

Clinical Practice Improvement Centre

VLAD Dummies Workshop

Introduction

- A changing healthcare system means:
 - More measurement
 - More accountability
 - More transparency
- This translates to greater scrutiny of clinical practice
- We need to constantly look at ways to improve clinical practice, BUT
- It must be done systematically and in a way that provides the highest level of assurance but using clinician time wisely

Variable Life Adjusted Display (VLAD)



A VLAD is a type of statistical process control chart that visually represents treatment outcomes for selected clinical indicators.

Variable Life Adjusted Display (VLAD)

- A monitoring tool of clinical indicators
- Displays trends within a hospital
- Compares individual hospitals with the state average

VLAD Characteristics

A VLAD investigates:

- ✓ A clinical indicator
- ✓ According to a particular outcome
- ✓ Against a particular cut-off for reactive increase or decrease
- ✓ For a particular period
- ✓ For a particular hospital
- ✓ By each patient

Making a VLAD Step by Step

Step 1: Calculate the probability of the clinical indicator outcome for each patient



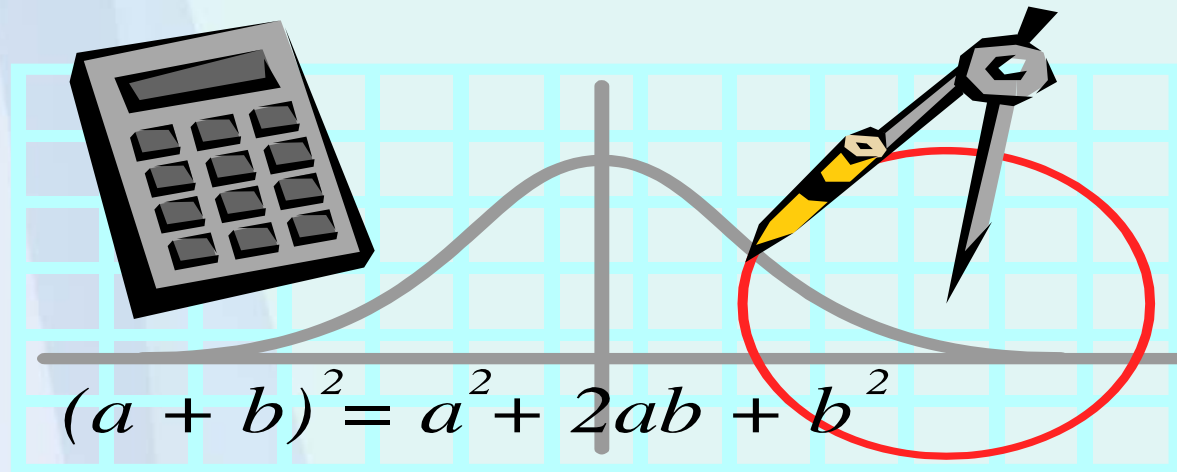
Making a VLAD Step by Step

Probability is calculated for each patient:

- ✓ Using logistic regression (statistical methodology) based on 12 months of data
- ✓ According to age, sex and co-morbidities
- ✓ As a number between 0 and 1

