1. Purpose

This Guideline supports and provides recommendations to Hospital and Health Services (HHSs) regarding best practice for meeting the Directive’s mandatory requirements for Variable Life Adjusted Display (VLAD) and other National Patient Safety Indicators (PSI).

2. Scope

This Guideline applies to Hospital and Health Service (HHS) employees and all Department of Health employees. This Guideline also applies to all organisations and individuals acting as an agent for the Department of Health and/or a HHS (including Visiting Medical Officers and other partners, contractors, consultants and volunteers).

3. Guideline

VLAD – description and background

- VLAD is a screening tool applied to clinical indicators to assist in identifying potential areas of concern, or strengths to improve patient safety and quality of care. VLAD attempts to improve Queensland Health’s understanding of causation and to determine whether corrective action is necessary.

- VLAD involves a flagging process which occurs when a pre-specified level of variation is reached, as measured by three flagging levels (see: Table 1 below). When a VLAD flag occurs at a particular point it suggests that over time there have been more (or less) patients experiencing the outcome than expected, up until the particular patient. The way to view this graph is to initially look for flags and then look backwards from the flagging point to identify the patients for review.
Table 1:

<table>
<thead>
<tr>
<th>Flag Level</th>
<th>Group A Indicators</th>
<th>Group B Indicators</th>
<th>Group C Indicators</th>
<th>Group D Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>10%</td>
<td>30%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Level 2</td>
<td>20%</td>
<td>50%</td>
<td>75%</td>
<td>125%</td>
</tr>
<tr>
<td>Level 3</td>
<td>30%</td>
<td>75%</td>
<td>100%</td>
<td>150%</td>
</tr>
</tbody>
</table>

**Note:** A complete listing of indicators and groupings are in Appendix 1: VLAD Indicators and Flagging Levels

- Flagging levels can occur at both an upper or lower level. An upper flag indicates that a hospital’s outcome rate is lower than the state outcome rate, whereas a lower level flag indicates the hospital rate is higher than the state outcome rate.

### 3.1. VLAD Review Model

- VLAD is a quality monitoring tool and should be interpreted as such; it is designed to flag issues for further review.
- The occurrence of a flag should not be immediately interpreted as indicating good or bad performance. This is because there are many possible explanations as to why the VLAD has flagged, one reason being simply chance.
- Where a review is initiated, it is recommended the pyramid model of investigation be adopted (see: Figure 1). The pyramid model of investigation recommends a hierarchical approach to identify causation. Under this model, factors at the base of the pyramid are more likely to be causes than factors at the apex.

![Figure 1: Pyramid Model of Investigation](image)
3.2. VLAD graphs and Notification Reports

- VLADs are generated on a monthly basis using the Queensland Hospital Admitted Patient Data Collection and the Perinatal Data Collection. Any delay in the submission of data from hospitals influences the currency of VLADs. VLADs are published via the VLAD Clinical Monitoring System (VLAD CM).

- Access to VLAD CM requires approval from the relevant HHS VLAD Authorising Officer (VAO).

- A monthly notification report listing new Flags is sent by VLAD CM via email to the HHS Chief Executive (HHS CE), VAO, VLAD Hospital Coordinator (VHC) and other authorised users of VLAD CM. The notification will also list overdue VLAD responses.

3.3. Notification report flagging rules

- In the case of multiple flags triggered for the same indicator in the same reporting period, only the highest level flag is notified to the hospital via a Notification Report, as this review will include findings for subordinate level flags.

- In the case of a new flag and a higher level flag in the previous reporting period, the new flag will not be notified to the hospital in the Notification Report, as it is expected that the investigation for the earlier higher level flag will be more thorough and include most of the cases that would be considered in a new investigation.

3.4. Response

- In response to a VLAD notification report a hospital is required to conduct a review and submit a response detailing all aspects of the review considered including details of cases reviewed, any issues identified and an action plan to correct an unfavourable result or to maintain a positive result.

3.5. VLAD levels requiring a response

- Mandatory:
  - As described in the Directive, lower level 2 and lower level 3 Flags require a review and response submitted within 30 days.

- Recommended:
  - Lower level 1 and all upper level Flags do not require a review to be undertaken.
  - These Flags will be included in the Notification Report as non-reportable Flags for a month following release.
  - A review into these Flags may identify opportunities for improvement leading to a reduction in the likelihood of progression to lower level 2 and lower level 3 Flags. VLAD CM will allow the submission of a response to these Flags.
3.6. National PSIs

- Hospitals with statistically significant variation against PSI are required to submit a response to PSQIS.

