### Evidence Table: Intra abdominal pressure monitoring

<table>
<thead>
<tr>
<th>Reference (include title, author, journal title, year of publication, volume and issue, pages)</th>
<th>Evidence level (I-VII)</th>
<th>Key findings, outcomes or recommendations</th>
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• Risk factors for IAH & ACS identified  
• Positioning of patient when measuring intra abdominal pressure(IAP) needs to be consistent with each subsequent measurement taken. Elevated head of bed elevates IAP  
• Reduction of maximum fluid volume used during measurement to 25ml  
• Reference point for zeroing should be mid axilla rather than symphysis pubis as easier for staff to identify |
• Compared measuring pressure via PD catheter, nasogastic tube or urinary catheter. Also compared volume of saline to instill when performing measure  
• Most accurate method was intra vesicular measuring bladder pressure via transducer after instilling 1ml/kg of normal saline. Higher levels of fluid instillation led to overestimation of IAP |
• IAP measured by intra-vesical technique. Normal saline of pre determined volume instilled via urinary catheter & pressure transduced  
• Mean IAP in critically ill children is 7± 3mmHg.  
• IAP> 10mmHg should be observed very closely for development of IAH & ACS  
• Procedure was safe and no increase in nosocomial bacteriuria with the addition of the measurement system to the urinary catheter |
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| • Ejike J, Kadry J, Bahjri K, Mathur M. (2010). Semi recumbent position and body mass percentiles: effects on intra-abdominal pressure measurements in critically ill children. | IV | - Prospective observational study in a PICU of 77 mechanically ventilated children with a range of diagnosis. Aim to determine effect of position and BMI on intra-abdominal pressure(IAP)  
- IAP measured by intra-vesical technique. Normal saline of pre determined volume instilled via urinary catheter & pressure transduced  
- Intra abdominal pressure increases significantly when head of bed is elevated from 0° to 30°. BMI has no correlation with IAP |
| • Gallagher JJ (2000) Ask the Experts Critical Care Nurse, 20, 1 p:87. | VII | - Description of procedure for measuring IAP including equipment required and how to assemble  
- Timing of measurement for end expiration |
- Clinical validation of bladder pressure monitoring of intra abdominal pressure as simple, minimally invasive method of measurement |
- Used for the original guideline but now superseded by above work by Cheatham et al. |
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• Demonstrated more than half of ICUs don’t measure IAP despite acknowledging high IAP is a serious problem, as they don’t know how to (27.2%) or don’t know how to interpret result (33.3%) |
• Used for the original guideline but now superseded by development of international guidelines by Cheatham et al. (as referenced above) |
• Continuous monitoring found to be equally accurate to intermittent but requires special 18G triple lumen urinary catheter to be inserted on admission |
The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case-series.

V Evidence obtained from systematic reviews of descriptive and qualitative studies.

VI Evidence obtained from single descriptive and qualitative studies.

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology.

