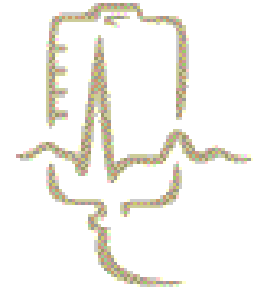


Measurement in Quality Improvement



Don Campbell & Damien Jolley
Monash Institute of Health
Services Research



Speakers

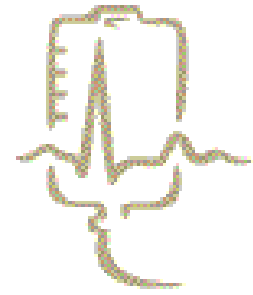
- The Use of Measurement in Quality Improvement
 - A/Prof Damien Jolley

- Sampling & Measurement for Improvement
 - Prof Don Campbell

The use of measurement in quality improvement

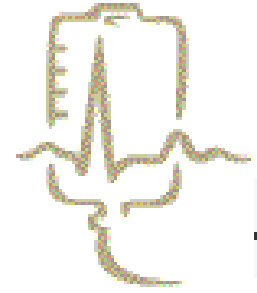


A/Prof Damien Jolley
Monash Institute of
Health Services Research



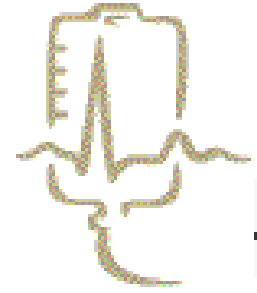
IHI Hints for Effective Measurement

- Seek usefulness, not perfection
- Use sampling
- Plot data over time
- Integrate measurement into the daily routine
- Use qualitative and quantitative data



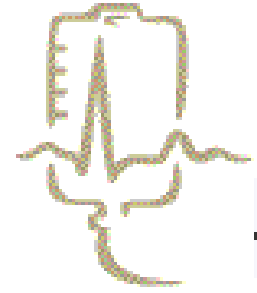
Usefulness, not Perfection

- All measurements are wrong !!
- All measurements are useful !!
- Measurement is not the goal
 - Improvement is the goal
 - Measurement is the tool – measure *change*



Use sampling

- Don't try to measure ALL events or outcomes
- Sampling leads to:
 - Efficiency
 - Simplicity
 - Acceptance
 - Quality
 - Accuracy



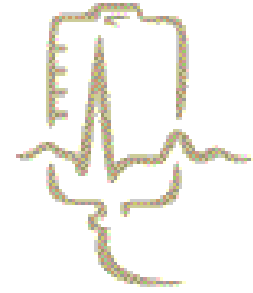
Easy sampling methods

Systematic sampling

- Regular selection
eg every hour on the hour, every 10th patient
1. Decide how many
 2. Work out flow rate
 3. Divide total number by the number you need

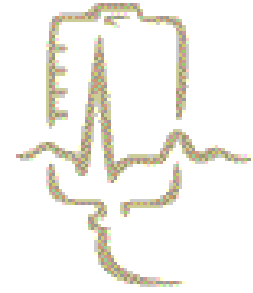
Block sampling

- Select a straight sequence in a single time frame
1. Decide how many
 2. Select location and time to begin
 3. Select 1st unit and keep going until target reached



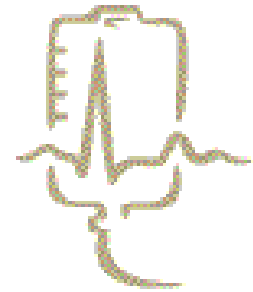
How many to sample?

- THIS IS NOT RESEARCH !!
 - So not necessary to think of “power”
- Use intuition
 - even small samples are very useful
- Accumulate over time
 - Measure for change



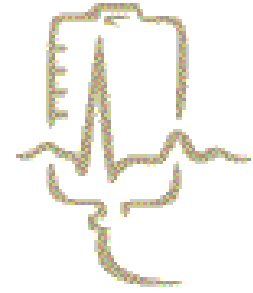
Plot data over time

- Measure for *change* – change implies time
- Visual inspection of temporal patterns is much more informative than statistical test
- Tracking a few key measures over time is the single most powerful tool a team can use



