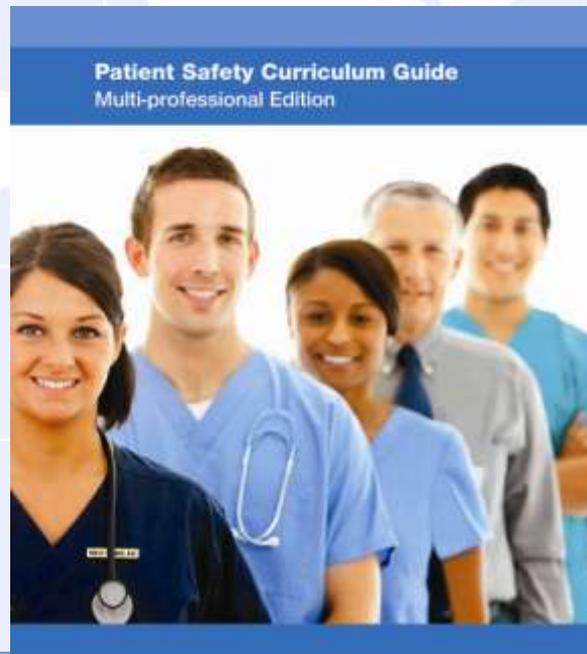


Topic 7

Using quality-improvement methods to improve care



Learning objectives

- The objectives of this topic are to:
 - Describe the basic principles of quality improvement
 - Introduce students to the methods and tools for improving the quality of health care

Knowledge requirements

- The science of improvement
- Change concepts
- Improvement principles
- Role of measurement in improvement

Performance requirement

- Identify the opportunities for using safety science to analyse errors
- Appreciate the range of improvement methods available for reducing harm to patients
- Apply at least one improvement tool in a particular clinical context
- Participate in an improvement activity (if possible)

The science of improvement

- Appreciation of a system
- Understanding of variation
- Theory of knowledge
- Psychology

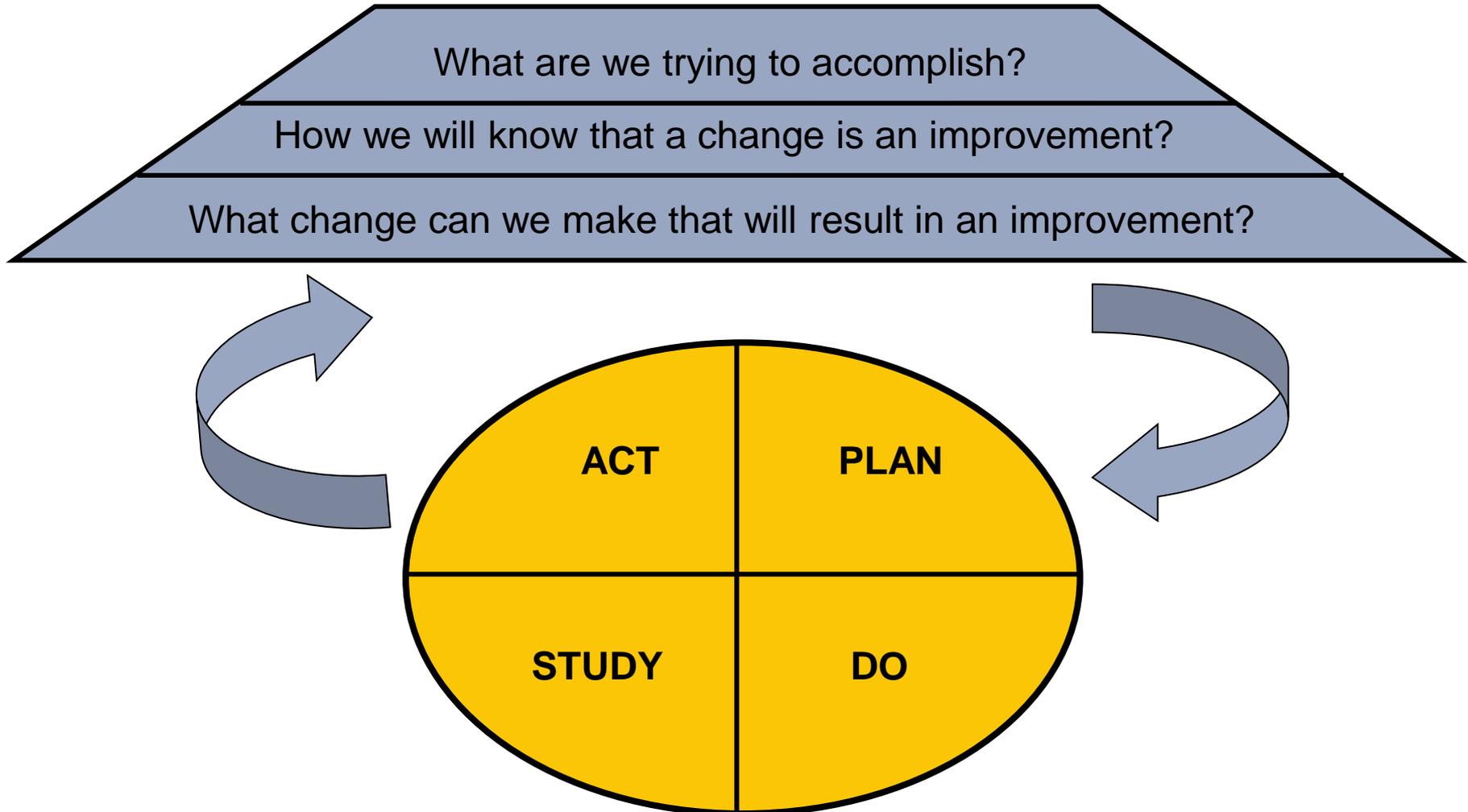
Source: Langley GL

Change concepts ...