Making a VLAD Step by Step

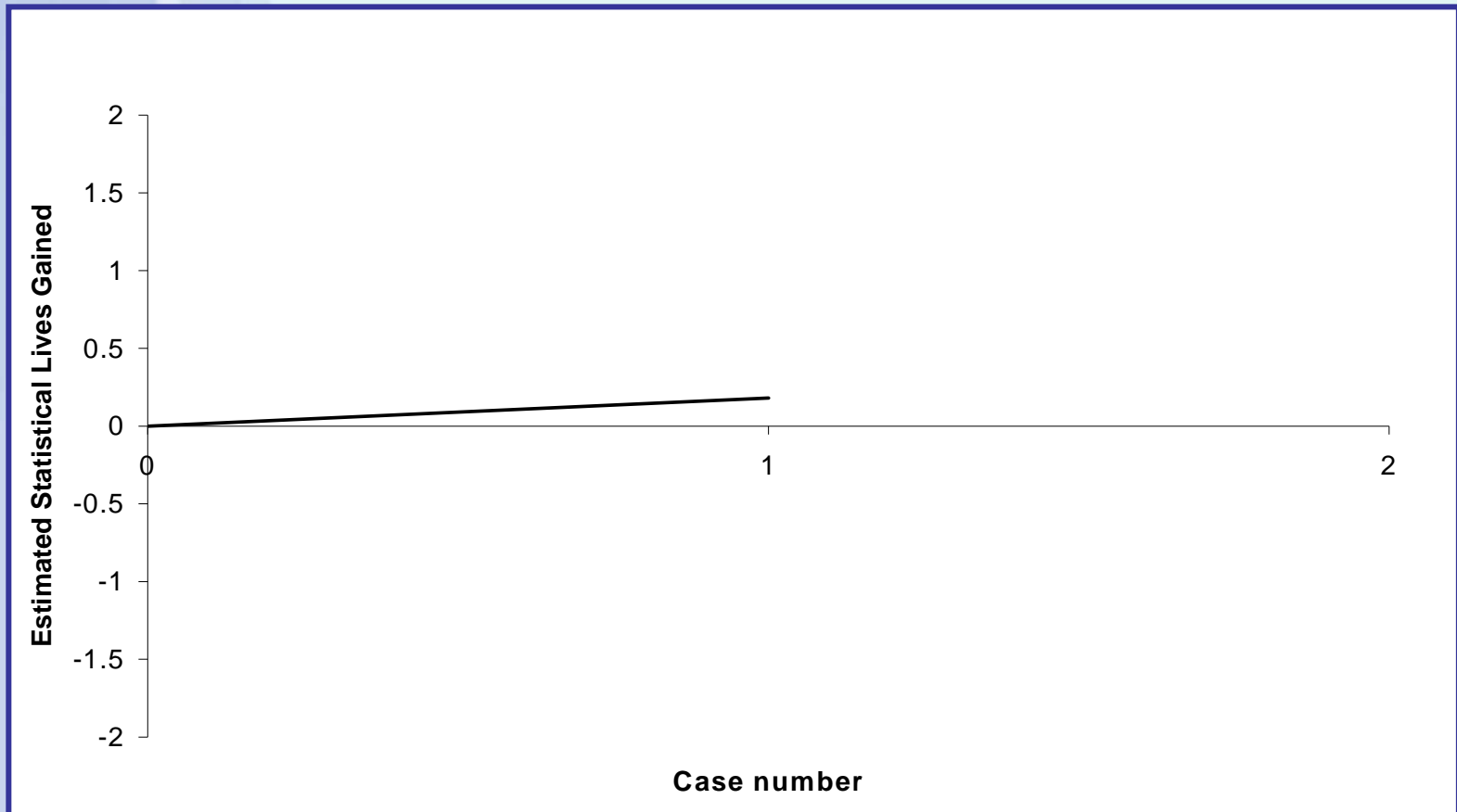
Step 2: Plotting the first patient



In-hospital Mortality VLAD

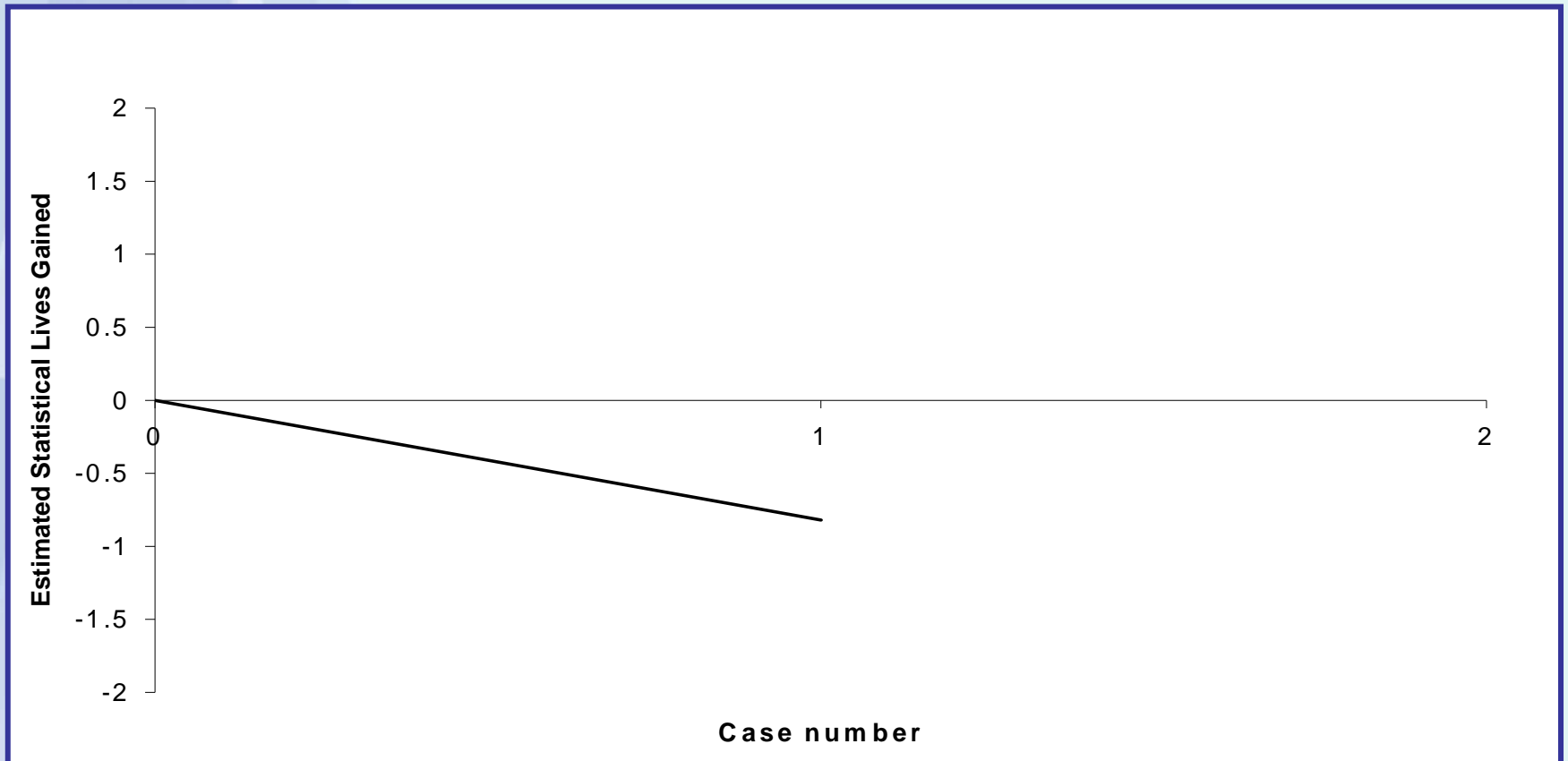
First patient survives -

VLAD increases by the probability of the first patient dying



In-hospital Mortality VLAD

First patient dies –
VLAD decreases by the probability of the first patient surviving



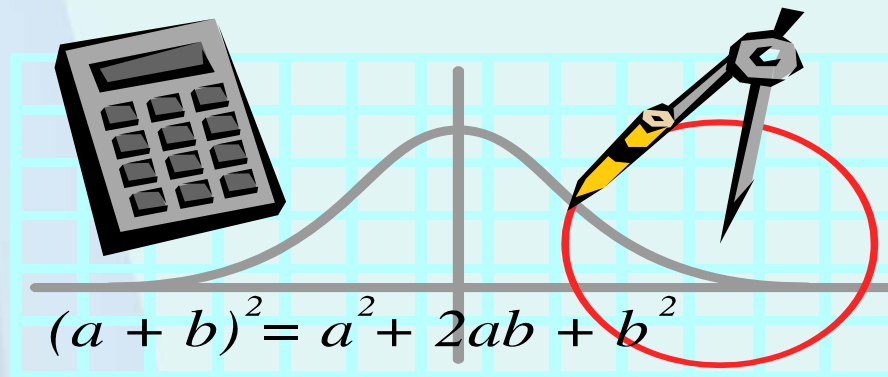


TIP: Making a VLAD

- The VLAD increases or decreases according to the outcome
- How much the VLAD increases or decreases depends on the probability of the alternative outcome