- National PSIs include the Performance Indicators\(^1\) published by the Australian Institute of Health and Welfare and form part of the Performance and Accountability Framework\(^2\). Queensland Health monitor indicators aligned with these national indicators include:
  - Hospital Standardised Mortality Ratio - quarterly
  - Death in Low Mortality Diagnosis Related Groups – quarterly
  - In-hospital mortality rates for specific conditions – monthly using VLAD methodology
  - Unplanned hospital readmission rates for specific conditions – monthly using VLAD methodology.

- PSQIS will notify HHSs when a significant variation has occurred and provide assistance in review methodology.

- It is recommended the VLAD review model in Figure 1 above is followed when undertaking an investigation into variation.

3.7. Timeframes for response

- As described in the Directive, a HHS should review and complete a response to a mandatory Flag or PSI within 30 days of notification.

- The response should be approved by the VAO before being submitted via VLAD CM.

3.8. Lower level 3 response

- It is recommended that a lower level 3 review considers outcomes of previous reviews of an indicator.

- For example, all cases considered in previous lower level 2 reviews (and lower level 1 reviews, if undertaken) and subsequent cases leading up to the lower level 3 Flag should be considered for a lower level 3 review. Progress on action plans from lower level 2 Flags should also be reviewed and documented.

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3.9. Lower level 3 VLAD and PSI, response and escalation

- All responses to lower level 3 Flags and significant variation against PSI are reviewed by the VLAD Committee\(^3\) which meets on a monthly basis.

- The VLAD Committee clinically reviews responses for adequacy and action plans. If concerns are raised, the VLAD Committee will request further information or actions from a HHS to be reviewed at a subsequent VLAD Committee meeting.

- Where a VLAD and other response/s, or request for further information from a HHS has not been received, the following escalation strategy is employed:
  - First request: forward a memorandum to the HHS CE, cc the VAO
  - Second request: table the matter at the relationship management meeting
  - Third request: brief the Director-General – attach a memorandum from the Director-General to the HHS CE.

- Issues unable to be resolved by the Committee are escalated to the Deputy Director-General, Clinical Excellence Division, Queensland Health.

- If a lower level 3 Flag is solely attributable to a structure or resource issue the VLAD Committee can approve that a hospital will not be required to undertake a review and submit a response for lower levels 2 Flags within the subsequent 12 months. If a lower level 3 Flag occurs during the subsequent 12 months, the VLAD Committee will examine if there are changes to the VLAD slope to determine if a hospital is required to undertake a review and submit findings.

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\(^3\) The VLAD Committee is a committee formed under the Department of Health
### Suggested responsibilities – Department of Health

#### Table 2:

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
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</table>
| **VLAD Committee**        | • Assess lower level 3 Flags and other response/s to determine whether a clinically appropriate action plan that addresses all review findings is included  
                             • Endorse or request further feedback in relation to responses   
                             • Communicate the outcome of the review of responses to the HHS CE, VAO and VHC  
                             • Manage the escalation process related to non-compliance of a HHS  
                             • Based on the review of responses and resulting information, provide advice to the Systems team (PSQIS) on the addition, suspension or removal of VLAD clinical indicators  
                             • Based on the review of responses, provide advice to Systems team on significant definitional changes to VLAD clinical indicators |
| **Systems team (PSQIS)**  | • Analyse and disseminate indicators monthly  
                             • Notify the HHS of new and outstanding flagged indicators on a monthly basis  
                             • Manage VLAD CM which disseminates VLAD graphs and houses responses  
                             • Assess responses with regard to correct interpretation of statistical methodology including review of appropriate patient charts  
                             • Assess responses and determine whether an appropriate review is set out in the response (all levels of the pyramid model of investigation were considered)  
                             • Assist with data analysis queries relevant to VLADs and other PSIs  
                             • Manage VLAD indicator review and development  
                             • Collate plain English versions of lower level 3 responses to be included in public reporting  
                             • Provide VLAD education and ongoing support to all VLAD users in HHSs  
                             • Provide secretariat support for the VLAD Committee |
3.11. Suggested responsibilities – HHS

The following suggested roles and responsibilities in Table 3 should support the ability of HHSs to comply with the Directive and other PSI mandatory requirements.

(See also Appendix 2: VLAD business process map guideline which outlines a suggested process for coordination of the VLAD process within a HHS.)

