

Are national targets the right way to improve infection control practice?

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Barts and the London NHS Trust

Top-down (national) targets

The Quest for Quality: refining the NHS reforms
(1998-2008)

The Nuffield Trust
(Leatherman&Sutherland)

Targets

- Peter Drucker (1954)
The Practice of Management
(Management by Objectives)

- Goal Setting Theory of Motivation
(Mitchell and Daniels, 2003)

Targets

Can be effective levers for change

- National strategy → local policy & practice
- Encouraging dialogue about priorities and expectations
- Provide measures of progress and performance

Selection of Targets

The Health of the Nation, 1992

- The area chosen should be a major cause of disability or avoidable death
- Defined using mortality, morbidity and quality of life data
- Effective interventions must be available
- The problem must be quantifiable

See also Australia Dept. of Human Services and Health, 1994

Does public release of performance results improve quality of care?

National targets allow comparisons between centres and the development of league tables

A Systematic Review, 2008

Health Foundation (see www.Health.org.uk)

- Public release of information stimulates change at the level of the hospital
- Little (no) evidence that Public Release improves patient outcomes
- May cause consumers to make decisions that are inconsistent with their own health goals

So not just which targets but also how targets are used

Current Infection Targets

The Better Care for All Public Service Agreement (covering period 2008/9-2010/11) includes two targets -

- MRSA bacteraemia annual figure < 50% of 2003/4 level
- Clostridium difficile in 2010/11 < 30% of 2007/8 figure

National targets

‘Regulation by targets assumes that priorities can be targeted, ***the part that can be measured stands for the whole, and what is omitted doesn’t matter***’

Bevan & Hood BMJ 332: 419-22, 2006

Meticillin-resistant *Staphylococcus aureus* bacteraemia target

- Encourages NHS Trusts to prioritise control of MRSA bacteraemias (2% HCAI)
- NHS Trusts are resource limited
- The MRSA target effectively de-prioritises patients at risk of other types of HCAI (98% HCAI)
- Fair or cost-effective?

(Millar, Coast and Ashcroft. J Hosp Infect 69: 1-5, 2008)

Screening for MRSA:

A Flawed Hospital Infection Control Intervention

Richard P. Wenzel, MD, MSc; Gonzalo Bearman, MD, MPH;

Michael B. Edmond, MD, MPH, MPA

Focusing hospital resources on a single antibiotic-resistant pathogen as a sole approach to infection control is inherently flawed. We applied attributable mortality principles to a basic model of bloodstream infections to outline the argument. Screening for methicillin-resistant *Staphylococcus aureus* alone made sense in the 1980s, but the ongoing emergence of vancomycin-resistant enterococci and antibiotic-resistant strains of gram-negative rods and *Candida* species, as well as the recognition of the value of team-based infection control programs, support a population-based approach.

Infect Control Hosp Epidemiol 2008; 29:1012-1018

Top down 'infection' targets

- Potential to distract focus and constrain flexibility in response to non-target and emerging infections
- Potential dangers with isolation of infection outcomes from other patient outcomes, because we could achieve the infection target while overall outcomes deteriorate
- If too narrowly focused leave scope for (human) compensation behaviour *and* microbial adaptation

Emerging Infectious Disease

- What can we predict about future trends in infectious diseases?
- ‘It is time to close the book on infectious diseases’ (William Stewart, US Surgeon General, 1967)
- Agents of infection are adaptable
- *All we can say is that future trends are likely to have a significant impact but we can't predict why, where, or in what form – **so alertness and ability to respond flexibly are key to effective control***

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Infection or overall outcomes

Dangers of isolating infection outcomes from overall outcomes

Potentially we could achieve an infection target while overall outcomes remain unchanged or deteriorate

Arguably preventable infection is important through the contribution that preventable infection makes to overall patient experience and outcomes

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Balancing Risks and Benefits

- Both individuals and institutions have to balance risks and benefits
- Car driving, nuclear energy, surgery, antibiotics
- Individual perception of danger is a major determinant of our response to taking risks
- Changes in risk perception can lead to changes in human behaviour (risk compensation)

There are risks and benefits associated with healthcare

NHS operating framework 2008/9

2.16 'No healthcare system can be entirely risk free'

Best Practice in Managing Risk

DoH 2007

Aspiration towards positive risk management which takes account of the *beneficial* as well as the harmful consequences of taking risks

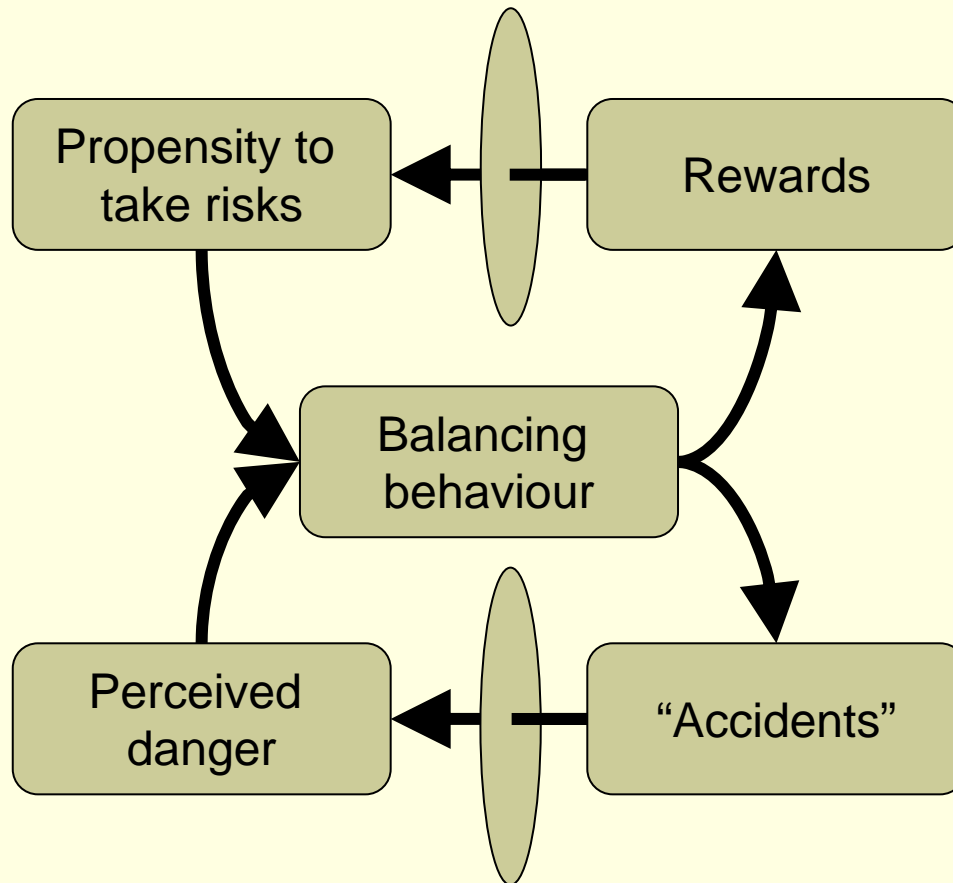
The Health Act (2006) part 2

‘managers in NHS organisations are to ensure that patients are cared for in a clean environment where the risks of healthcare associated infection are kept *as low as possible*’

To keep HCAI rates *as low as possible* would require that we don't take risks - imposing many constraints and limits to the real and potential benefits of risk taking

‘Risk’

John Adams

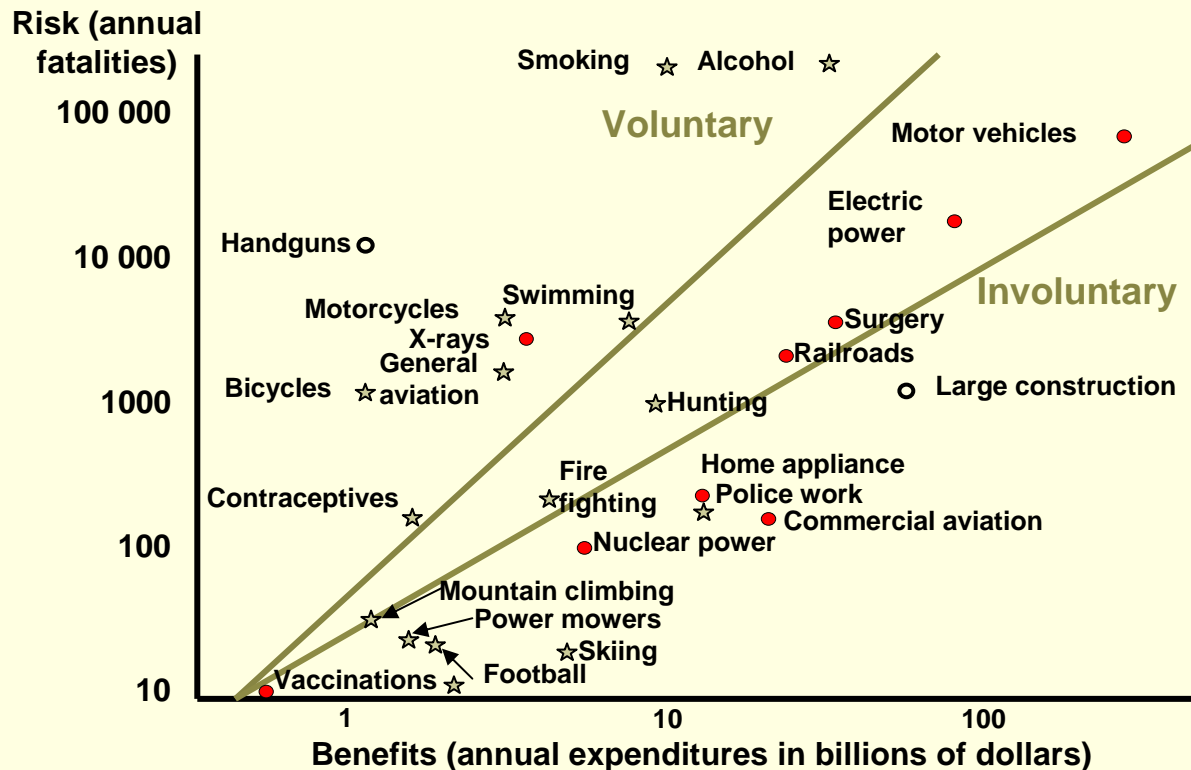


The risk thermostat with cultural filters

The perception of risk

Paul Slovic (2000)

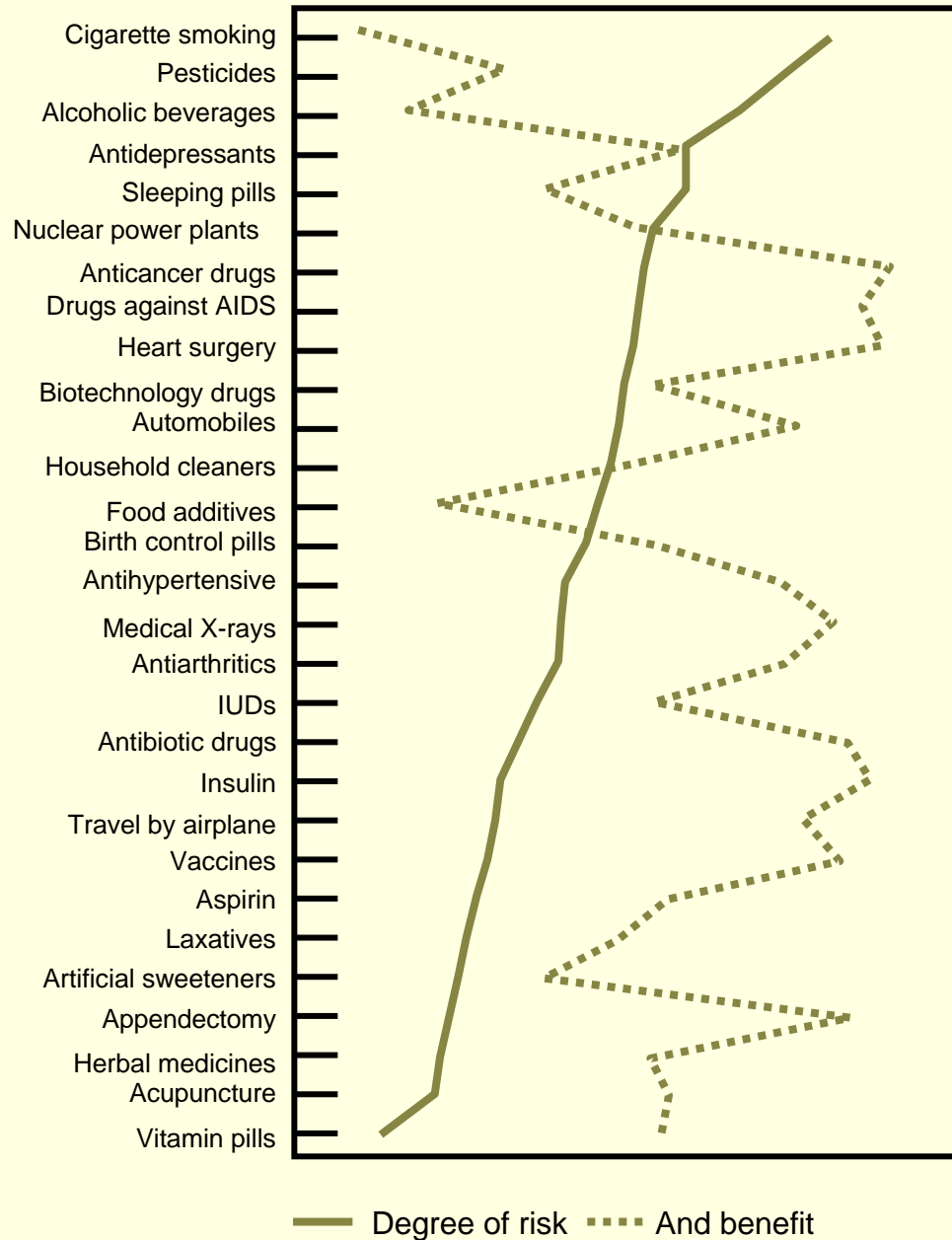
Weighing the risks: which are acceptable?