... are general ideas, with proven merit and sound scientific or logical foundation that can stimulate specific ideas for changes that lead to improvement.

Source: Nolan TW, 1996

The model for improvement

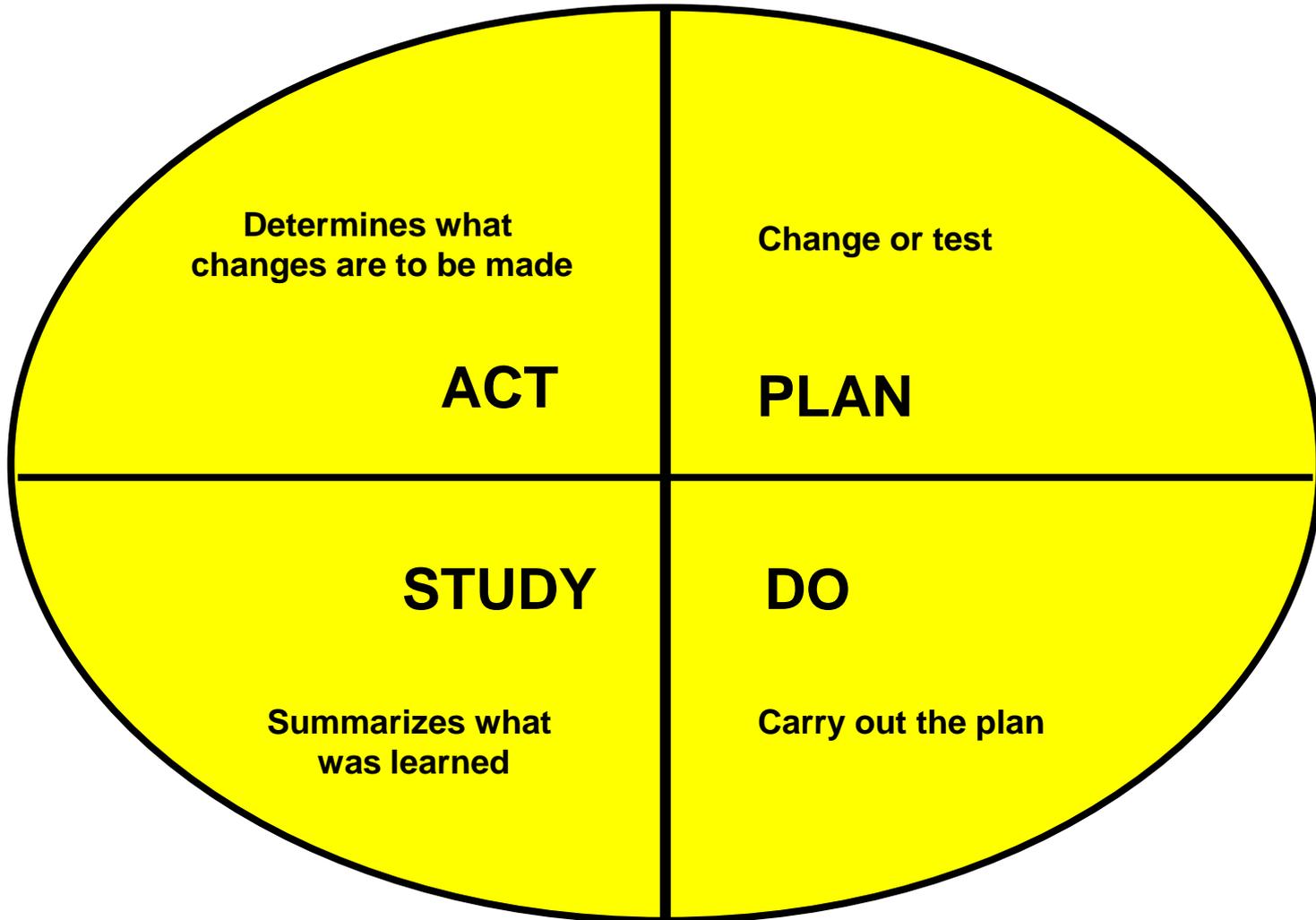


Source: Langlely GL, Nolan, KM, Nolan, TW, Norman, CL & Provost, LP 1999

The quality improvement model: the PDSA cycle

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in an improvement?

The PDSA cycle



Source: Langley GL, Nolan, KM, Nolan, TW, Norman, CL & Provost, LP 1999

The Institute for Healthcare Improvement (IHI): different measures

	Measurement for research	Measurement for learning and process improvement
Purpose	To discover new knowledge	To bring new knowledge into daily practice
Tests	One large "blind" test	Many sequential, observable tests
Biases	Control for as many biases as possible	Stabilize the biases from test to test
Data	Gather as much data as possible, "just in case"	Gather "just enough" data to learn and complete another cycle
Duration	Can take long periods of time to obtain results	"Small tests of significant changes" accelerate the rate of improvement

