D / M M / Y Y Y Y <input type="text"/>		Q2 Directorate <input type="checkbox"/>	Q3 Ward number <input type="text"/>	Patient's name <input type="text"/>
Q4 Admission date to hospital D D / M M / Y Y Y Y <input type="text"/>		Q5 Hospital number <input type="text"/>		Q6 Gender <input type="checkbox"/> Male <input type="checkbox"/> Female
Q7 Date of birth D D / M M / Y Y Y Y <input type="text"/>		Q8 Admission type <input type="checkbox"/> Elective <input type="checkbox"/> Emergency <input type="checkbox"/> Term labour <input type="checkbox"/> Newborn		Q9 Was patient transferred? <input type="checkbox"/> Yes, from another hospital <input type="checkbox"/> Yes, from another ward <input type="checkbox"/> No
Q10 Admission diagnosis 1 choose from list <input type="text"/>		Q11 Admission diagnosis 2 choose from list <input type="text"/>		Q12 More than 2 diagnoses Yes <input type="checkbox"/> No <input type="checkbox"/>
Q13 Medical Risk Factors. Select all that apply <input type="checkbox"/> Major trauma <input type="checkbox"/> COAD <input type="checkbox"/> Stroke/paraplegia <input type="checkbox"/> Diabetes <input type="checkbox"/> Malnourished <input type="checkbox"/> Obesity <input type="checkbox"/> Cancer <input type="checkbox"/> Smoking <input type="checkbox"/> Leukocytopenia <input type="checkbox"/> None		Q14 Urinary catheter <input type="checkbox"/> Suprapubic <input type="checkbox"/> Urethral closed <input type="checkbox"/> None	Q15 Catheter duration (days) <input type="text"/>	
Q16 Intravascular lines <input type="checkbox"/> Venous (periph) <input type="checkbox"/> Arterial (periph) <input type="checkbox"/> Central <input type="checkbox"/> PICC		Q17 >1 intravascular device Yes <input type="checkbox"/> No <input type="checkbox"/>	Q18 Duration of peripheral line <input type="text"/>	Q19 Duration of central line <input type="text"/>
Q21 Therapy this admission <input type="checkbox"/> Steroids <input type="checkbox"/> Blood <input type="checkbox"/> Chemotherapy <input type="checkbox"/> Cytotoxic		Q22 Antibiotics this admission <input type="checkbox"/> No <input type="checkbox"/> Prophylaxis <input type="checkbox"/> Therapy	Q23 Non-surgical break in skin Yes <input type="checkbox"/> No <input type="checkbox"/>	Q24 Type of break <input type="checkbox"/> Vascular ulcer <input type="checkbox"/> Pressure sore <input type="checkbox"/> Vascular & pressure <input type="checkbox"/> Diabetic ulcer <input type="checkbox"/> Other
Q25 Has patient undergone any form of surgery? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q26 Surgical drains in-situ? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q27 Has pt undergone any other invasive procedure? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q28 Other invasive procedures <input type="checkbox"/> ERCP <input type="checkbox"/> Percutaneous drainage procedure <input type="checkbox"/> Other endoscopy (excl. surgery but incl. gastrstomy insertion) <input type="checkbox"/> Other invasive procedure