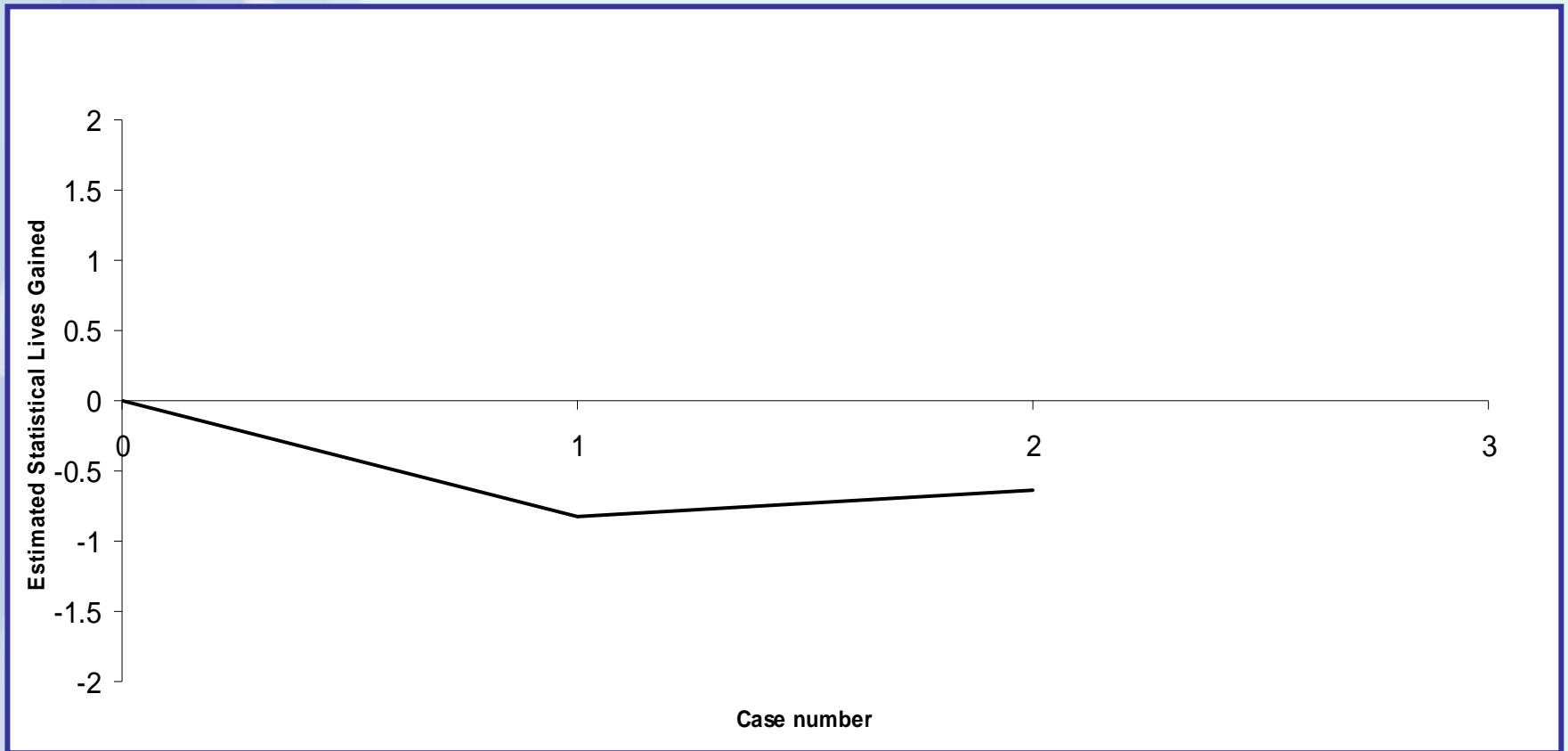
Making a VLAD Step by Step

Step 3: Plotting the second patient



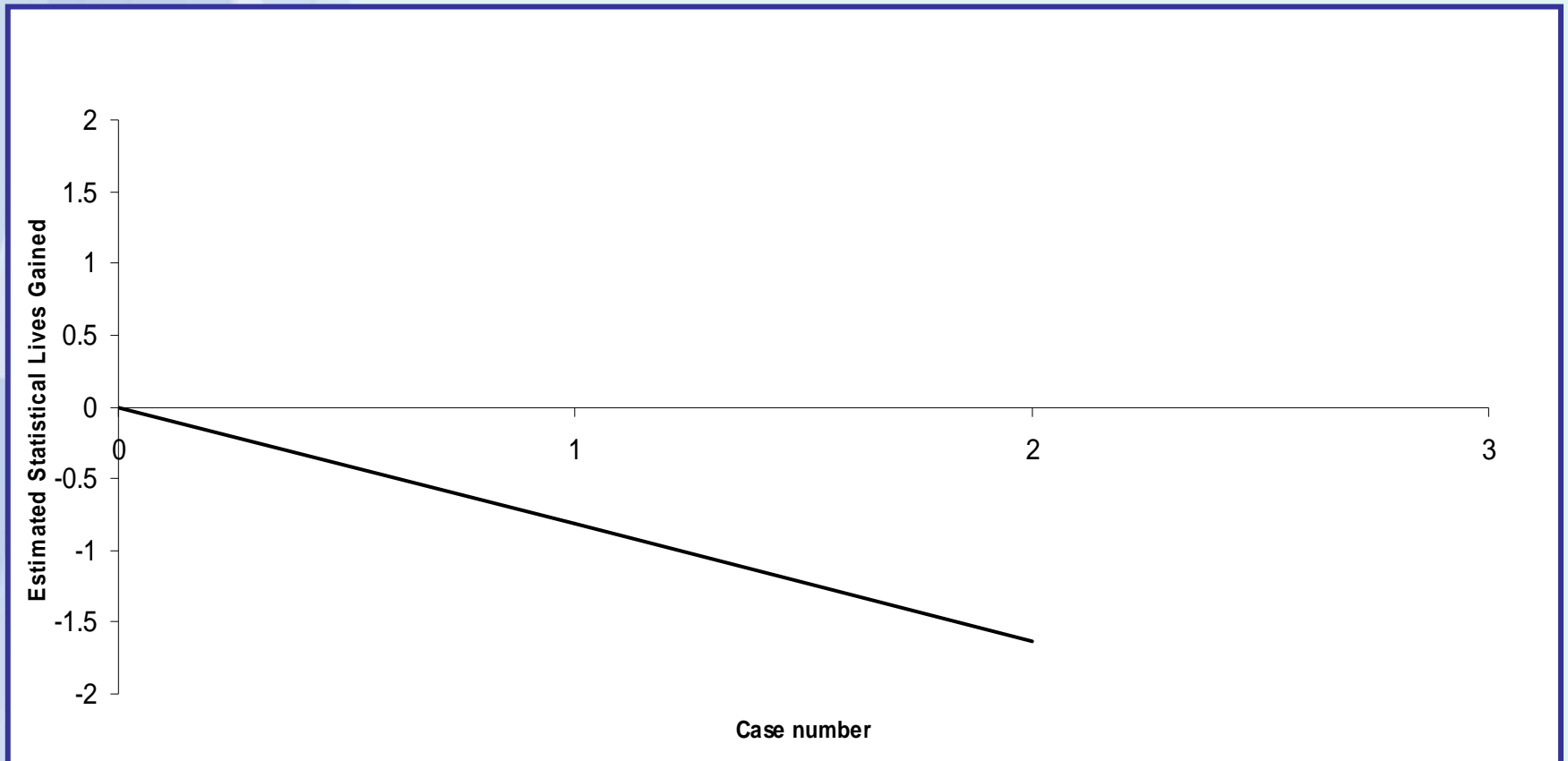
In-hospital Mortality VLAD

Second patient survives –
VLAD increases by the probability of the 2nd patient dying



