

# RSS 2013 - Newcastle

## Leadership in a non-statistical environment Why our statistical background matters.....

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# Statistical nous in leadership

- Education
- Employment
- Leadership
- Data  $\Rightarrow$  Evidence  $\Rightarrow$  Decisions

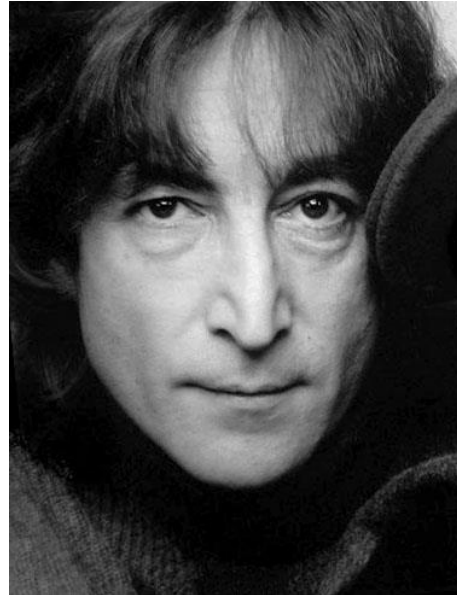
# Our distributions

- Statisticians?
- Organisation?
- Left-handed?
- Leaders?

# Education

## O Levels

1. Call Me, Blondie
2. Another Brick In the Wall, Pink Floyd
3. Magic, Olivia Newton-John



# Education

## A Levels

1. Physical, Olivia Newton-John
2. Eye of the Tiger, Survivor
3. I Love Rock N Roll, Joan Jett and The Blackhearts



???

- Is statistics taught at GCSE and A Level?
- How can we improve statistical literacy?
- How can we communicate the joy of statistics?

<http://www.youtube.com/watch?v=CiCQepmcuj8>

# Education



## BSc Hons (Statistics)

1. That's What Friends Are For, Dionne Warwick, Elton John, Gladys Knight
2. Say You, Say Me, Lionel Richie
3. I Miss You, Klymaxx

# Education

## PhD – Design and Analysis of Sequential Clinical Trials

1. (Everything I Do) I Do It for You,  
Bryan Adams
2. I Wanna Sex You Up,  
Color Me Badd
3. Gonna Make You Sweat,  
C+C Music Factory





# Education

## PhD – Design and Analysis of Sequential Clinical Trials

- Critical appraisal
- Writing
- Lecturing
- Programming (in Fortran)
- Collaborating
- Consulting
- *Lots of red ink!*

# Education

## PhD – Design and Analysis of Sequential Clinical Trials



- International conferences (student prize at Society for Clinical Trials)
- RSS 2-week meeting re interim analyses
  - 20 international experts + 6 PhD students

???

- Can we encourage year placements during university courses?
- Can we encourage industry to sponsor MSCs and PhDs, for students and their staff? (Compare with MPH.....)
- Can we run a student (or young statistician's) competition to present at conference?

# Employment

- Mentors
  - Cliff Lilley
  - Bob White
  - John Whitehead
  - Thorkild Nielsen/Sam Givens
  - John Lewis

??? Is there a place for organised mentorship schemes?

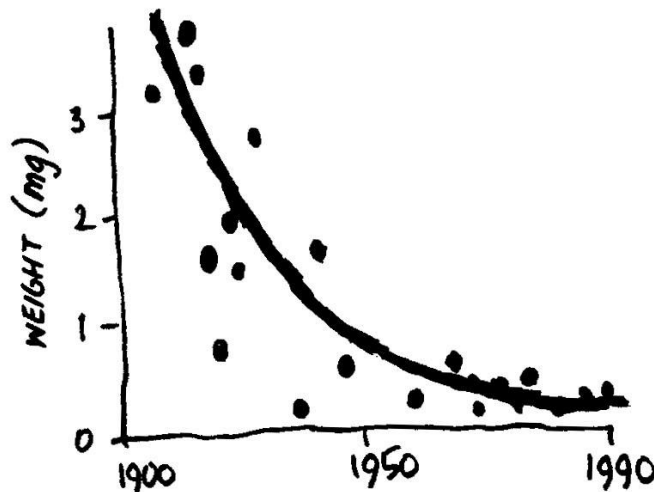
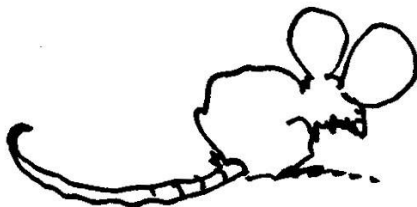
# Pharma

- Responsibility
  - Protocol and report sign-off
- Integrity
  - Open data?
- Collaboration
  - With all stakeholders?

MODERN STATISTICIANS, WITH THEIR COMPUTERS, DATABASES, AND GOVERNMENT GRANTS, HAVE LOST SOME OF THIS HANDS-ON ATTITUDE.