Integrate measurement into the daily routine

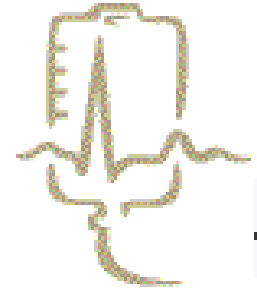
- Regularity, recency, responsibility are key features of useful data collection
- DON'T rely on IT department !!
- Use simple forms, part of someone's job
- Reward/praise for accurate, regular collection and reporting



Qualitative AND Quantitative

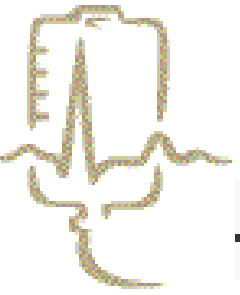
- Use ALL levels of measurement
 - Nominal (categorical)
 - Ordered categories, eg satisfaction, pain
 - Interval or ratio (quantitative) data

- Measure qualitative outcomes:
opinions, advice, satisfaction,
experiences



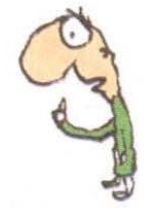
What's a "good" measurement?

- Two measures of quality :
 - Reliability
 - aka: consistency, agreement, reproducibility
 - Will yield same, or close, value when remeasured
 - Validity
 - aka: accuracy, lack of bias, correctness
 - Measures what it is intended to measure

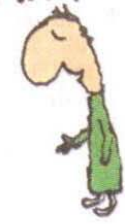


Father, what is "reliability"?

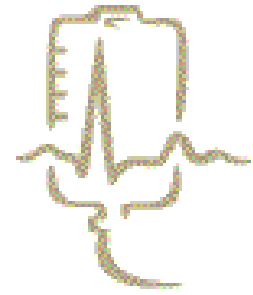
Reliability is the ability to tell a lie over and over again...:



...to lie and re-lie and re-lie until the lie seems to sound like the truth... THAT'S RELIABILITY

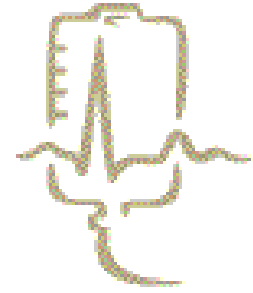


Leung



Validity

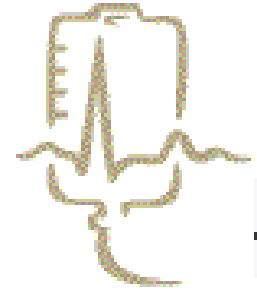
- Content validity
 - Covers the domain of its intent
- Construct validity
 - Consistent with theoretical constructs
- Criterion validity
 - Close to an external reference, or “gold standard” true measurement



For Quality Improvement...

- Measures should be:
 - Reliable
 - Content valid
 - Construct valid

- Need for criterion validity (the hard one!) is less critical



Summary

- Seek usefulness, not perfection
- Use sampling
- Plot data over time
- Integrate measurement into the daily routine
- Use qualitative and quantitative data
- Good measures for quality improvement are:
 - Reliable
 - Content valid
 - Construct valid

Return

Sampling & Measurement for Improvement

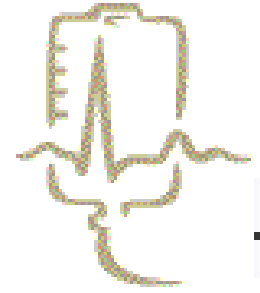


Prof Don Campbell

*“If you can not measure it,
you can’t manage it”*



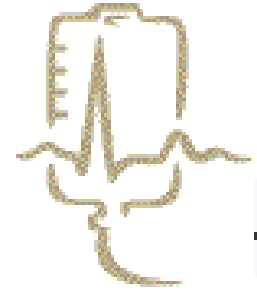
Brent James 1999
Executive Director
IHI



Improvements

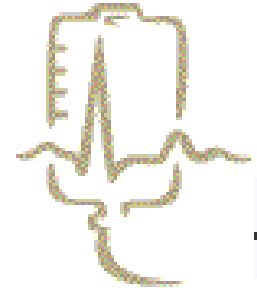
- The will to make the change
- The ideas to make the change
- The execution of the ideas

COMMITMENT TO MEASUREMENT &
REPORTING



Role of Measurement

- Data does not improve processes – people do
- The purpose of data is understand, control and improve processes
- Measurement for learning & testing, NOT JUDGEMENT