- Involuntary
- ☆ Voluntary
- Cannot be classified as primarily voluntary or involuntary and thus are not included in the calculation of the two regression lines.

One possible assessment of current risks and benefits from 25 activities and technologies

The perception and management of therapeutic risk

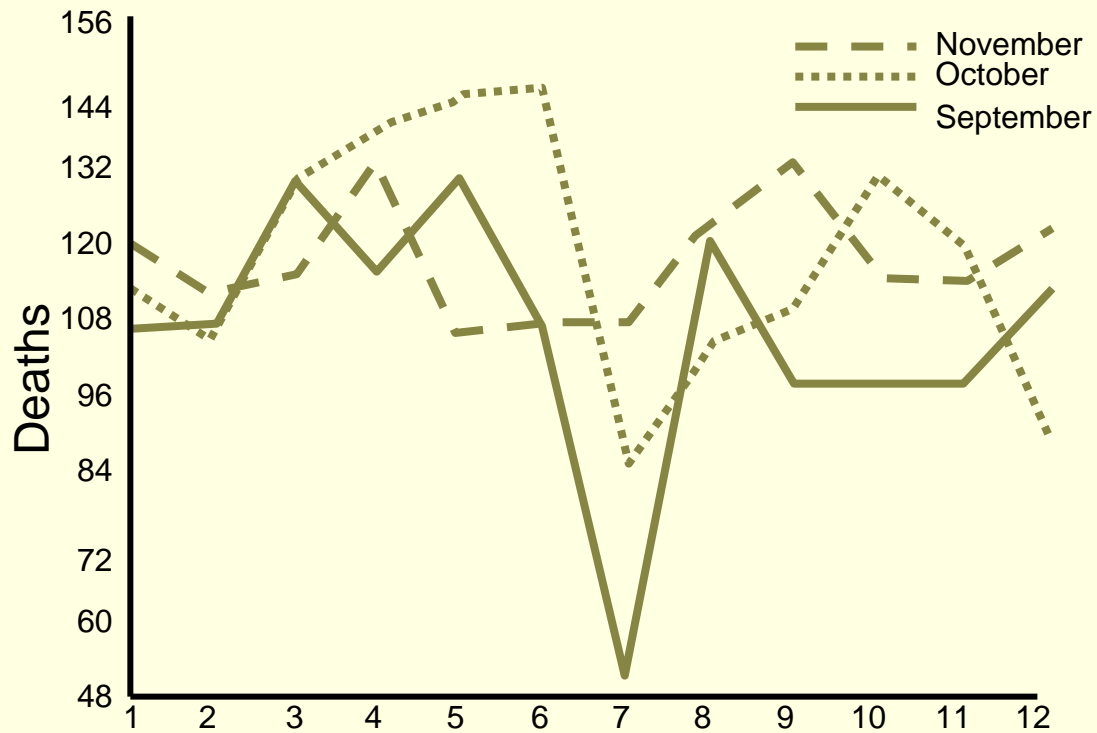


— Degree of risk And benefit

Perceived risk and benefit

Risk perception

- ***Risk perception is a major determinant of human 'risk' behaviour***
- Individuals have a perception of risk associated with a certain activity (healthcare) or lifestyle
- Individuals accept a certain level of risk and benefit associated with a certain activity (healthcare) or lifestyle
- Perception of the scale of risks can be amplified by social factors such as the media (HCAI)
- Scale of risk may be mis-perceived –
'We are not rational enough to be exposed to the press'
(Taleb, author of 'The Black Swan')



Road accident deaths in Sweden (source: Adams 1985)

Risk compensation

Each of us accepts a certain level of risk associated with a particular activity

People can react to a safety law by acting less safely (compensating for the perceived reduction in risk associated with the safety measure)

Children's seats in cars, cycling helmets, speed cameras

HIV

Risk compensation: the Achilles' heel of innovations in HIV prevention.

Cassell et al., BMJ 332: 605-7, 2006

Risk Compensation

Risk compensation occurs when people react to a safety initiative by acting less safely

Qu.

Does the human response to infection targets generate compensatory increases in risk outside of the target areas?