In-hospital Mortality VLAD

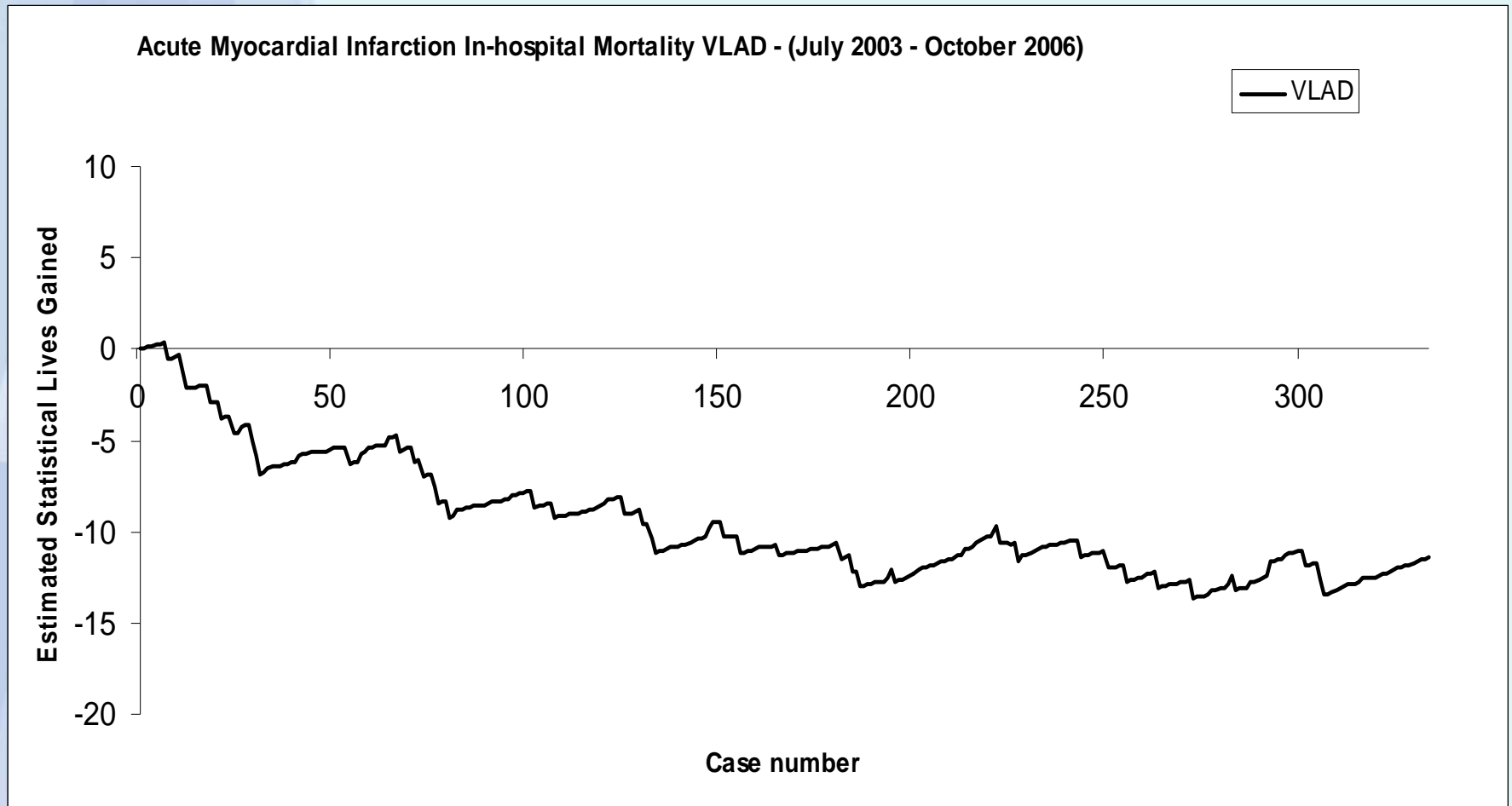
Second patient dies –
VLAD decreases by the probability of the 2nd patient surviving



Making a VLAD Step by Step

The VLAD continues plotting patient outcomes until all of the information for a set period has been accounted for