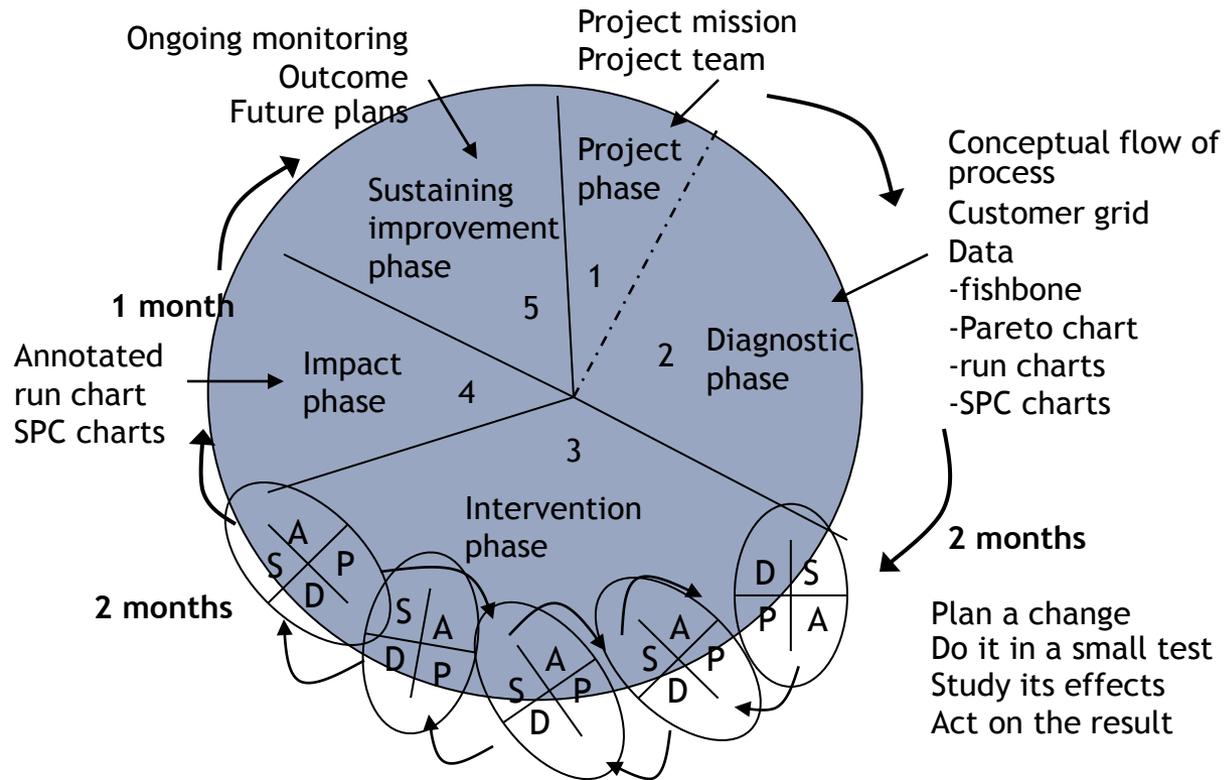
Three types of measures

- Outcome measures
- Process measures
- Balancing measures

Three examples of improvement methods

- Clinical Practice Improvement methodology (CPI)
- Root Cause Analysis (RCA)
- Failure Mode Effect Analysis (FMEA)

The improvement process



Source: NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement* (www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

SPC – statistical process control

Interventions phase

Identify appropriate interventions
Implement changes identified in the diagnostic phase
Undertake one or more PDSA cycles



Interventions phase

Decide on interventions

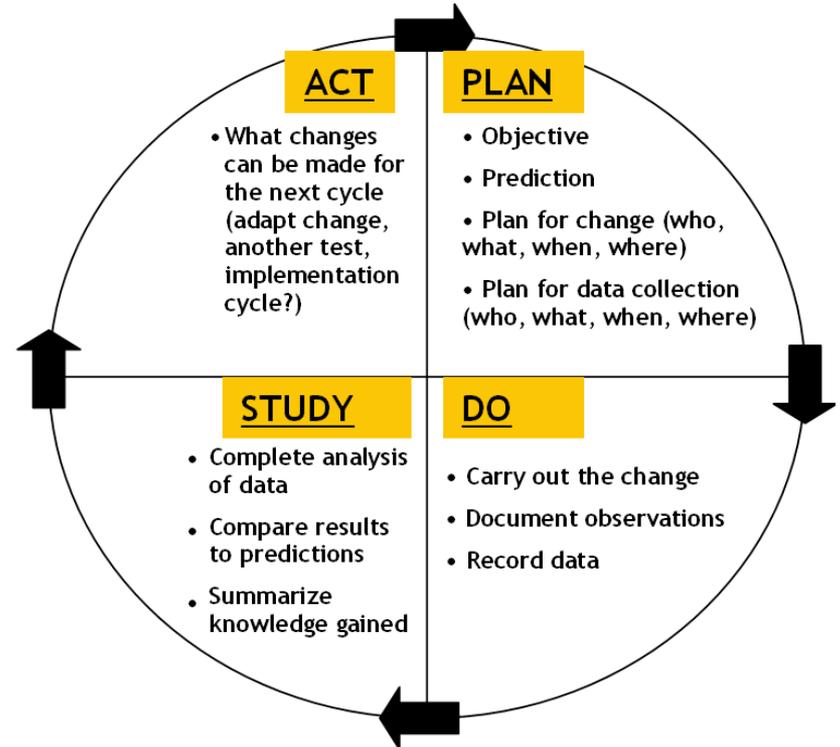


Undertake one or more PDSA
cycles

Source: NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement*
(www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

