

Intra-Abdominal Pressure Monitoring Algorithm



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- Patients should be screened for IAH and ACS risk factors upon ICU admission and with new or progressive organ failure.
- If two or more risk factors are present, a baseline IAP measurement should be obtained.
- If IAH is present, serial IAP measurements should be performed throughout the patient's critical illness.

Patient has TWO or more risk factors for IAH/ACS upon either ICU admission or in the presence of new or progressive organ failure

Measure patient's IAP to establish baseline pressure

IAP measurements should be:

1. Expressed in mmHg (1 mmHg = 1.36 cm H₂O)
2. Measured at end-expiration
3. Performed in the supine position
4. Zeroed at the iliac crest in the mid-axillary line
5. Performed with an instillation volume of no greater than 25 mL of saline [1 mL/kg for children up to 20 kg] (for bladder technique)
6. Measured 30-60 seconds after instillation to allow for bladder detrusor muscle relaxation (for bladder technique)
7. Measured in the absence of active abdominal muscle contractions

Sustained IAP ≥ 12 mmHg?

YES

NO

Patient has IAH

Patient does not have IAH

Notify patient's doctor of elevated IAP. Proceed to IAH / ACS management algorithm.

Observe patient. Recheck IAP if patient deteriorates clinically.

- The choice (and success) of the medical management strategies listed below is strongly related to both the etiology of the patient's IAH / ACS and the patient's clinical situation. The appropriateness of each intervention should always be considered prior to implementing these interventions in any individual patient.
- The interventions should be applied in a stepwise fashion until the patient's intra-abdominal pressure (IAP) decreases.
- If there is no response to a particular intervention, therapy should be escalated to the next step in the algorithm.

**Patient has IAP ≥ 12 mmHg
Begin medical management to reduce IAP**

Measure IAP / APP at least every 4-6 hours or continuously.
Titrate therapy to maintain IAP ≤ 15 mmHg and APP ≥ 60 mmHg

Evacuate intraluminal contents Evacuate intra-abdominal space occupying lesions Improve abdominal wall compliance Optimize fluid administration Optimize systemic / regional perfusion

Step 1

Insert nasogastric and/or rectal tube

Abdominal ultrasound to identify lesions

Ensure adequate sedation & analgesia

Avoid excessive fluid resuscitation

Goal-directed fluid resuscitation

Initiate gastro-/colo-prokinetic agents

Remove constrictive dressings, abdominal eschars

Aim for zero to negative fluid balance by day 3

Maintain abdominal perfusion pressure (APP) ≥ 60 mmHg

Step 2

Minimize enteral nutrition

Abdominal computed tomography to identify lesions

Avoid prone position, head of bed > 20 degrees

Resuscitate using hypertonic fluids, colloids

Hemodynamic monitoring to guide resuscitation

Administer enemas

Percutaneous catheter drainage

Consider reverse Trendelenberg position

Fluid removal through judicious diuresis once stable

Step 3

Consider colonoscopic decompression

Consider surgical evacuation of lesions

Consider neuromuscular blockade

Consider hemodialysis / ultrafiltration

Vasoactive medications to keep APP ≥ 60 mmHg

Discontinue enteral nutrition

Step 4

If IAP > 25 mmHg (and/or APP < 50 mmHg) and new organ dysfunction / failure is present, patient's IAH / ACS is refractory to medical management. Strongly consider surgical abdominal decompression.

Interpreting Intra-Abdominal Pressure:

Pressure	Interpretation* and Grade
0-5 mm Hg	Normal
6-11 mm Hg	Minimal elevation, common finding in critically ill
12-15 mm Hg	Grade I – Mild to moderate IAH.
16-20 mm Hg	Grade II – Moderate to severe IAH. Beware of ACS. Significant patho-physiologic changes may be present.
21-25 mm Hg	Grade III – High risk of ACS
> 25 mm Hg	Grade IV – ACS

* These are general guidelines. Patient co-morbidities and clinical parameters will influence the clinical significance of these measurements and the onset of clinically apparent abdominal compartment syndrome.

AbViser® AutoValve® Fluid Infusion volume:

Adults	20 mL (1 syringe) recommended infusion volume in adults.
Pediatric	Fluid Infusion Volume = 1 mL/kg + 2 mL (up to 18 kg child) Beyond 18 kg use 20 ml.

Risk Factors for IAH/ACS



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- Diminished abdominal wall compliance
 - Acute respiratory failure, especially with elevated intrathoracic pressure
 - Abdominal surgery with primary fascial or tight closure
 - Major trauma/burns
 - Prone positioning, head of bed > 30 degrees
 - High body mass index (BMI), central obesity
- Increased intra-luminal contents
 - Gastroparesis
 - Ileus
 - Colonic pseudo-obstruction
- Increased abdominal contents
 - Hemoperitoneum/pneumoperitoneum
 - Ascites/liver dysfunction
- Capillary leak/fluid resuscitation
 - Acidosis (pH < 7.2)
 - Hypotension
 - Hypothermia (core temperature < 33° C)
 - Polytransfusion (> 10 units of blood/24 hrs)
 - Coagulopathy (platelets < 55000/mm³) OR prothrombin time (PT) > 15 seconds OR partial thromboplastin time (PTT) > 2 times normal OR international standardised ratio (INR) > 1.5)
 - Massive fluid resuscitation (> 5 L/24 hours)
 - Pancreatitis
 - Oliguria
 - Sepsis
 - Major trauma/burns
 - Damage control laparotomy

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