In-hospital Mortality VLAD



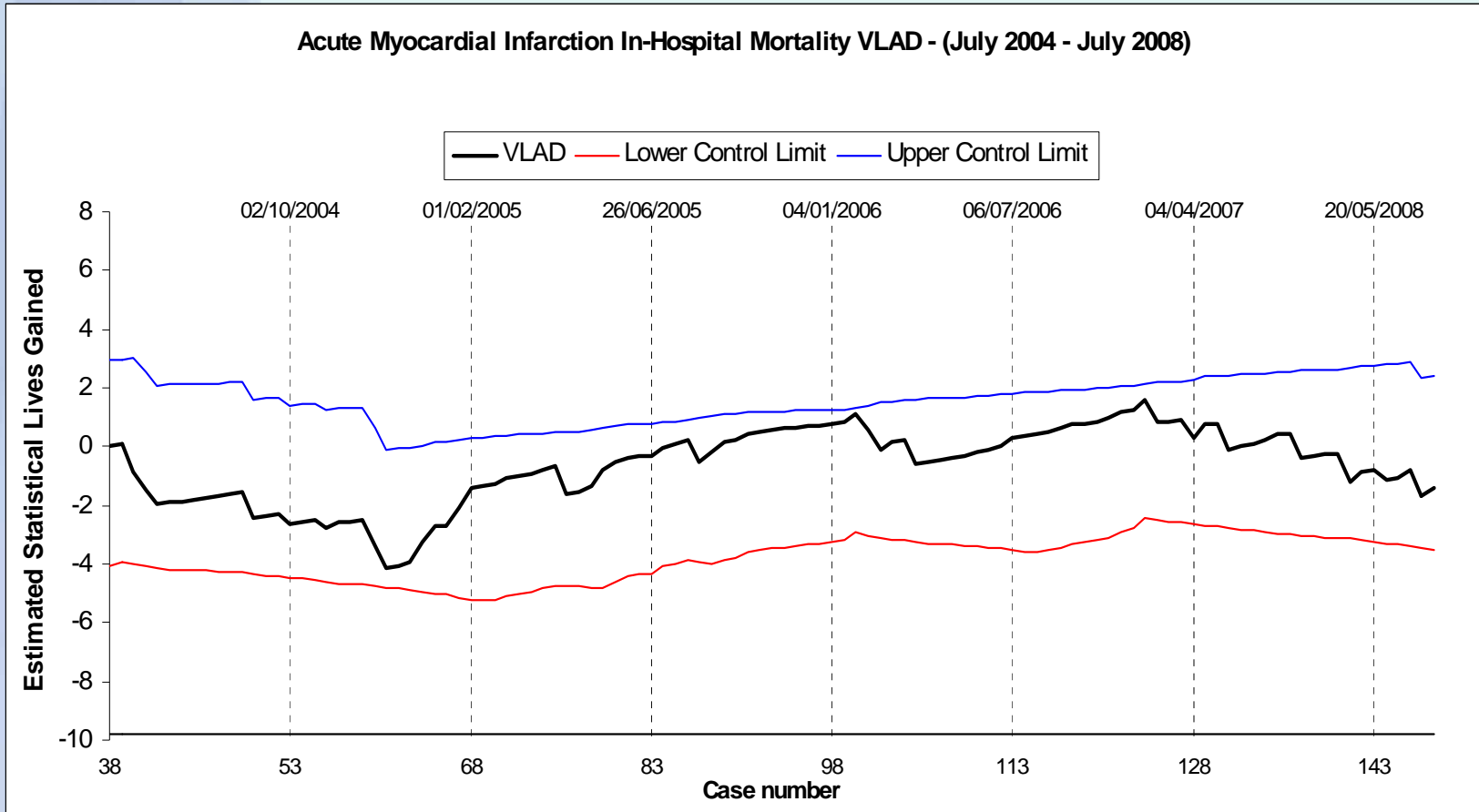
What is a control limit?

- The purpose of the VLAD is to identify if there are significant differences between your hospital and others.
- That is what control limits are for.

% Variation from State Average and Notification Levels

Variation from state average	Mortality indicators	Non-mortality indicators
30%	Notification level 1	N/A
50%	Notification level 2	Notification level 1
75%	Notification level 3	Notification level 2
100%	N/A	Notification level 3

VLAD with control limits



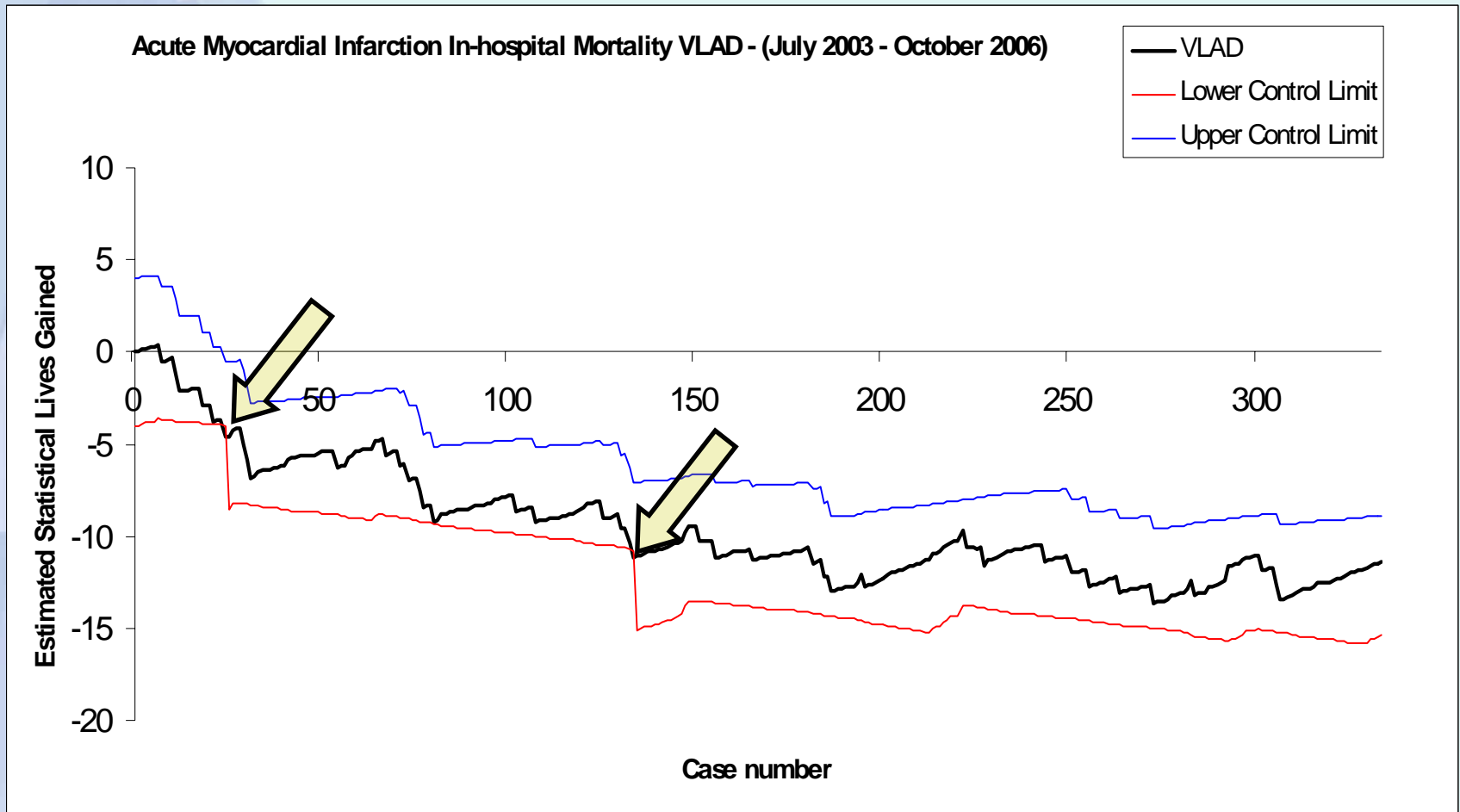
What is a Flag?