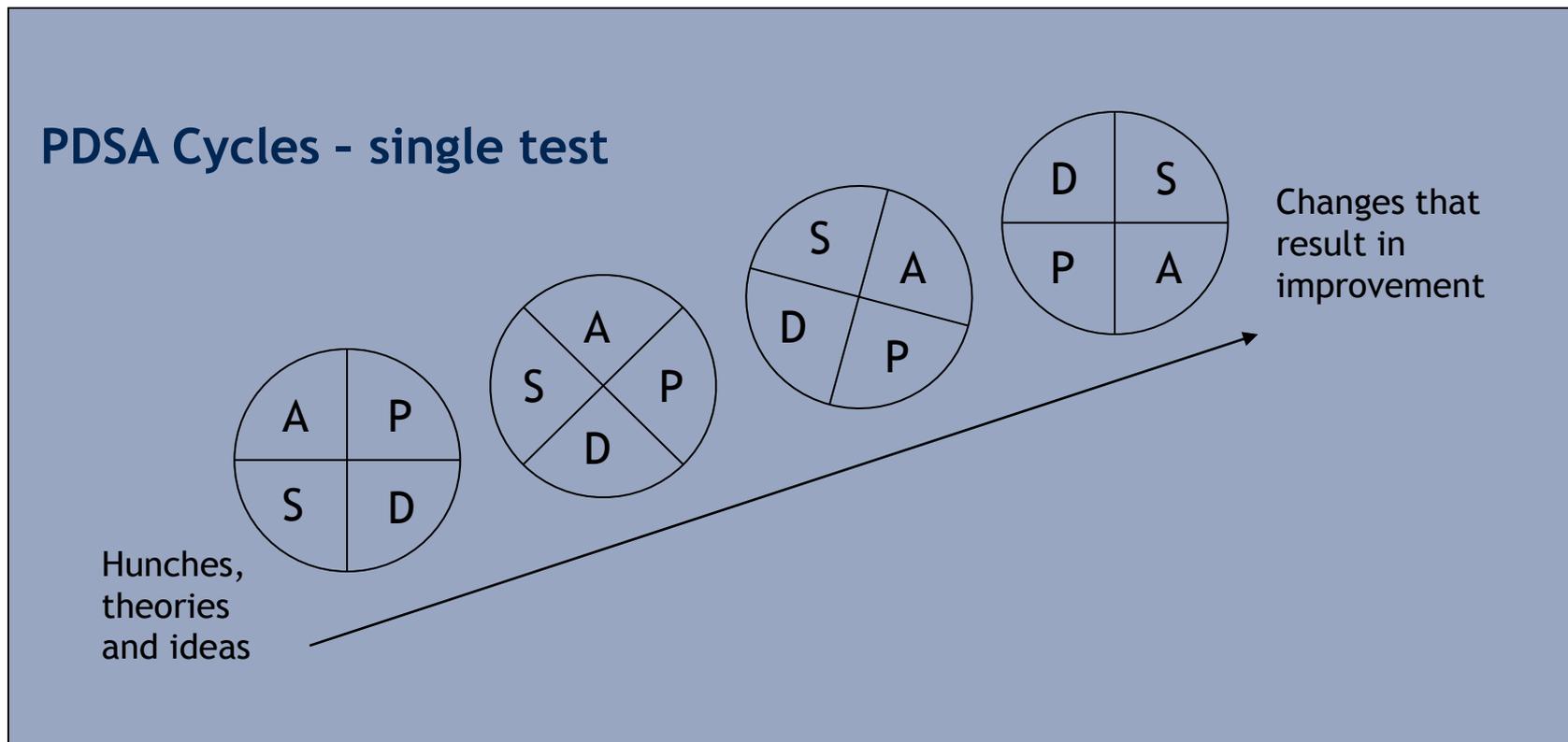
How to use the PDSA Cycle

- Use 'plan-do-study-act' cycles to conduct small-scale tests of change
 - Plan a change
 - Do it in a small test
 - Study its effects
 - Act on what learned
- Team uses and links small PDSA cycles for broader implementation