Useful Measurement

- Team produce monthly measurement report
- Data directly related to aims
- Data collected in cycles to determine the effect of a particular change
- Qualitative data to assist in refining a change
- Narrow scope & stay on the money



Differences in Approach

Pragmatic Science

Aim: Improvement in care

Methods:

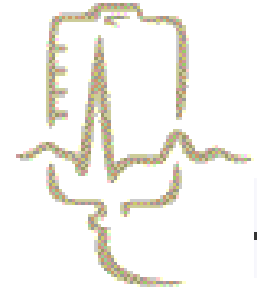
- Test observable
- Stable bias
- Just enough data
- Sequential tests with adaptation of changes

Academic Research

Aim: New knowledge

Methods:

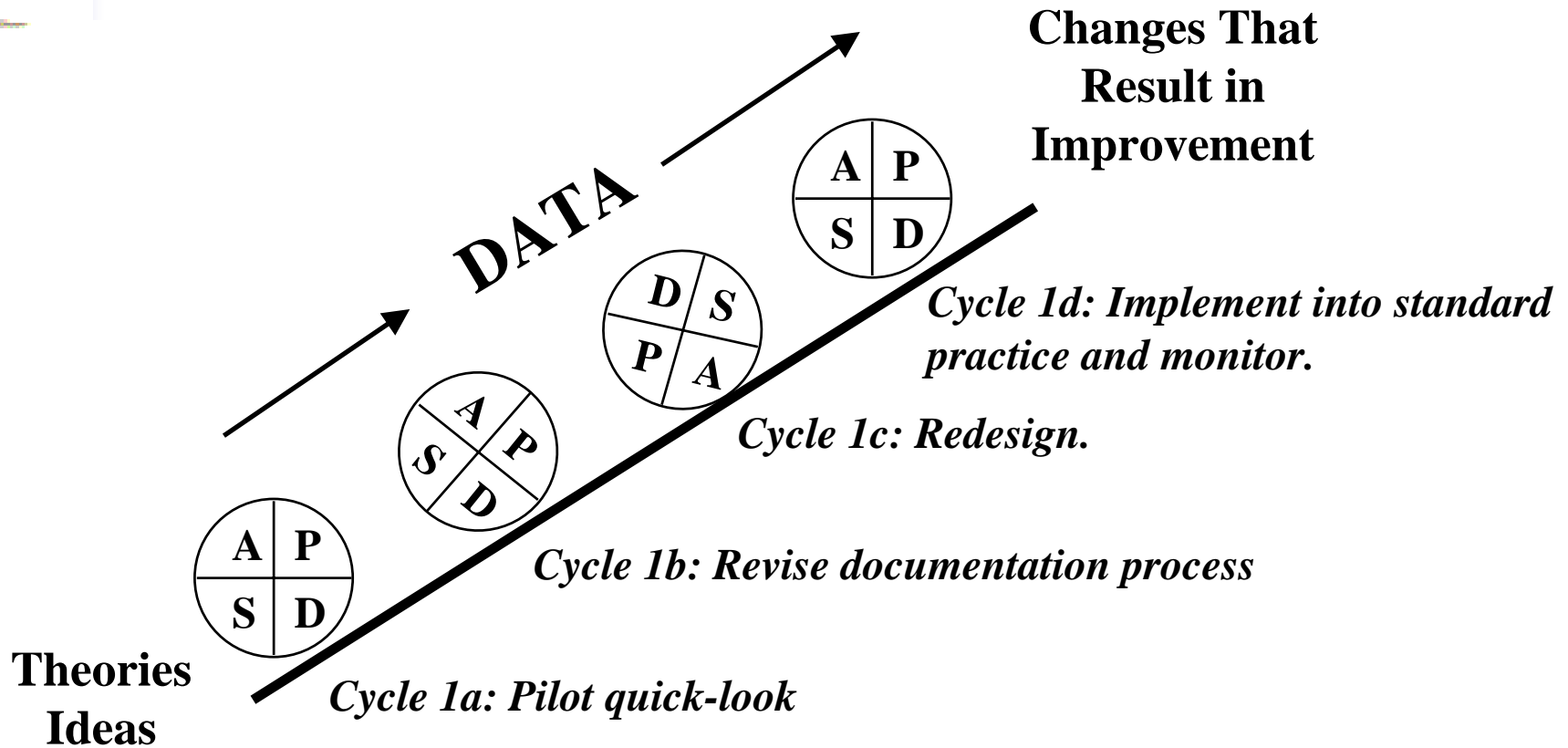
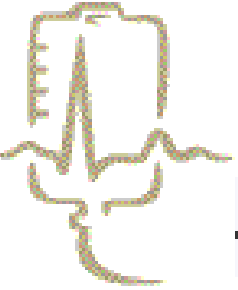
- Test blinded
- Eliminate bias
- Just in case
- One large test of a fixed hypothesis