Targets and risk perception

- Perception that the infection targets are the main priority
- Failure to achieve the target is a threat (to the individual and/or institution)
- Perception that non-target infections don't matter (on a personal or institutional level)
- Perception that HCAI is less of a problem (now) – because HCAI control is on target
- Perception that 'others' are doing something about HCAI

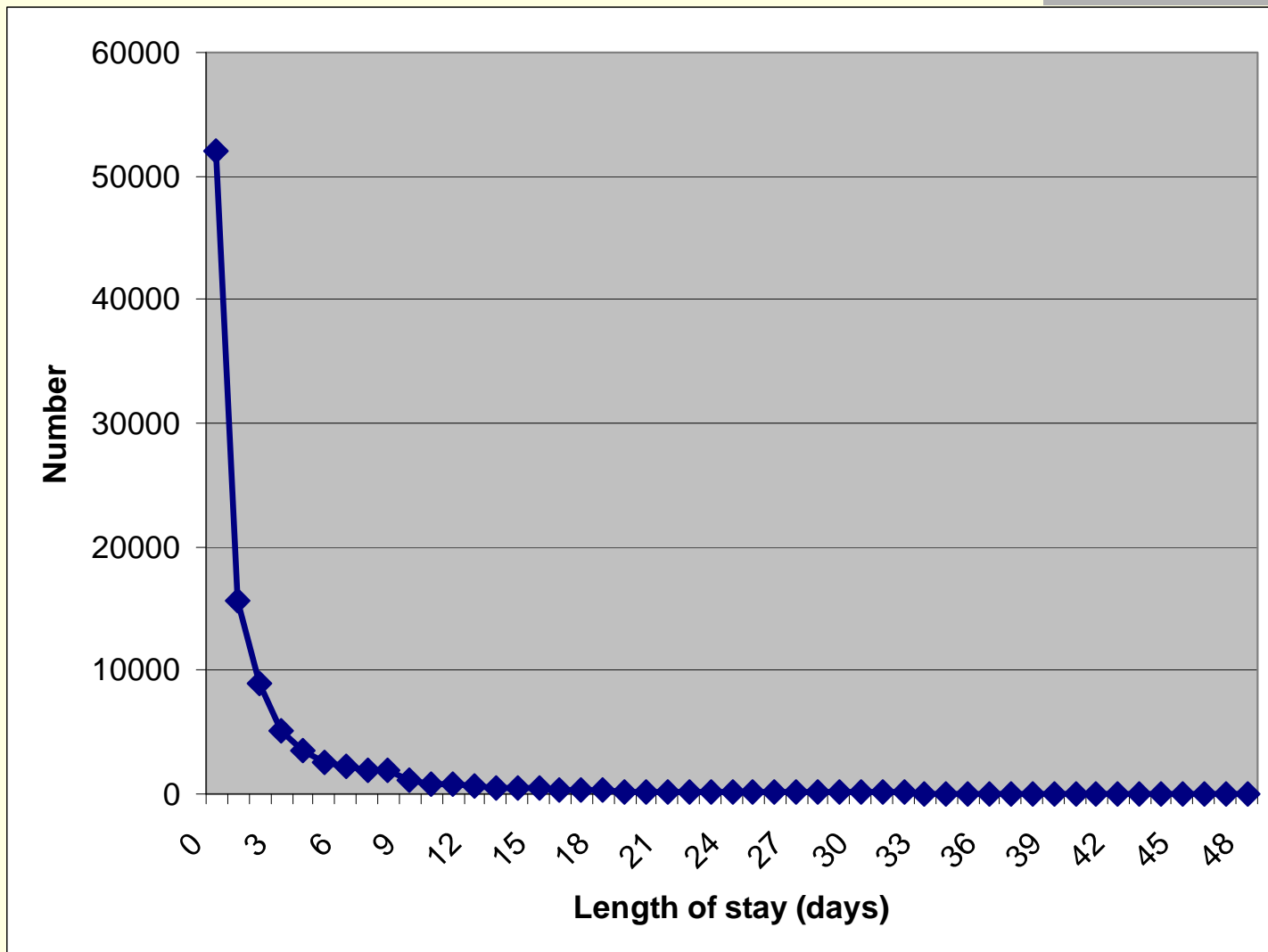
Risk compensation (adaptation)

- Both microbes and humans change their behaviour in response to HCAI control interventions
- Dangers of separating infection outcomes from overall outcomes *because changes in human behaviour and microbial adaptation both tend to work against an overall benefit* (which might be expected from achieving the infection target)

Impact of HAI targets: have things really got better?

- Many millions have been spent on the control of target infections since 2000
- Has there been a reduction in prevalence of HAI
9% 1993/4 → 8.2% (England) 2006
- Duration of hospital stay has reduced steadily over the last ten years (denominator problem)
- The differences in prevalence and in the results from different types of hospital (acute, specialist) could be accounted for by a small change in the denominator (> 48 hour in-patients)

Length of stay in a London Teaching Hospital (2007)