Table 3:

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
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</table>
| HHS CE or Facility Safety and Quality Committee | • Ensure appropriate staff are delegated responsibility to complete a thorough review and provide an acceptable VLAD and other response/s within stipulated timeframes  
  • Appropriately delegate a VAO who is accountable to the HHS CE.  
  • Include VLAD and other PSI reviews as a standing item on monthly safety and quality committee agenda  
  • Review responses of flagged indicators  
  • Assess that the information reported outlines that an appropriate level of investigation has occurred (i.e. all levels of the pyramid model of investigation considered) |
| VLAD Authorising Officer (VAO), e.g. Executive Director of Medical Services | • Assess the information reported outlines the formulation of an appropriate action plan  
  • Incorporate the actions from the responses of flagged indicators and update the Clinical Risk Management Plan on progress of actions  
  • Approve response prior to submitting to ensure a thorough investigation was undertaken and an appropriate action plan has been identified to address all areas of concern raised  
  • Ensure that HHS staff participate in the preparation of responses such that responses are ready for submission within the stipulated timeframes  
  • Ensure action plan is fully implemented and an evaluation of the action plan is undertaken to ensure all identified issues are addressed  
  • Advise the HHS CE on VLAD review findings and action plan, subsequent progress of actions and when the action plan is fully implemented and evaluated  
  • Approve access to VLAD CM for individuals within a HHS  
  • Appropriately nominate the VHC within the HHS  
  • Note: The VAO is accountable to the HHS CE for all approving responsibilities |
<p>| VHC | • Ensure appropriate cases are identified and charts are provided to |</p>
<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| e.g. Quality Coordinator | appropriate professionals for review  
 Ensure appropriate professionals involved in a review (i.e. a clinician and a Health Information Management Services clinical coder be consulted at a minimum)  
 Assist professionals in undertaking a thorough review (i.e. all levels of the pyramid model are considered)  
 Assist professionals in identifying an appropriate action plan that addresses all areas of concern raised  
 Ensure the response is approved by VAO prior to submitting  
 Provide education and relevant information pertaining to VLADs to staff within the HHS |
| Health Information Management Services clinical coder | Ensure that all International Statistical Classification of Diseases and Related Health Problems, Australian Modification (ICD-10-AM) codes and all Australian Classification of Health Interventions (ACHI) codes are allocated, to each episode of care under review, according to the Australian Coding Standards (ACS).  
 Submit to the VHC, any variation in clinical coding practice or clinical coding convention identified within the episodes of care reviewed.  
 Discuss findings of the clinical coding review with other key members of the Health Information Management Services. |
| Clinician / Reviewer | Co-ordinate the compilation of a response detailing an accurate representation of the review undertaken including all aspects considered, issues identified and the action plan  
 Submit approved responses  
 Actively participate in review of flagged indicators and determine action plan of all relevant Flags  
 Ensure review conducted is thorough (i.e. all levels of the pyramid model are considered)  
 Notify VHC of review outcome  
 Table findings from reviews at relevant clinical departmental meetings |
4. Supporting and related documents

Authorising Health Service Directive
Patient Safety HSD #QH-HSD-032:2014

Forms and Templates
Appendix 1: VLAD indicators and flagging levels
Appendix 2: VLAD business process map guideline

5. Definition of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition / Explanation / Details</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Life Adjusted Display</td>
<td>A statistical methodology used to monitor patient outcomes to assist in identifying possible areas of concern or strength for safety and quality of care. It is to be interpreted and viewed with the intention to understand causation and to determine whether corrective action is necessary.</td>
<td></td>
</tr>
<tr>
<td>Flag</td>
<td>A point on the VLAD, identifying a predetermined level of variation has been reached i.e. more (or less) patients have experienced an outcome than expected over a period of time.</td>
<td></td>
</tr>
<tr>
<td>Notification report</td>
<td>A list of new and previous flags that have occurred within a hospital requiring a VLAD response to be submitted</td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Feedback from a hospital detailing what was considered in the review, review findings and actions</td>
<td></td>
</tr>
<tr>
<td>Systems team</td>
<td>The team within the Patient Safety and Quality Improvement Service responsible for production of the VLAD graphs, maintenance of VLAD CM and the first stage review of responses.</td>
<td></td>
</tr>
<tr>
<td>National Patient Safety Indicators</td>
<td>National Safety and Quality Indicators, managed by the National Health Performance Authority, form part of the National Performance and Accountability Framework.</td>
<td><a href="http://www.nhpa.gov.au">http://www.nhpa.gov.au</a></td>
</tr>
</tbody>
</table>
6. Approval and Implementation