When the VLAD touches one of these control lines, that touch point is “flagged”

A flag identifies a point in the VLAD where the cases prior to the flag should be reviewed to determine potential causes of a variation.

However, a flag at a point in the VLAD does not identify that this case is the cause of the variation – VLADs are cumulative

VLAD with flags



Current VLAD Clinical Indicators

Mortality

- Acute Myocardial Infarction
- Heart Failure
- Stroke
- Pneumonia
- Fractured Neck of Femur

Readmission and Long Stay

- Acute Myocardial Infarction
- Heart Failure
- Knee Replacement
- Hip Replacement
- Depression
- Schizophrenia
- Paediatric Tonsillectomy and Adenoidectomy

Complications of Surgery

- Laparoscopic Cholecystectomy
- Vaginal Hysterectomy
- Abdominal Hysterectomy
- Fractured Neck of Femur
- Colorectal Carcinoma
- Knee Replacement
- Hip Replacement
- Prostatectomy

Obstetrics & Gynaecology

- Caesarean Section Rate
- Selected Induction of Labour Rate

Choosing Clinical Indicators

- ✓ **Significance:** Clinical significance in terms of burden of disease
- ✓ **Volume:** Sufficient numbers of patients to provide a statistically reliable measure
- ✓ **Indicator clarity:** Clearly defined and reliable
- ✓ **Responsive potential:** The disease, condition or procedure type can be systematically improved
- ✓ **Systematic data:** Derived from systematically collected data

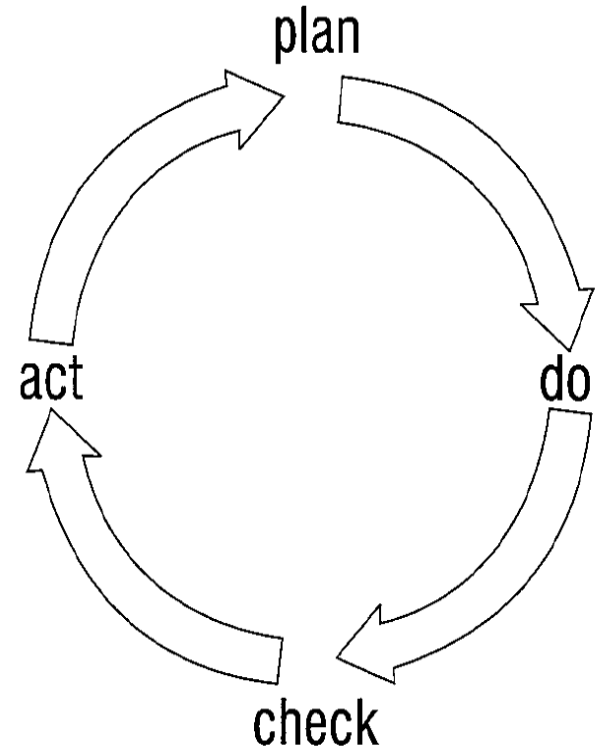
Developing Clinical Indicators

- ✓ Initially identified from a large set of potential measures
- ✓ Developed in consultation with clinical expert groups
- ✓ Sex, age and comorbidities used in attempt to risk-adjust for illness severity
 - Frequency of occurrence
 - Specialist medical advice
 - Evidence in literature
 - Statistical significance

Refining Clinical Indicators

- Indicators are reviewed and further refined based on feedback
- Refinement of Indicator Definitions
 - Maternity Indicators
 - Laparoscopic Cholecystectomy
 - Paediatric Tonsillectomy

Plan-do-check-act cycle



Clinical Indicators Definitions

Appendix B (page 99 – 129) lists the clinical indicator definitions. The most current definitions can also be found at:

www.health.qld.gov.au/quality/VLAD.asp

Each indicator definition has three main sections

- Definition
- Inclusion and exclusion criteria
- Risk adjustment criteria (p130-132)

