

Airway

Important

- Adverse events in patients are commonly preceded by clinical signs of deterioration.
- The response to the clinical signs of deterioration is often sub-optimal.
- Not always escalated to senior staff.

Why do patients deteriorate?

- Many patients are older and often have multiple comorbidities.
- Hospital wards are busy with patient transfers in and out.
- Wards can be short-staffed, with patients rarely having the same nurse care for them throughout their hospitalisation.
- Observations are not always adjusted to meet the patient's changing conditions.
- Staffing levels out of hours are usually markedly lower than during the day.
- Junior staff
- Most public Hospitals worldwide will have a system like "Between the Flags " to detect the Early Warning signs (EWS) of a deteriorating patient.

Nurses and our role in detecting and managing deterioration

Patient safety is ultimately the nurse's domain.

Recognising and responding appropriately to rapidly changing clinical situations is an important skill as nurses, to ensure the people we are caring for have the best chance for optimal recovery and survival. As we are usually the group of healthcare professionals that are in constant and close contact with the people in our care we are the ones often best situated to identify in a timely manner when things are not going as they should be. Having the ability to actively and skillfully work within an interdisciplinary team to provide optimal care when there is a deterioration in a person's condition enhances patient outcomes and professional satisfaction.

Escalating concerns Communication skills: ISBAR and Medical Terminology

ISBAR:

You have already been practicing ISBAR as a structured way to handover information regarding the people you care for.

Revision:

Consider the different approaches for handover and accessing support for a person experiencing a clinical deterioration in their condition below compared to clinical handover:

Medical terminology:

It is important to use the correct terminology to relay your concerns to the interdisciplinary team and a thorough grasp of medical terminology will assist you.

A - G assessment

- The ability to complete an A-G assessment is a core skill for registered nurses
- A-G assessment method has been developed to rapidly identify serious abnormalities that need rapid intervention to prevent adverse consequences, including mortality.
- The method is an extension of the Trauma survey developing by Emergency clinicians.
- It differs by incorporating observations as the clinician progresses and review of clinical notes.
- An A-G assessment can be completed by one or two clinicians however requires strong communication between them
- The A-G hierarchy focuses on critical body systems that must be addressed in order.
- That is if an abnormality is identified in a system, it should be addressed BEFORE moving onto the next system.
- In addition to the standard inclusions in an A-G assessment, a focused assessment for a specific system should be incorporated depending on the history of the presenting illness and/or where there is new pain.

Airway recap

Without an airway, there is no life!

The aim of an airway assessment is to ensure that the airway is patent and that there is no partial or full obstruction.

Airway Emergencies

Think

Causes of airway obstruction

- Central nervous system depression
- Level of consciousness (LOC)
- Foreign body
- Blood, vomitus
- Laryngotracheal trauma
- Allergic reaction
- Epiglottitis
- Pharyngeal swelling
- Infection, oedema
- Laryngospasm
- Blocked tracheostomy or laryngectomy

Partial airway obstruction

- Anxiety
- Reduced Speech
- Sounds - Gurgling, stridor, bubbling, expiratory wheeze
- Choking/ Coughing
- Gasping
- Reduced LOC
- Use of accessory muscle

Complete Airway Obstruction

- Remember- complete airway obstruction is silent!
- Unable to speak
- Any respiratory movements are strenuous. Accessory muscles will be involved, chest is drawn in and abdo expands on inspiration with the opposite occurring on expiration- "see -Saw"
- Cyanosis
- LOC

Maintaining a patent airway

A patent airway is **a** vital physiological process since, without a patent airway, respiration cannot occur.

- The priority is to ensure the airway remains patent.
- When approaching your patient, introduce yourself and ask a simple question. Their response or absence of response can give you an immediate assessment of their airway.
- Look for signs an airway is obstructed, tracheal tug, intercostal recession and paradoxical chest and abdo movement - "see-saw" movement
- Listen for noisy respiration, gurgles, snoring or stridor
- Anyone with a decreased LOC is at risk of obstructing their airway.

- Inspect the airway - remove obstructions such as suctioning blood or vomitus,
- unless contraindicated, turn the patient onto their side
- