Outcome Monitoring Using Vertical Life-Adjusted Display (VLAD) charts
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Introduction
Vertical Life-Adjusted Display (VLAD) charts are a recognized way of graphically monitoring risk-adjusted outcomes after surgical interventions.

Objectives
To look at outcomes (mortality) following cardiac surgery using vertical life-adjusted display (VLAD) charts with the additional of 'crude mortality' monitoring using 'runs analysis 'technology

Methodology
Prospective data collection for all cardiac surgical activity within our Division was instituted in 2006 and is stored in a dedicated cardiac database (2840 patients total).From 2006 to 2014 inclusive VLAD charts (using logistic EuroSCORE for risk adjustment for mortality) were automatically constructed and assessed for deviation. We superimposed on this for the same time period a 'runs analysis' analysis based on a self-imposed crude mortality trigger (3%) (based on previous mortality data).

Result
Observed mortality (96 patients: 3.4%) was significantly better than ‘expected’ (predicted by logistic EuroSCORE) 7.15 % (SD11.2) for the whole population and time period. VLAD plot for this time period showed no significant visual deviation and encouraging performance (bellow left). However, using ‘runs analysis’ we identified two significant deviations in mortality at 2 separate time intervals (bellow right). Case review revealed clusters of high risk emergent cases with no discernable pattern.