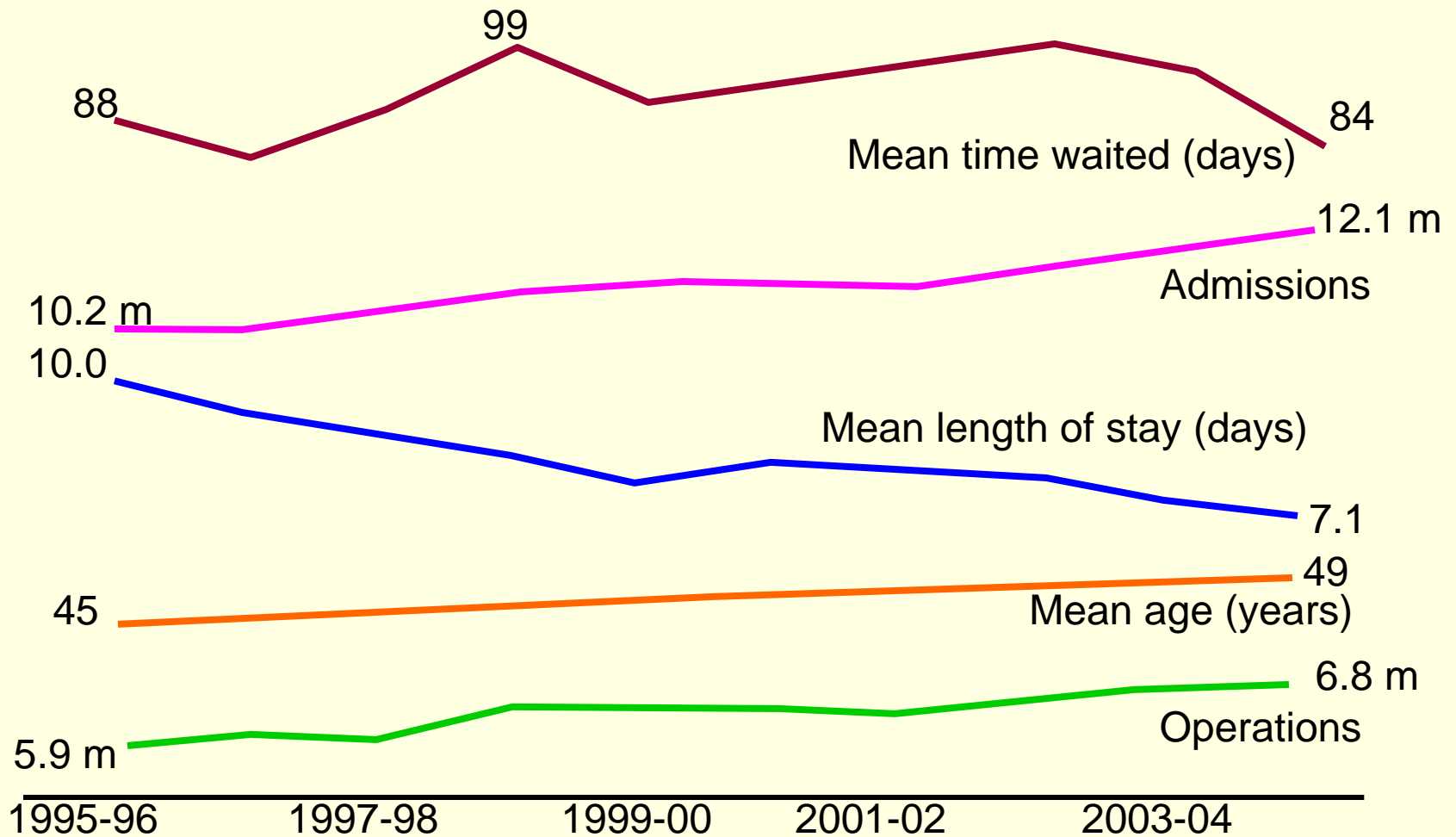


Numbers and % staying in hospital for each day

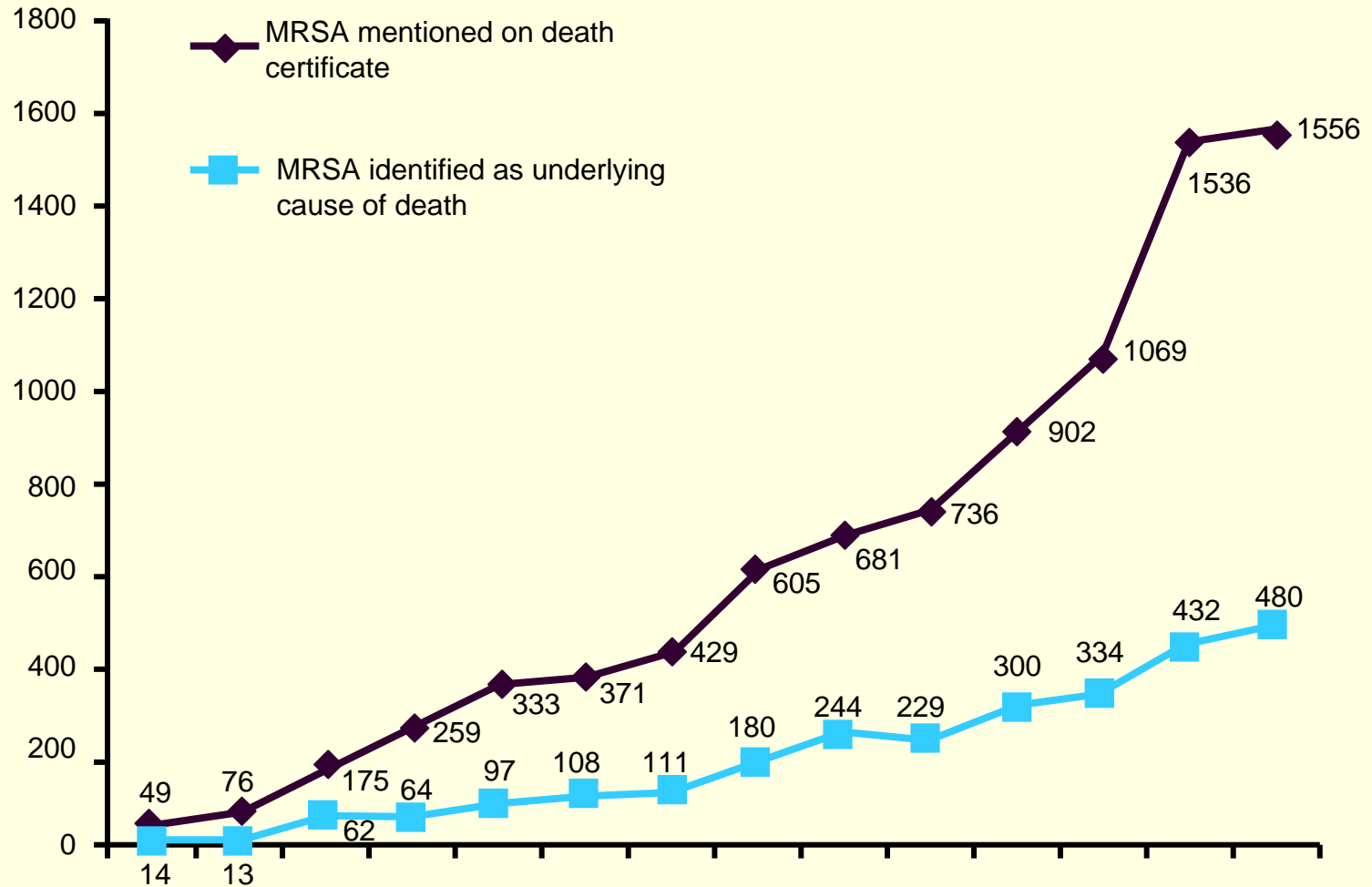
Length of stay (days)	Number	%
0	52,094	50.89
1	15,662	15.30
2	8,970	8.76
3	5,119	5.00

Denominator Problem?