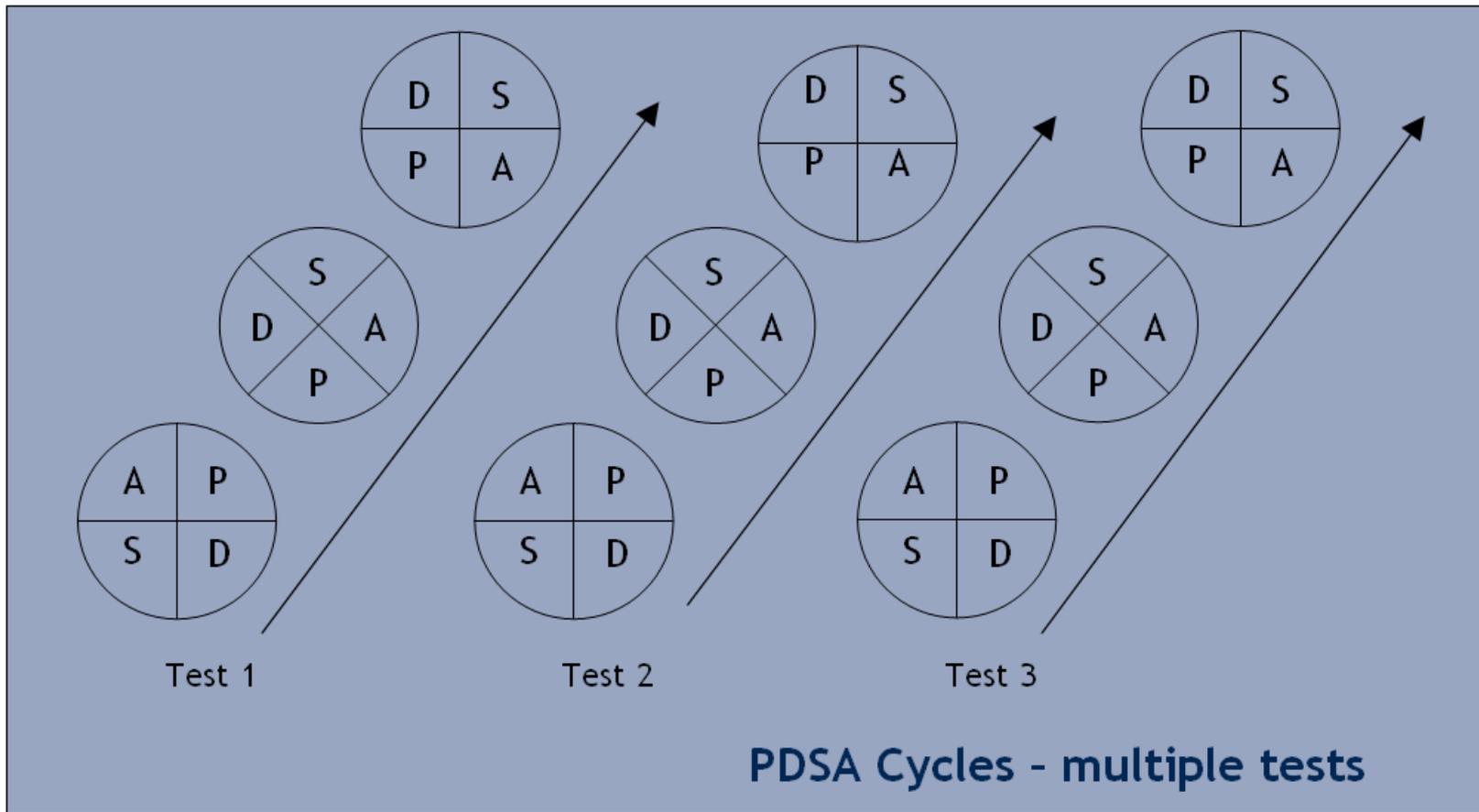
NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement*
(www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

PDSA cycle - single test



Source: NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement* (www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

PDSA cycle – multiple tests

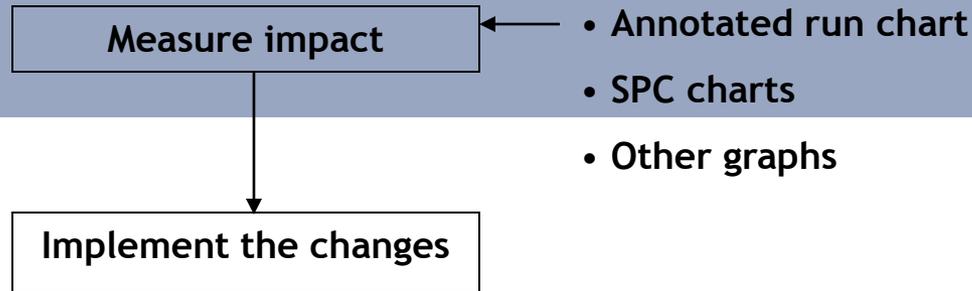


*NSW Department of Health (2002). Easy Guide to Clinical Practice Improvement
(www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)*

Impact and implementation phase

1. Measure impact of changes/interventions
2. Record the results
3. Revise the interventions
4. Monitor impact

Impact and implementation phase

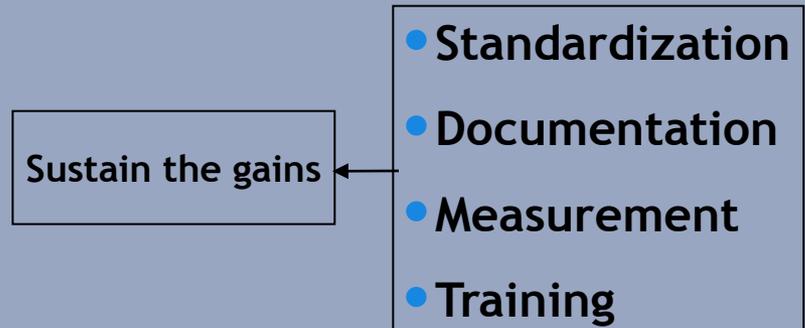


NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement*
(www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

Sustaining and improvement phase

- Once an intervention has been introduced, the intervention and any improvements need to be sustained
- This may involve:
 - **Standardization** of existing systems and processes
 - **Documentation** of policies, procedures, protocols and guidelines
 - **Measurement** and review of interventions to ensure that change becomes part of “standard” practice
 - **Training and education** of staff