IF YOU GRAPHED THE MEAN MASS OF RAT DROPPINGS UNDER STATISTICIANS' FINGERNAILS OVER TIME, IT WOULD PROBABLY LOOK SOMETHING LIKE THIS:



# Medicines Regulation

## UK

- From none to several
- Building trust, integrity and pragmatism
- Speaking the other's language

## EMA

- Providing official advice, developing guidance
- Encouraging statistical input in other countries

# Health Technology Assessment (HTA)

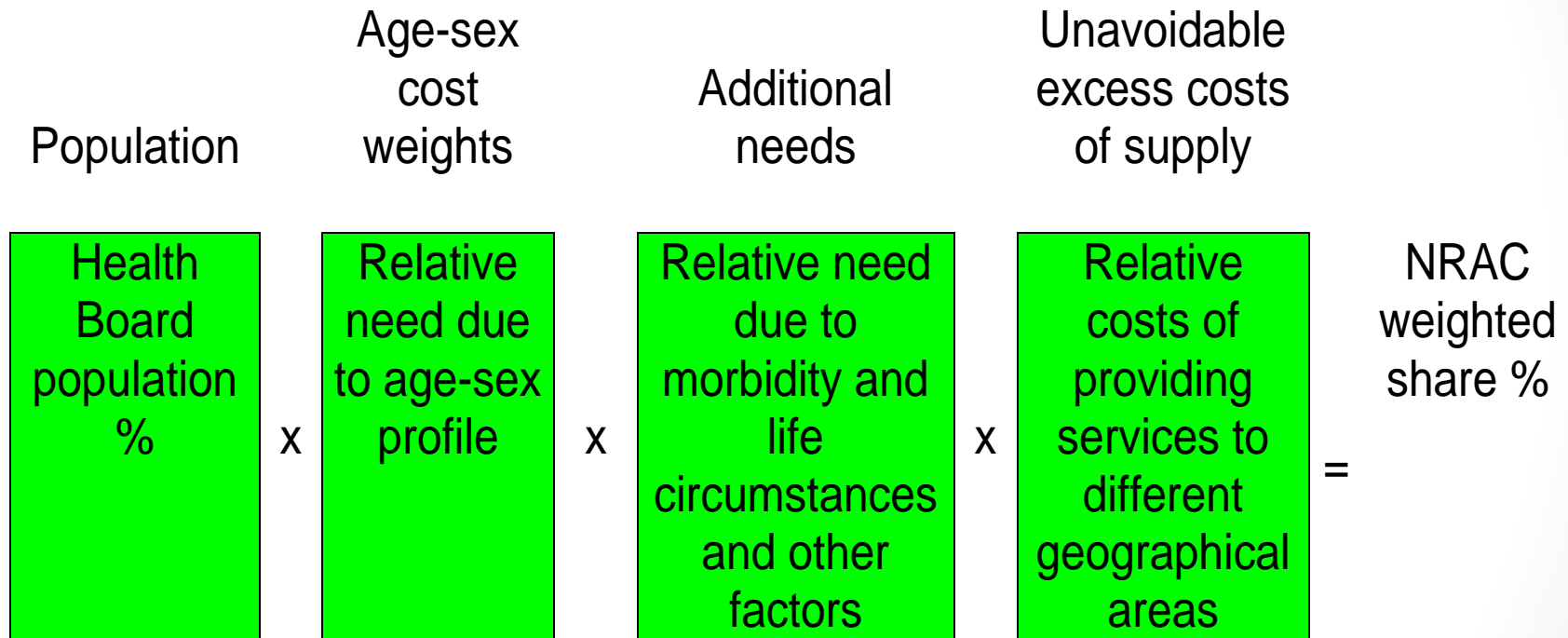
- Seen by some as synonymous with cost effectiveness (value for money)
  - Clinical effectiveness
  - Cost effectiveness
  - Organisational Issues
  - Patient Issues
- Promote statistical thinking in a world taken over by economists
- Use logical thought to engage media and politicians



# Health Policy – Resource Allocation

- NHS Scotland Resource Allocation Committee
- £8bi budget for hospital, community care and GP prescribing
- Funding “formula” to divide budget among 14 health boards
- Complex

# NRAC Formula



# NRAC

- Data gathering
- Exploratory analyses, subject to scrutiny
- Consultation
- Openness - website
- Quality assurance
- Peer review
- Presentation to Parliament
- Letter to Cabinet Secretary for Health
- Implementation
- Development

# Health Board Governance

- Defining and reviewing performance indicators
- Financial scrutiny
- Big decisions - option appraisal
  - Plan with clear criteria
  - Appropriate inputs (identification of bias)
  - Assumptions tested
  - Outputs presented clearly
- Clinical governance
  - Audit, clinical outcomes, patient safety,....

# Health Policy

- National Quality Improvement Advisory Group
- Scottish Health Technologies Group
- ScotStat
  
- Committee on Safety of Devices (registries)
  
- Design of studies for rare diseases
  
- *Evidence to inform decision-making  
(Messy data in an imperfect world)*

## Tidal wave of information threatens to swamp proper scrutiny

I NEED to start with a deep breath.

The statistics arm of NHS Scotland published 21 separate data files on one morning this week. Among them were death rates in Scottish hospitals (47 pages), performance against waiting times targets (three files, equating to more than 100 pages), access to psychological help for children and adults and insight into how much health boards are doing to help overweight school pupils. These and most of the other documents were all important topics which warranted proper scrutiny. Knowing this, the Scottish Government decided to publish health boards workforce plans on its own website the same morning - documents which in the past have revealed hundreds of nursing jobs were being axed and this year, that more nurses are being hired.

# The need for Leadership

- *Tame problems – management engage the appropriate process to solve the problem*
- *Critical problems – commanders required to take decisive action and be coercive*
- Wicked problems – leadership need to ask appropriate questions and inspire collaboration

# Wicked problems

Rittel and Webber, 1973

- Reducing health inequalities by changing behaviours, as an example
- Complex, with no definitive formulation and so no definition of success
- Solutions to wicked problems are not true or false, but better or worse developments
- Every attempted solution to a wicked problem counts significantly because it changes the problem



# Seven steps to change the world

## Scottish Government Permanent Secretary

Unlock leadership capacity at all levels:

1. Vision that stirs the heart
2. **Story of how things have been and how they will be in the future**
3. Valid and recognizable **actions** to move forward
4. **Proven methodology** & capacity for improvement
5. **Engage** workforce
6. Make it happen everywhere (**taking account of different contexts**)
7. When the going gets tough identify allies you can call on  
- **coalitions**



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