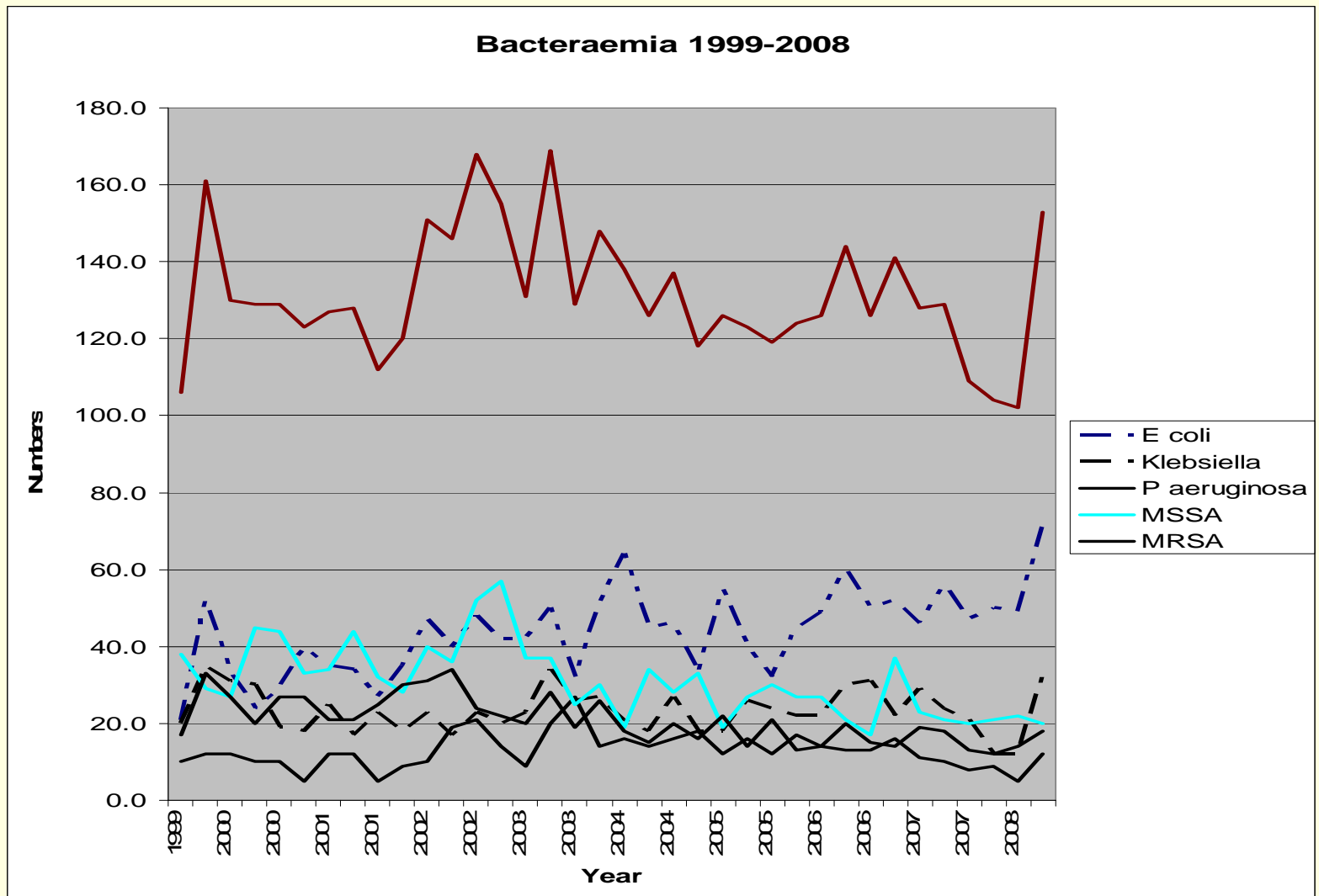
Profile of HES activity over a decade



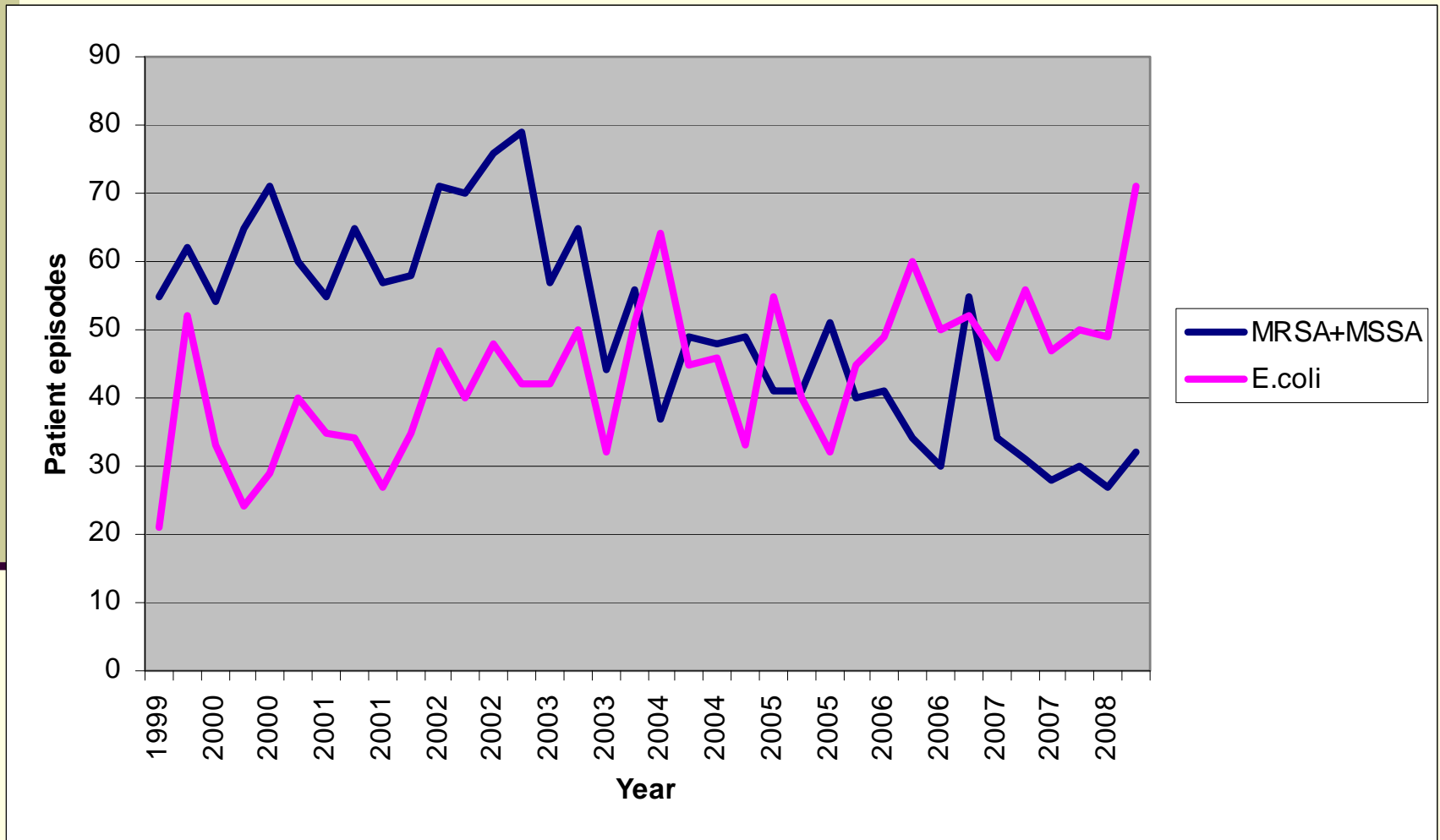
MRSA deaths 1993-2006



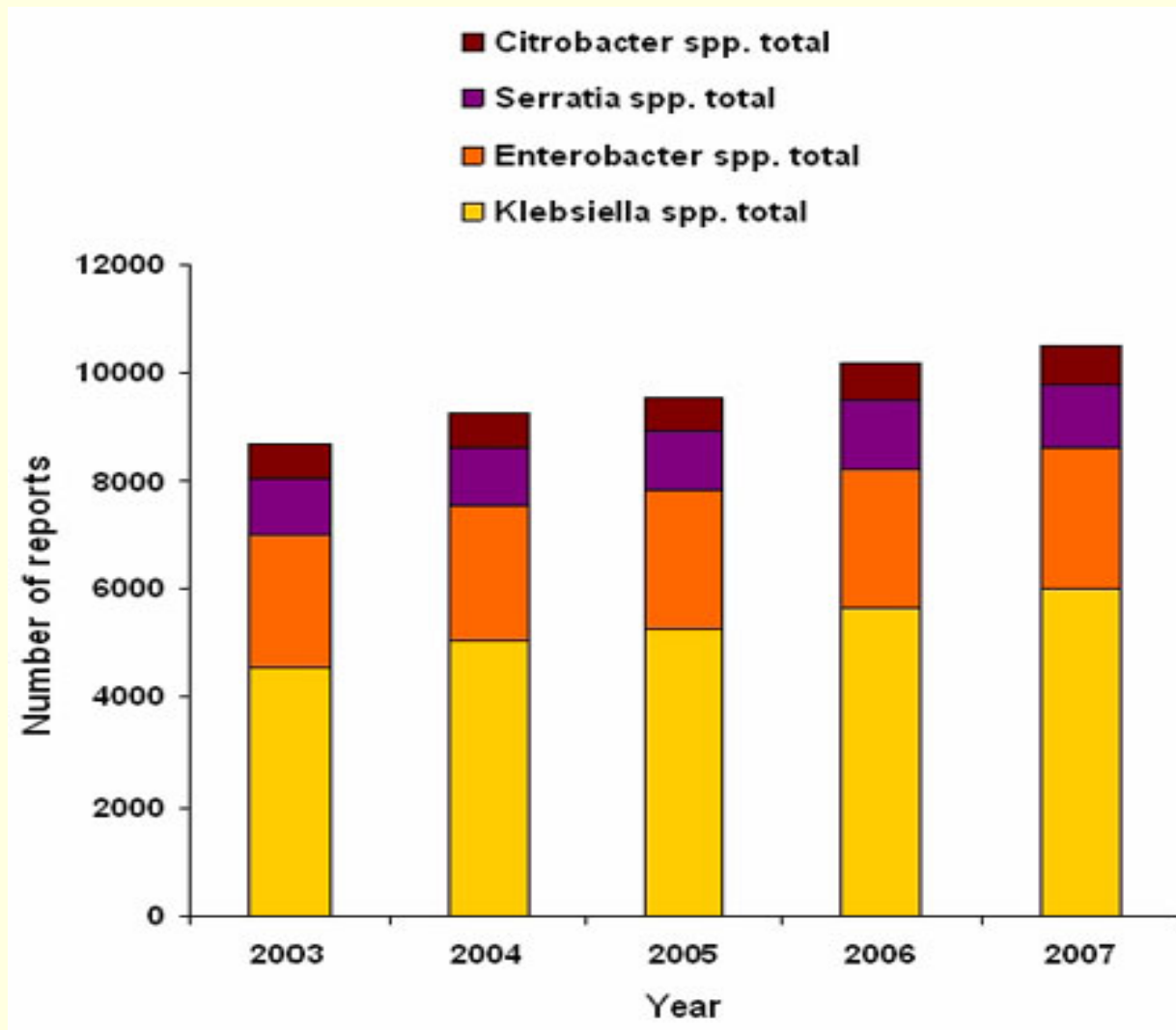
Bacteraemia in a London Teaching Hospital 1999-2008



Bacteraemia in a London Teaching Hospital 1999-2008



Klebsiella, Enterobacter, Serratia, and Citrobacter spp. bacteraemia reports 2003-2007 (HPA data)



Root Cause Analysis

- How many have done a RCA for MRSA bacteraemia?

Root Cause Analysis

How many have done a RCA for -
Escherichia coli bacteraemia or
Pseudomonas aeruginosa bacteraemia ?

Risk taking is part of a healthy healthcare system

- Don't isolate HCAI outcomes from overall outcomes, or
risk takers (those at the front line of healthcare)
from **risk controllers** (infection control professionals)
- Limit the scope for risk compensation
- Watch out for microbial adaptation

Targets

If we are to improve infection control practice then we need to decide on what to measure, how to measure it, and the scale of the improvement (target)

So - what sort of targets?

NHS Operating Framework 2008/9

2.38

‘the national objective to improve people’s **overall** life expectancy and reduce health inequalities’

What matters to patients?