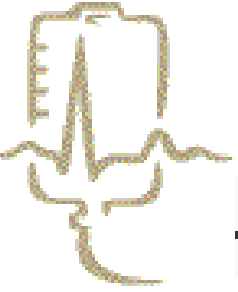
Collecting Data

- Use purposive sampling to conserve resources
 - **Sample data daily**
 - **Summarize data weekly using the median to lessen the effect of outliers**

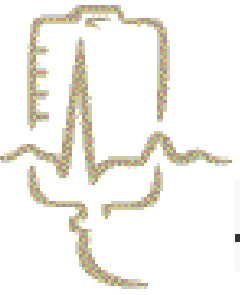
Repeated Use of the PDSA Cycle for Improvement



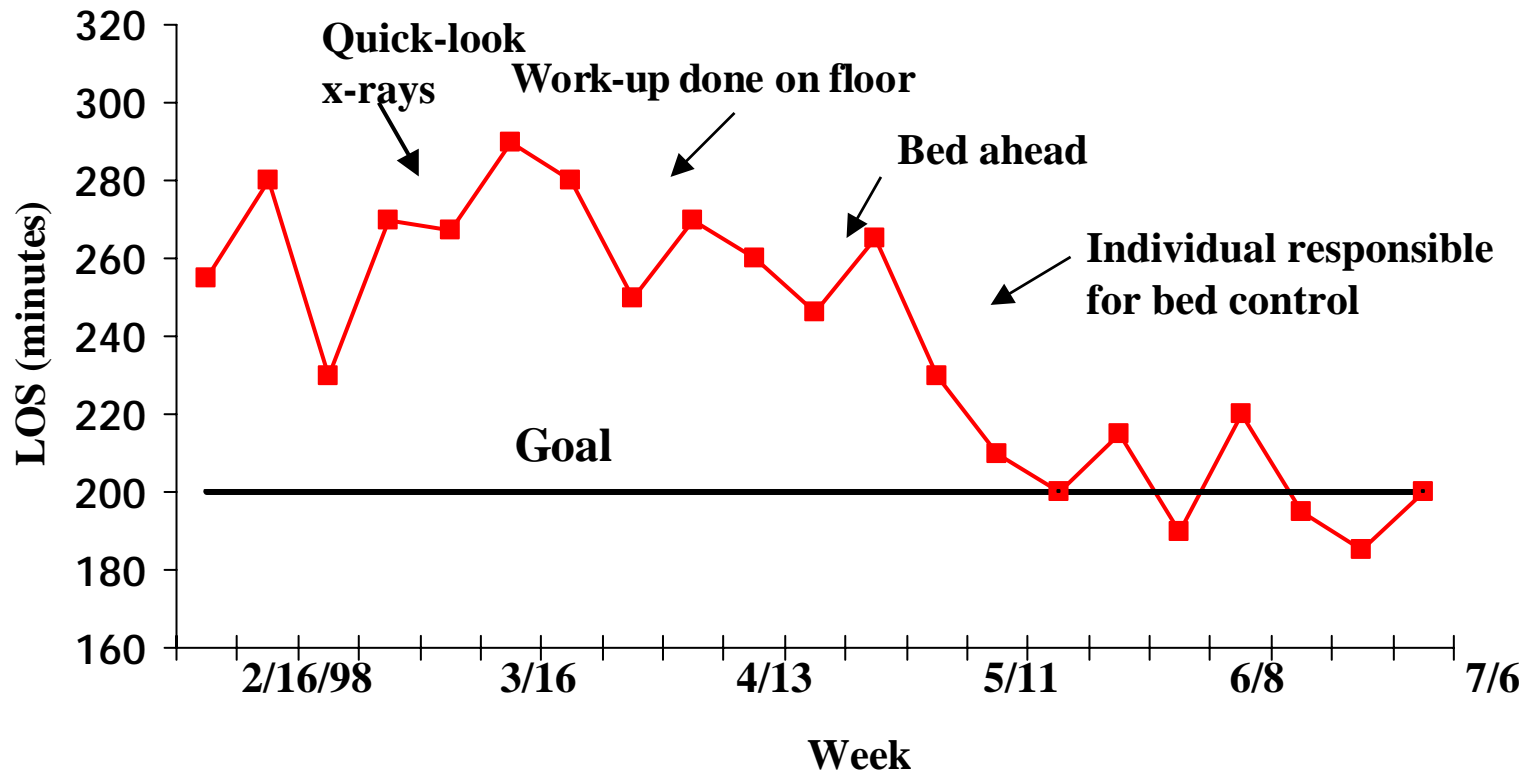
Some Tips for Designing Good Graphics



- Eliminate ink that does not add information
- Show the data
- Make good use of space
 - Scale the graph so the data eventually encompasses most of the graphing area
 - Include information about multiple characteristics on the same graph or use multiple graphs on the same page
- Integrate words with the data