Sustaining improvement phase

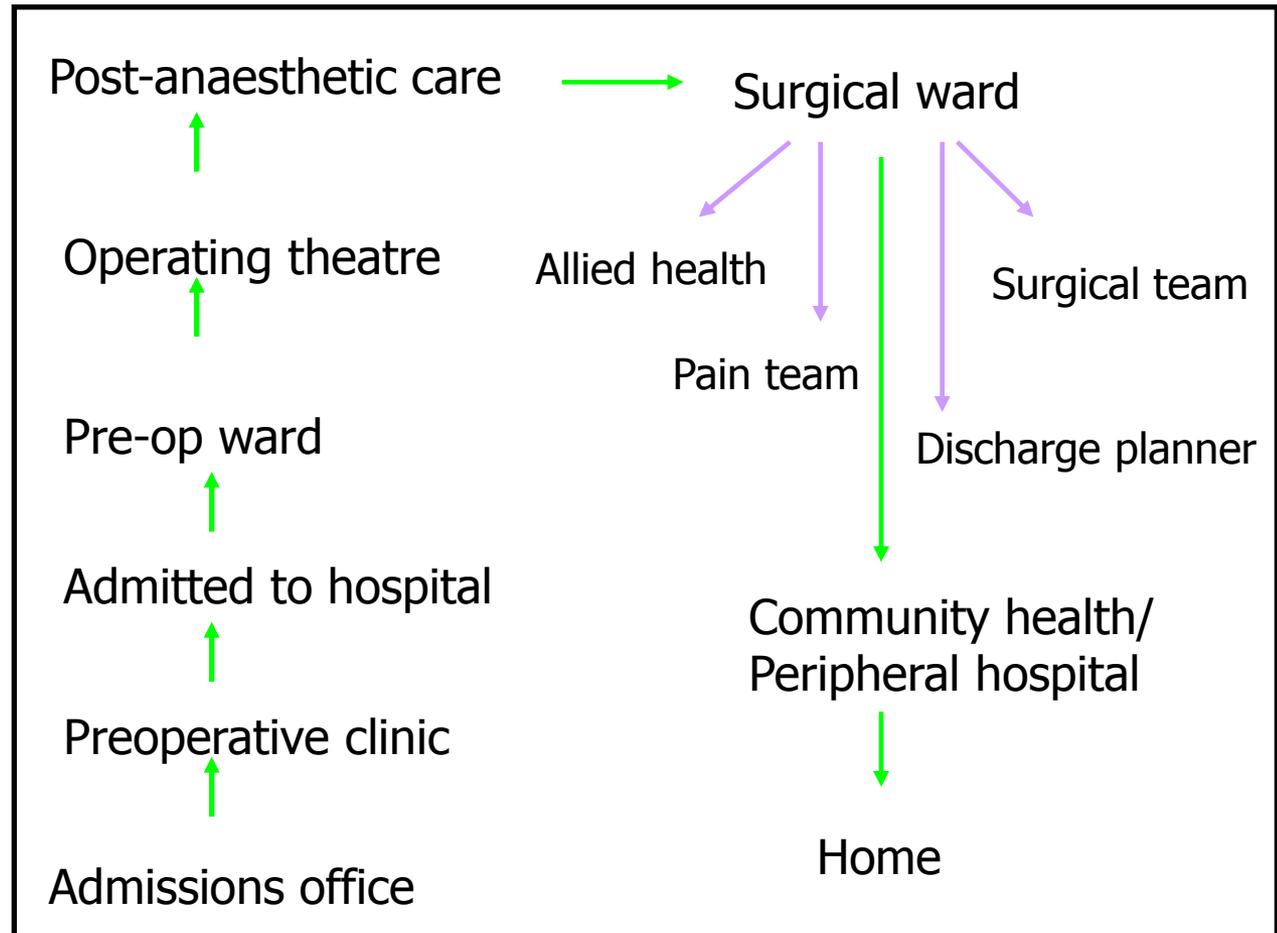
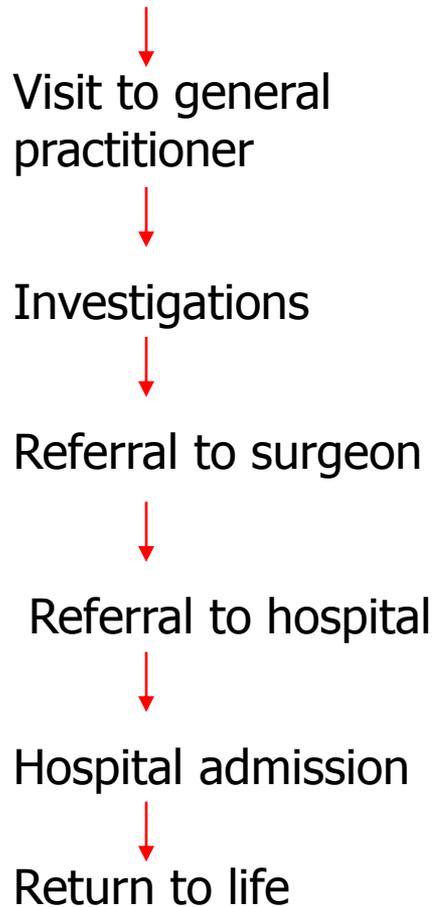


NSW Department of Health (2002). *Easy Guide to Clinical Practice Improvement*
(www.health.nsw.gov.au/quality/pdf/cpi_easyguide.pdf)

Flowchart of process

Example of a flow chart for a project titled: Accelerated Recovery Colectomy Surgery (ARCS)
North Coast Area Health Service
Australia