- ‘what matters to patients is whether their quality of life has improved following surgery or any other procedure rather than whether or not top-down targets have been met’

Niall Dickson, CEO King's Fund

Objective of healthcare

- To improve the quality of life of patients
- The objective of infection control professionals is to control infection risks in a manner that best serves the overall well-being and interests of patients (and those working in and visiting the relevant healthcare institutions)

Ideal properties of targets

- Relevant (capable of linkage with local priorities)
- Fair (don't add to inequalities in health outcomes or resource distribution)
- Linked with cost-effective interventions/actions
- Measurable (reliable retrieval, definable)
- Sensitive to changes in local policy and practice
- Do not dissociate risk takers from risk controllers
- Take account of the possibility of risk compensation
- Do not constrain alertness and responsiveness

Assurance of the quality of HCAI control

Requires measures of both

- **Outcomes** – HCAI adverse events (deaths, SUI's), Surgical Site Infection, service disruption,
contribution of HCAI to adverse outcomes
- **Process** – compliance with code of practice

So not just targets

Infection targets

- HCAI varies from place to place
 - HCAI performance can only be assessed within a specific context (taking account of benefits as well as risks)
 - Local targets encourage local ownership
- Performance targets should be set at a local level

The right targets

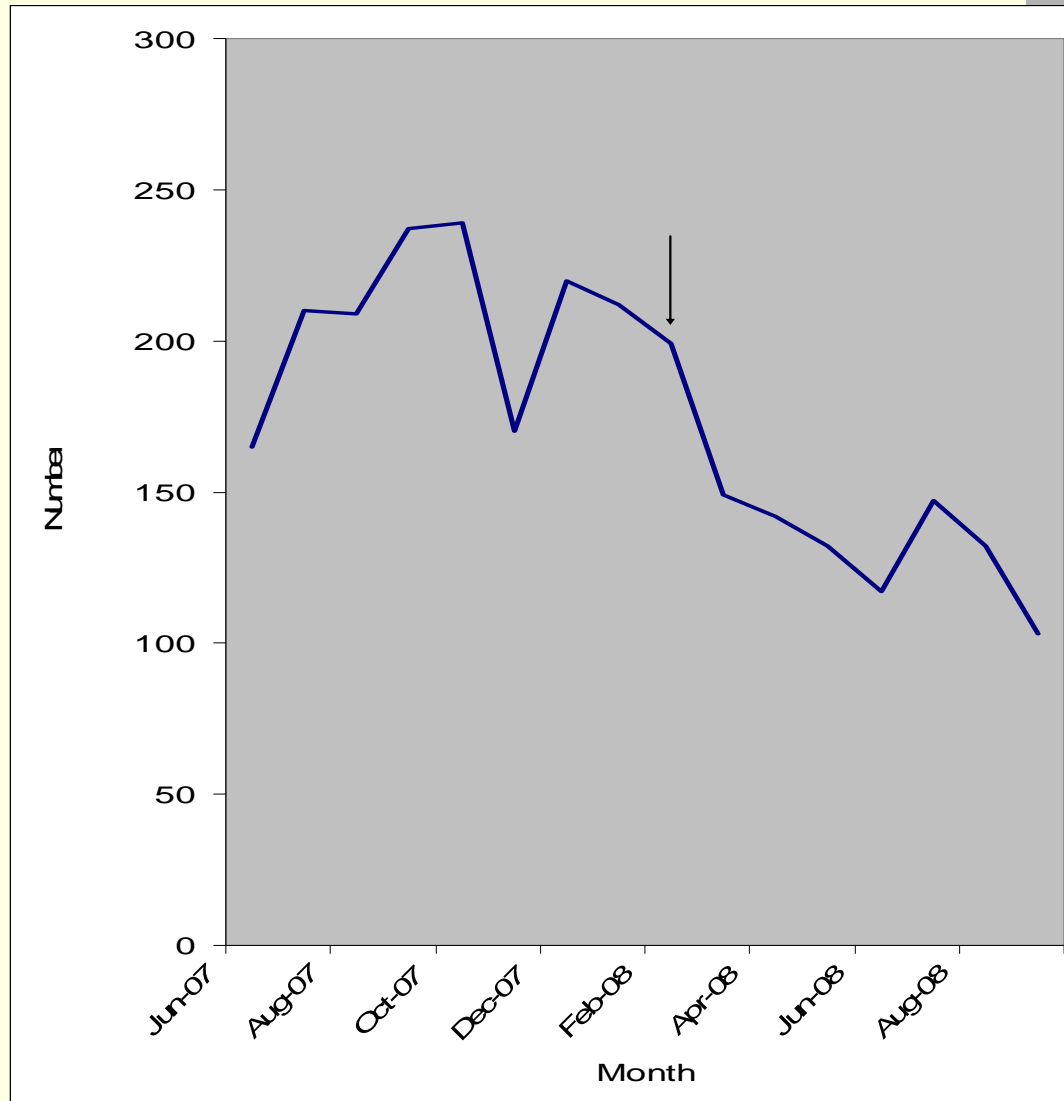
The Health Foundation (January 2007)

- ‘..the right targets, used in an appropriate way, can improve health quality. ..it is important that systems and services are designed in a way that ensures achieving targets in one area does not lead to worsening standards in others...Our Safer Patients Initiative demonstrates how much can be achieved when hospitals set their own targets and are given the right technical support.’

Plan, Do, Study, Act (PDSA) cycles

- a simple approach than anyone can apply
- it reduces risk by starting small
- can be used to help plan, develop and implement change
- it is highly effective

Blood stream infection - before and after the appointment of a vascular access nurse



Extending MRSA screening

Cost effective?

- Extra £350,000/annum to extend MRSA screening to all admissions (for a London Teaching Trust)
- Cost of a vascular access nurse

Government is responsible

- **For ensuring that taxpayer's money is well used**
- **Are national targets the best way of ensuring that taxpayer's money is well used?**

Four tactics

- A. Increase the perceived benefit of cautious behaviour
- B. Decrease the perceived cost of cautious behaviour
- C. Increase the perceived cost of risky behaviour
- D. Decrease the perceived benefit of risky behaviour

Motivating for health and safety

- Of all the accident countermeasures that are currently available those that affect people's motivation seem to be the most successful
- Those that reward people for accident-free performance seem to be the most promising

Motivating for safety and health

- ‘Safety incentives give workers a common cause with each other and with management’
- Incentives ‘remove the unwanted side effects (associated with) discipline and the use of penalties; it increases employees’ job satisfaction; it enhances the relationship between supervisors and employees’

McAfee & Winn. J Safe Res 20: 7-19, 1989

Conclusion

- Targets should be set locally (taking account of fairness and cost-effectiveness)
- Locally-relevant Information (context) is key
- Positive incentives work best
- Avoid the separation of infection outcomes from overall patient experience and outcomes
- Target measures should be sensitive to risk compensation behaviour *and* microbial adaptation