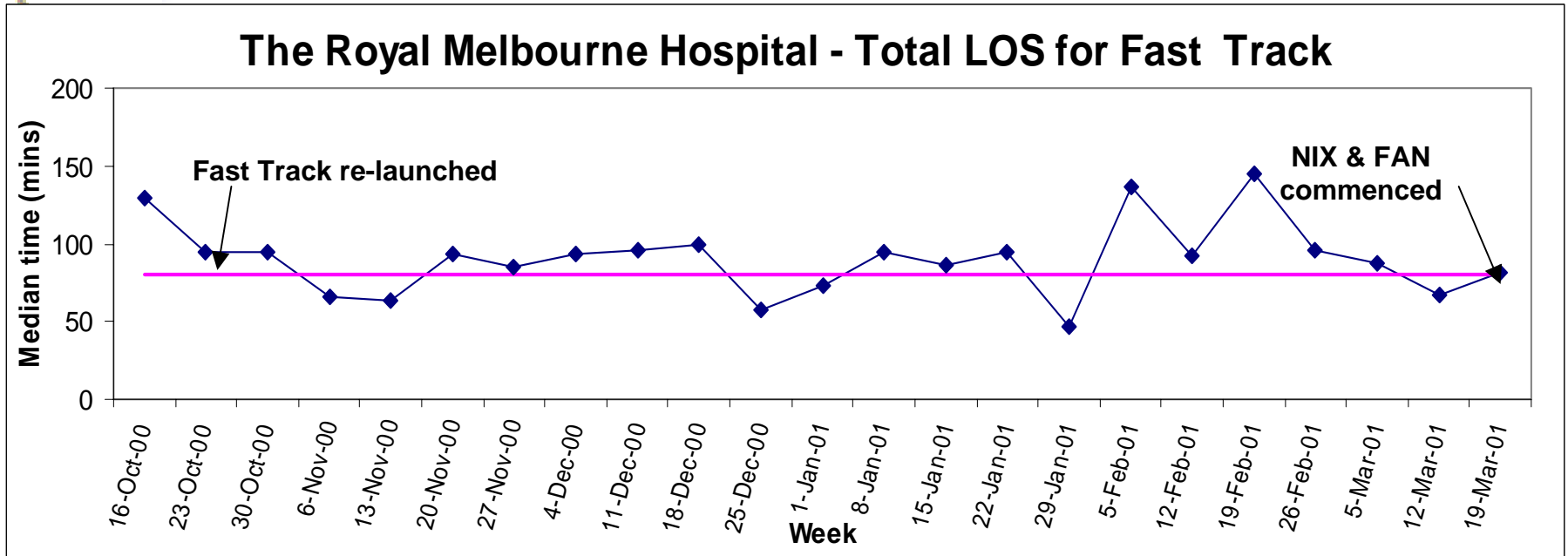


Good Graphics in Action





Aim: Decrease ED LOS by 10 % (Fast Track Patients with median LOS < 80 mins)



1. 23/10/00 Review of fast track criteria-distributed. Fast track re-launched.
2. Forward Assessment & Rapid Treatment Area to be set up.
3. 19/3/01 Fast Track Assessment Nurse (FAN) commenced
4. Nurse initiated x-ray (NIX) process stream lined - launched 19/3/01



Summary

- Measurement is important
 - identifying a problem (helps convince others too)
 - demonstrating that change can lead to improvement (data will convince sceptics)
 - holding the gains
- If you aren't committed to measurement
 - how will you know you made a difference?