Something amiss

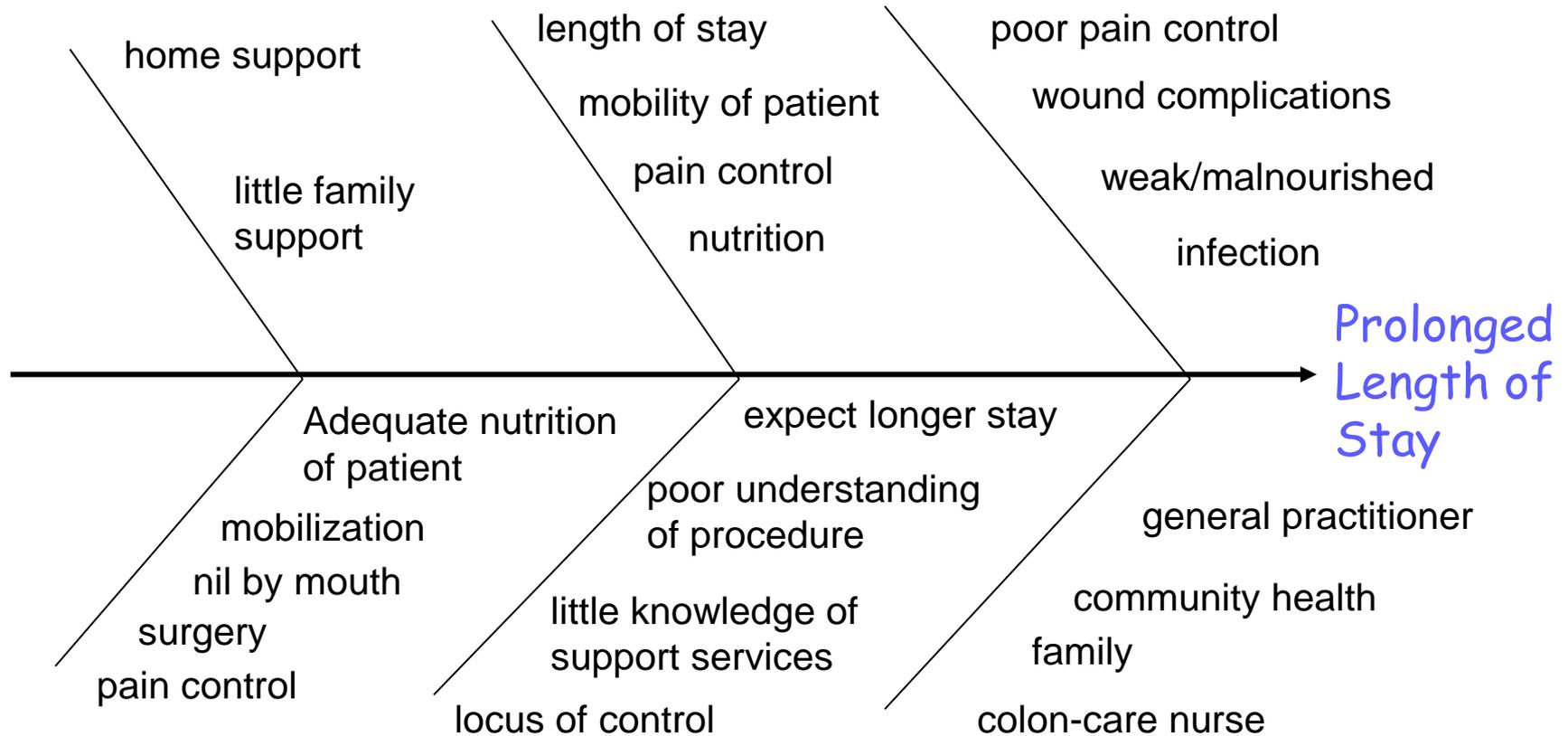


Cause and effect diagram

Social issues

Staff attitudes

Complications



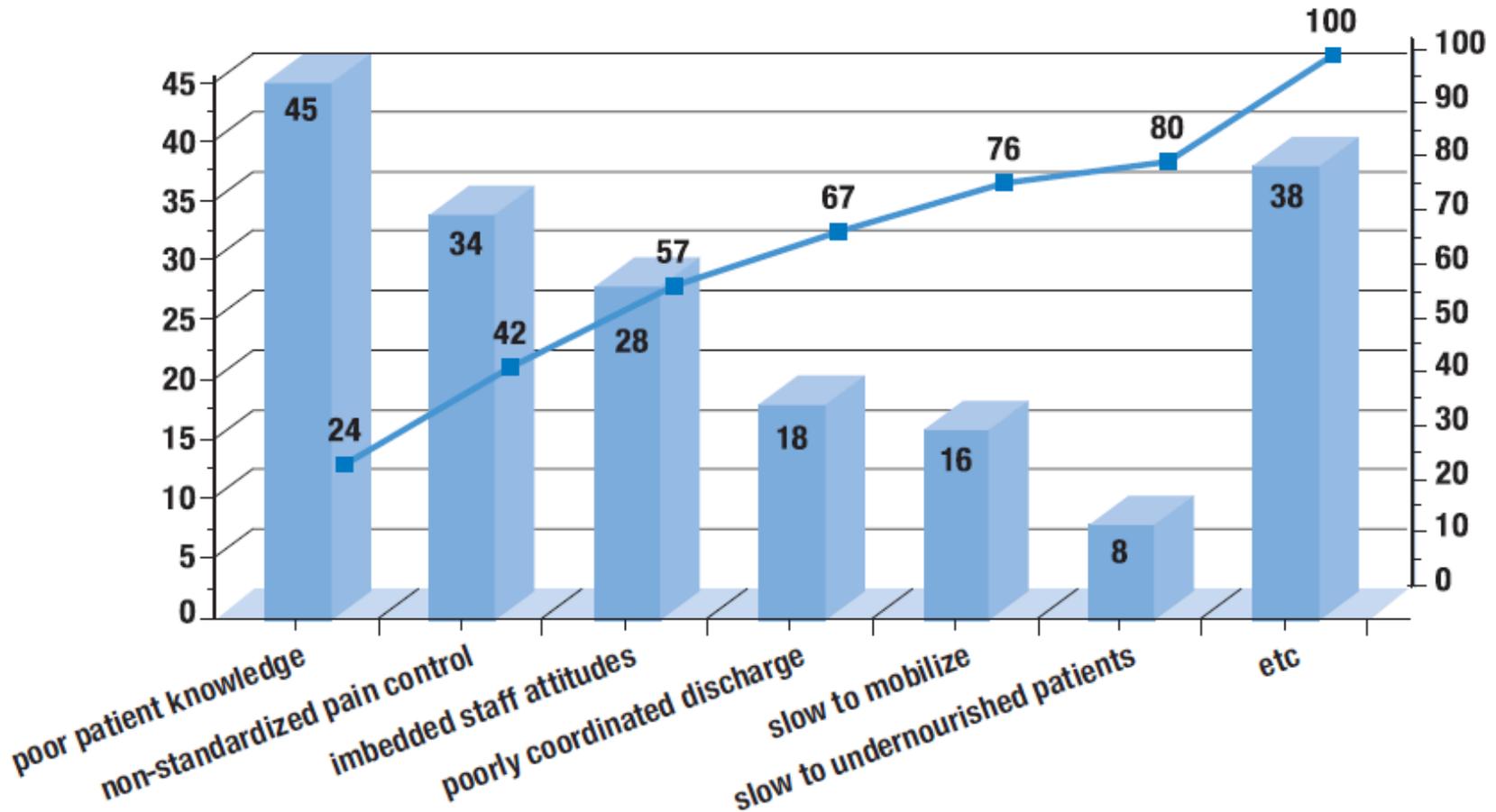
Procedure

Patient perception

Post discharge support

Accelerated Recovery Colectomy Surgery (ARCS), North Coast Area Health Service, Australia

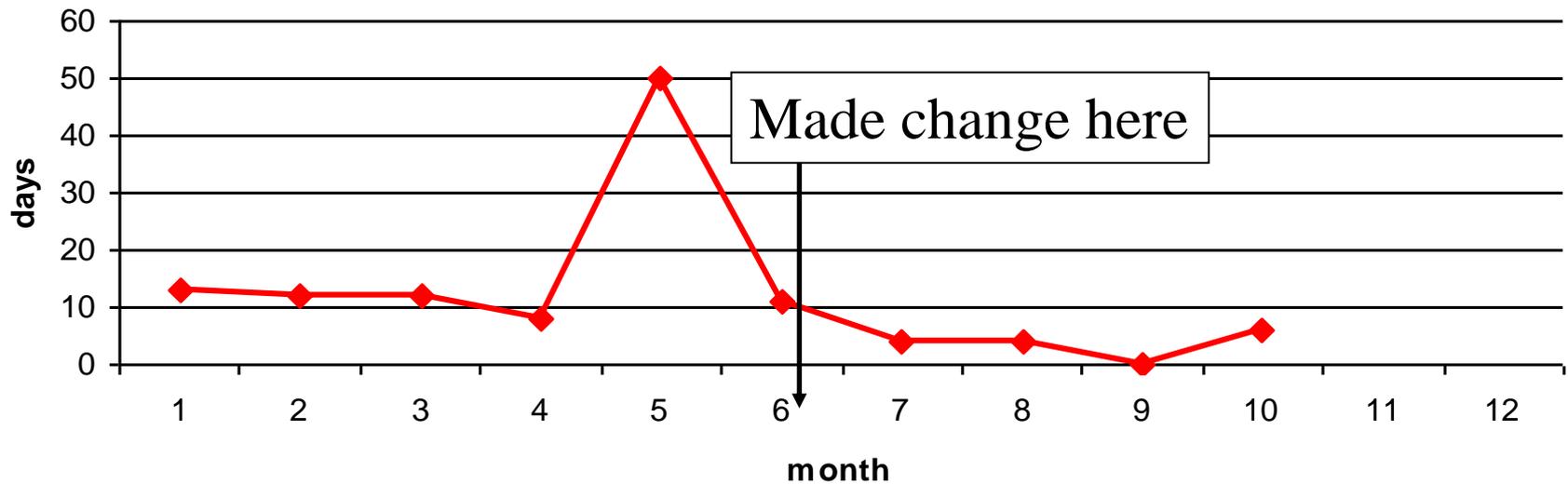
Pareto chart



Source: Langley GJ, Nolan KM, Norman CL, Provost LP, Nolan TW. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. 1996

Run chart

Average Length of Stay (days) per month



Strategies for sustaining improvement

- Document and report each patient Length of Stay (LOS)
- Measure and calculate monthly average LOS
- Place run chart in operating theatre, update run chart monthly
- Bimonthly team meetings to report positives and negatives
- Continuously refine the clinical pathways
- Report outcomes to clinical governance unit
- Spread
 - all surgeons
 - left hemicolectomy
 - all colectomy surgery
 - throughout North Coast Area Health Service