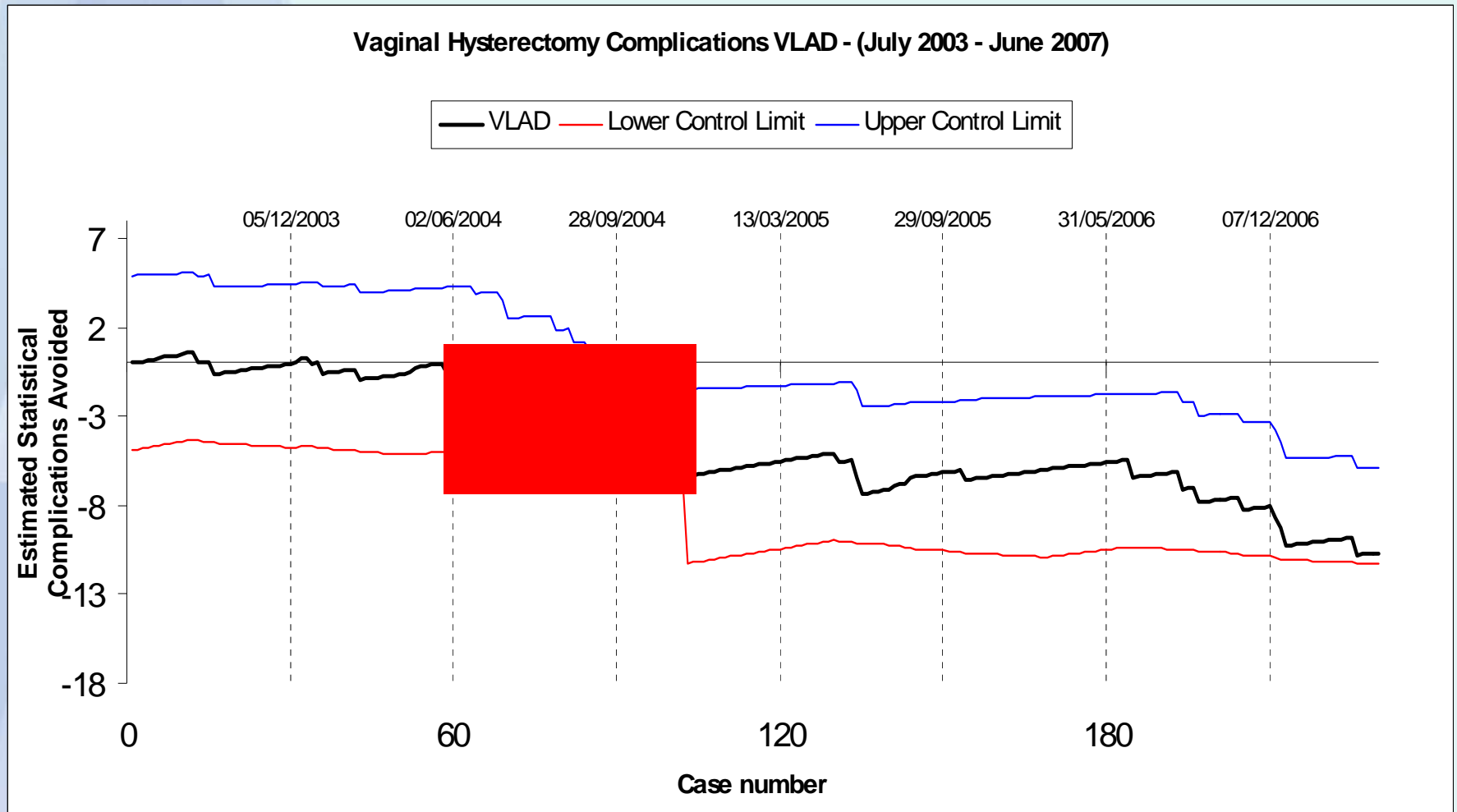
Getting on top of reviews

- conducting a review

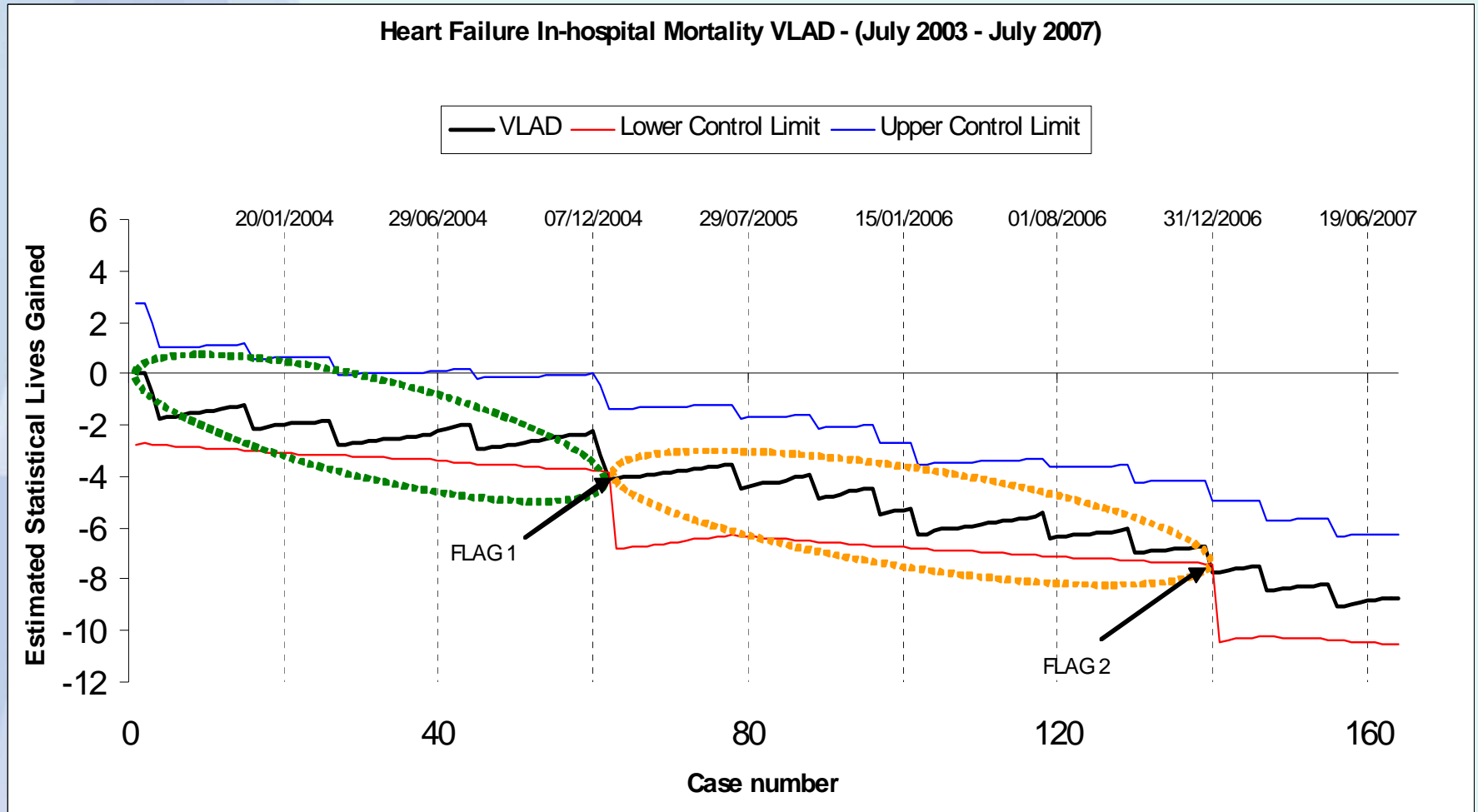
Which patients do I Review?

- Upper **or** lower flag
 - Upper – patients without the outcome
 - Lower – patients with the outcome
- Change in trend **or** no change in trend
 - Change – from the patient where a change in trend occurred to the last patient flagged
 - No Change – from the last patient flagged (if a flag occurred before) to the patient flagged or from the beginning of the graph (if no flag has occurred before) to the last patient flagged

