

## Using Indicators: Can performance measurement be effectively used to rank healthcare provider performance?

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## What role do CIs have?

- CIs are a **screening** tool: not a valid and reliable measure of quality. Hence false positives and negatives will occur
- A positive result requires further review and investigation. Involves secondary analyses and an in-depth study of the processes involved
- If CIs are collected, it is essential that a formal process for acting on the results be in place
  - analogy:
    - breast-screen program notification system
    - GP notification and referral for positive blood tests

## Criteria for selecting CIs

- The CI must have a clearly defined and easily measured numerator
- The CI must have a clearly defined and easily measured denominator
- The total numerator must be large enough so that there is the potential for significant gains to be made
- Data from a significant number of hospitals is required so that the variation in rates can be determined
- There must be the potential for variation in rates between hospitals so that gains may be made
- A CI must have the ability to be adjusted for any potential confounding variables, or not be strongly influenced by variables, such as case-mix
- A CI cannot simply be a 'yes/no' response for the entire hospital or organisation
- A CI should be developed from Evidence Based Medicine (EBM)
- The indicator should measure a process rather than an outcome

## Detecting positive/negative results from CIs

- There are three types of positive result:
  - Large variation between Areas or hospitals
  - Large variation between strata (rural/urban, teaching and non-teaching, public private)
  - Outlier Areas or hospitals
- Statistical methods to detect positive results require new techniques
  - Empirical Baysean methods to calculate 'shrunken' rates
  - Use of the 20<sup>th</sup> centile to estimate impact of between hospital variation
  - Definition of quality in terms of variation rather than the mean rate

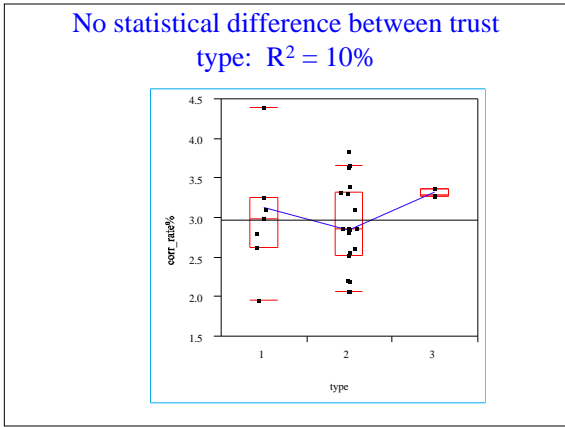
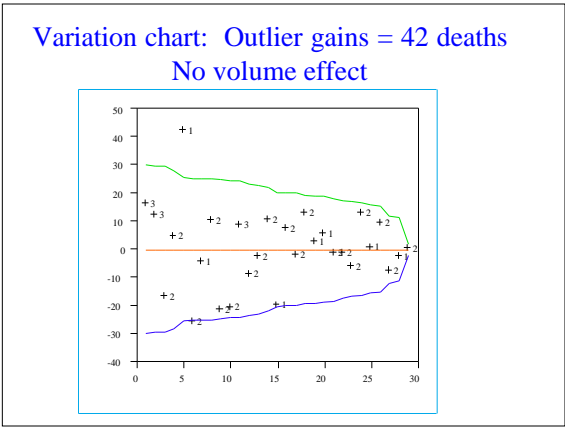
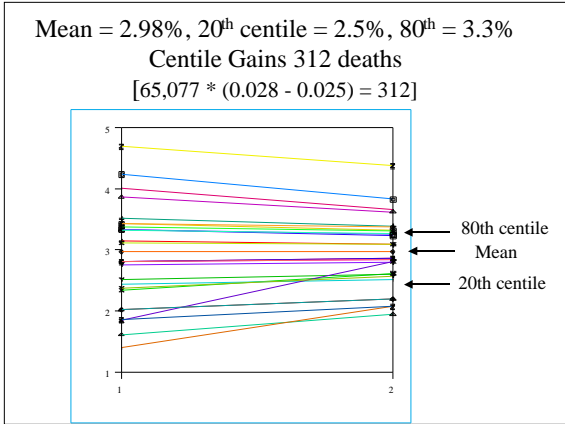
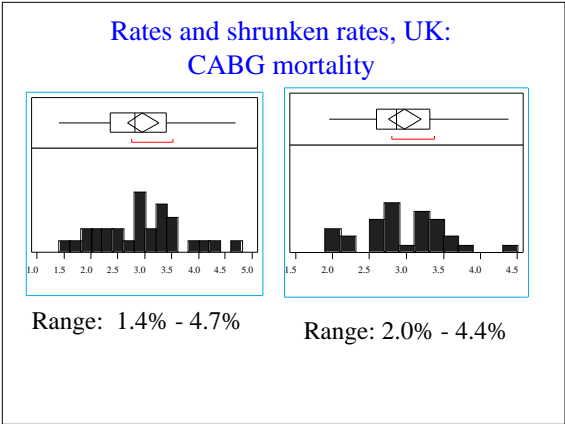
## Processes for using CIs: D.A.T.A.

- Data:
  - collect CIs across hospitals
- Analyses:
  - test whether the CI returns a positive result
- Then Action:
  - Communicate the results
  - Pick the 'easy apples'
  - Use QI tools to study the 'easy apples'
  - Resources are required for quality teams / research

## UK Performance Reports : CABG mortality

Plymouth below and Walsgrave above UK average??

Trust Name	Absolute Value	Lower Confidence Interval	Upper Confidence Interval	Absolute Band
Blackpool Victoria Hospital NHST	3,172	2,432	4,066	W
Brighton Health Care NHST	2,324	1,456	3,519	W
Hull and E Yorkshire Hospitals NHST	3,370	2,601	4,295	W
N Staffordshire Hospital NHST	2,982	2,166	4,003	W
Plymouth Hospitals NHST	1,613	1,123	2,243	B
S Tees Acute Hospitals NHST	2,772	2,211	3,432	W
Walsgrave Hospitals NHST	4,732	4,000	5,559	A



### Australian Rates: (only includes hospital deaths)

Year	Num	Den	Rate	20th Centile	80th Centile	Potential Gains	Stratum	Outlier
1998	176	8,326	2.1	1.5	2.6	49	-	6
1999	197	9,800	2.0	1.5	3.0	49	-	4
2000	215	10,417	2.1	1.5	2.7	64	-	-
2001	196	9,904	2.0	1.6	2.3	33	-	-

UK Rates (deaths within 28 days)

1,938	65,077	3.0	2.5	3.3	312	-	42
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### Gains by type of CI

Dimension	Number of CIs	20 <sup>th</sup> Centile Gains	Outlier Gains
Timeliness	19	13.2%	5.1%
Continuity	9	11.7%	4.2%
Appropriateness	41	9.3%	2.8%
Safety	33	3.6%	1.1%
Effectiveness	51	2.3%	0.5%

### Summary

- Comparisons between hospitals is required to find the 'easy apples'
- league tables are not as effective as quantifying the potential gains
  - 20th centile, strata and outlier gains
- the most gains are to be found in
  - timeliness
  - Appropriateness & following recommended protocols

### Answer to the title of the talk

- Using comparative performance measurement across providers does effectively rank those aspects of healthcare that have the potential to be improved
- The most gains are, however, across all providers
- The main task is to provide the tools and resources to tackle those areas with the most gains