Guideline Custodian
Executive Director, PSQIS, Clinical Excellence Division

Approving Officer:
Deputy Director-General, Clinical Excellence Division

Approval date: 04/01/2017

Effective from: 09/01/2017

7. Version Control

<table>
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<th>Version</th>
<th>Date</th>
<th>Prepared by</th>
<th>Comments</th>
</tr>
</thead>
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<td>1.0</td>
<td>01/07/2013</td>
<td>Patient Safety Reporting Team</td>
<td>First issue</td>
</tr>
<tr>
<td>1.1</td>
<td>25/03/2014</td>
<td>Patient Safety Reporting Team</td>
<td>Update the table(percentage of variation from state average indicator groups) on page 2 and Appendix 1 (VLAD indicators and flagging levels) on page 11 to reflect the revised obstetric VLAD indicators released on 8 January 2014</td>
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<tr>
<td>1.2</td>
<td>13/07/2016</td>
<td>Systems Team</td>
<td>General Review</td>
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Appendix 1: VLAD indicators and flagging levels

<table>
<thead>
<tr>
<th>Flagging Levels</th>
<th>Indicator and Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator Group A</strong>&lt;br&gt;(Flags triggered at 10%, 20%, 30% variation from state average)</td>
<td>Selected Primip (Assisted births) Episiotomy or 3rd and 4th degree Perineal Tears (Public facilities)</td>
</tr>
<tr>
<td><strong>Indicator Group B</strong>&lt;br&gt;(Flags triggered at 30%, 50%, 75% variation from state average)</td>
<td>Acute Myocardial Infarction Readmission&lt;br&gt;Fractured Neck of Femur In-hospital Mortality&lt;br&gt;Fractured Neck of Femur Complications of Surgery&lt;br&gt;Pneumonia In-hospital Mortality&lt;br&gt;Stroke In-hospital Mortality&lt;br&gt;Selected Primip Caesarean Section (Private mothers in public facilities)&lt;br&gt;Selected Primip Caesarean Section (Public patients in public facilities)&lt;br&gt;Selected Primip Induction of Labour (Public facilities)&lt;br&gt;Selected Primip Instrumental Delivery (Public facilities)</td>
</tr>
<tr>
<td><strong>Indicator Group C</strong>&lt;br&gt;(Flags triggered at 50%, 75%, 100% variation from state average)</td>
<td>Abdominal Hysterectomy Complications of Surgery&lt;br&gt;Acute Myocardial Infarction Longstay&lt;br&gt;Acute Myocardial Infarction In-hospital Mortality&lt;br&gt;Colorectal Carcinoma Complications of Surgery&lt;br&gt;Depression Longstay&lt;br&gt;Depression Readmission&lt;br&gt;Heart Failure Longstay&lt;br&gt;Heart Failure Readmission&lt;br&gt;Hip Replacement (Primary) Complications of Surgery&lt;br&gt;Hip Replacement Longstay&lt;br&gt;Hip Replacement Readmission&lt;br&gt;Knee Replacement (Primary) Complications of Surgery&lt;br&gt;Knee Replacement Longstay&lt;br&gt;Knee Replacement Readmission&lt;br&gt;Laparoscopic Cholecystectomy Longstay&lt;br&gt;Laparoscopic Cholecystectomy Readmissions&lt;br&gt;Prostatectomy Complications of Surgery&lt;br&gt;Schizophrenia Longstay&lt;br&gt;Schizophrenia Readmission&lt;br&gt;Selected Primip (Unassisted births) Episiotomy or 3rd and 4th degree&lt;br&gt;Vaginal Hysterectomy Complications of Surgery</td>
</tr>
<tr>
<td><strong>Indicator Group D</strong>&lt;br&gt;(Flags triggered at 100%, 125%, 150% variation from state average)</td>
<td>Paediatric Tonsillectomy and Adenoidectomy Long stay&lt;br&gt;Paediatric Tonsillectomy and Adenoidectomy Readmission</td>
</tr>
</tbody>
</table>
Appendix 2: VLAD business process map guideline

1. VLAD Review Process - Hospital
   - 1 - 7 days post notification report
   - 8 - 14 days
   - 15 - 21 days
   - 22 - 30 days

2. VLAD Review Process - Hospital
   - Review status of overdue or in-progress VLAD responses (and prioritise for action as required)
   - Identify other safety and quality issues related to flagged VLADs
   - Review new flags notified and prioritise for action as required

3. VLAD Review Process - Hospital
   - Consult with VHCO/HHSCS to confirm what will occur in 1 - 2 weeks
   - Document and implement any issues identified
   - Review issues and implement corrective actions (as required)
   - 22 - 30 days
   - 15 - 21 days
   - 8 - 14 days
   - 1 - 7 days post notification report

4. VLAD Review Process - Hospital
   - Review responses from VLADs
   - Compose VLAD responses
   - Review responses from VHCO/HHSCS
   - Review responses from clinicians
   - Review responses from VLAD
   - Review responses from HHSCS
   - Review responses from VHCO
   - 22 - 30 days
   - 15 - 21 days
   - 8 - 14 days
   - 1 - 7 days post notification report