VLAD – Change in trend



VLAD – No change in trend

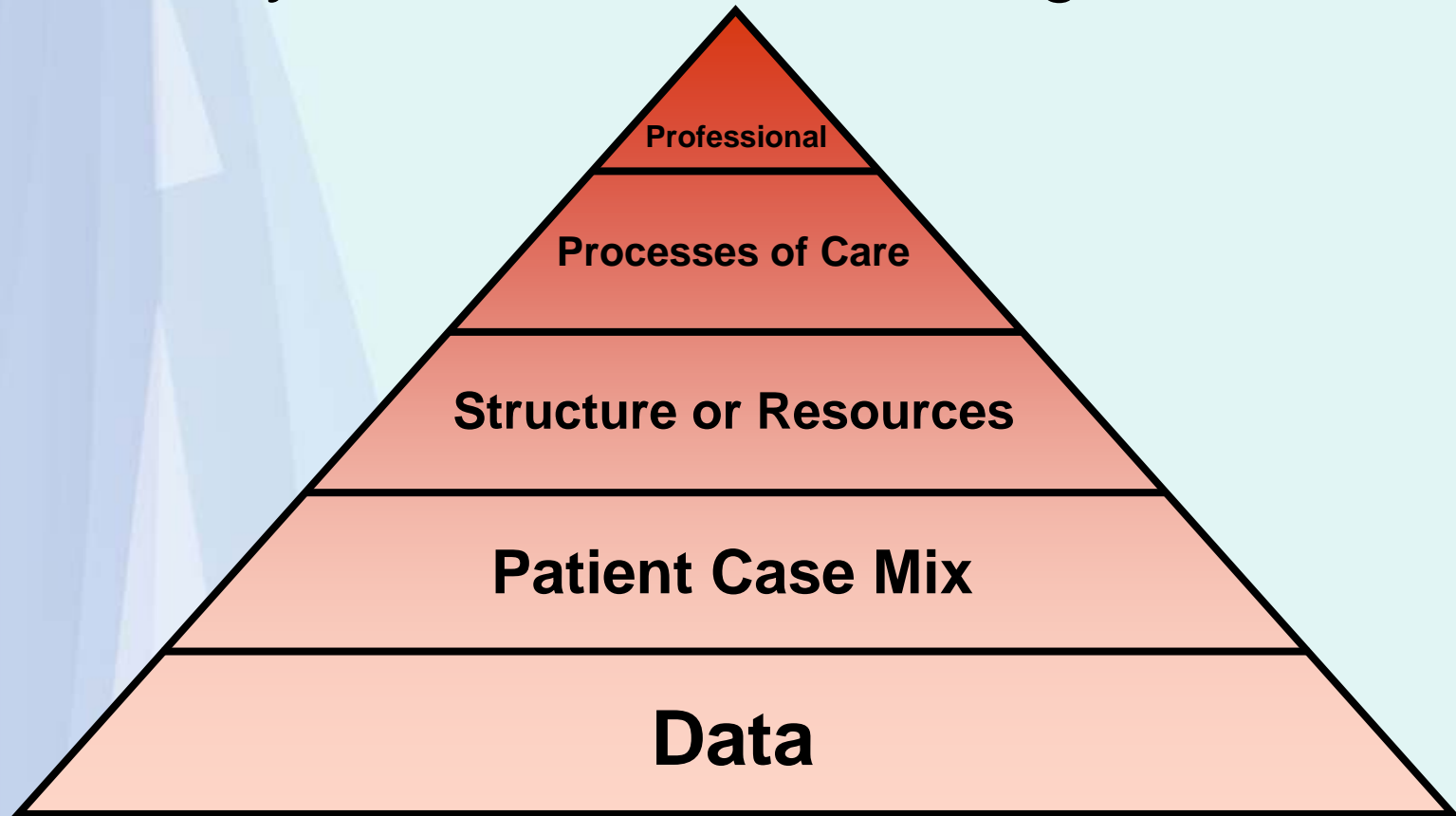


Who do I involve in a review?

- Quality Co-ordinator / Patient Safety Officer
- Clinical Coder / Health Information Manager
- Unit Director / Nurse Unit Manager / Allied Health / Other Clinicians
- EDMS
- CEO Health Service District
- Clinical Network

What do I consider in a review?

Pyramid model of investigation



What to Report

REVIEW

- Cases reviewed - which patients were reviewed
- Who reviewed - who participated in the review
- What was done - details of the review undertaken
- What was found - results of the review

MANAGEMENT ACTION PLAN

- What the hospital plans to do based on the results
- What steps will be taken to ensure compliance with changes
- How and where changes will be monitored within the hospital
- When will changes commence or are expected to be complete

ENDORSEMENT

- CEO Health Service District approval
- Tabling of results at District Patient Safety & Quality Committee

VLAD Clinical Governance

Level 1

- Internal review instigated
- Reviewed by Clinical Quality & Analysis Unit (CQAU)

Level 2

- Internal review instigated
- Reviewed by CQAU
- Reviewed by Clinical Governance Unit (CGU)

Level 3

- Internal review instigated
- Reviewed by CQAU
- Reviewed by CGU
- Reviewed by the Patient Safety & Quality Board (PSQB)

Review Criteria

Internal Review Team

All Upper & Lower Levels

- Appropriate cases investigated
- If data errors identified, have these been corrected and resubmitted
- Appropriate professionals involved in review (clinicians and a coder/HIM)
- All levels of the pyramid model considered
- Formulation of an appropriate management action plan (addresses all investigation findings & clinically appropriate)

Review Criteria

Clinical Quality & Analysis Unit

All Upper & Lower Levels

- Appropriate cases investigated
- If data errors identified, have these been corrected and resubmitted

Review Criteria

Clinical Governance Unit

Lower Level 2 & 3

- Appropriate professionals (clinicians and a coder/HIM)
- All levels of the pyramid model considered
- Formulation of an appropriate management action plan (addresses all investigation findings & clinically appropriate)

Review Criteria

Patient Safety & Quality Board

Lower Level 3

- Appropriate cases investigated
- If data errors were the only contributing cause & had been corrected & resubmitted back to Health Statistics Centre & the VLAD still flags the PSQB considers if an external review should be conducted on the cases
- Appropriate professionals involved in review (clinicians and a coder/HIM)
- All levels of the pyramid model considered
- Formulation of an appropriate management action plan (addresses all investigation findings & clinically appropriate)

Patient Safety & Quality Board (PSQB)

Purpose

To improve safety & quality of care provided by Queensland Health

Roles and responsibilities

- Oversee the Queensland Health clinical governance framework
- Advise the Director-General on all matters relating to patient safety, quality and effectiveness
- Develop and keep under review a Patient Safety Strategy for Queensland Health
- Promote improvement in effectiveness of health care
- Assess responses to safety and quality issues
- Approve policies and implementation standards relating to patient safety and quality issues

Patient Safety & Quality Board VLAD Subcommittee

Purpose

The primary role of the Level 3 VLAD responses subcommittee is to provide recommendations to the Patient Safety and Quality Board on the adequacy of responses provided by Health Service Districts on their Level 3 VLAD flag/s

Members

- Director Clinical Governance Unit
- 4 clinicians (representing different clinical areas)
- Member from Clinical Monitoring Team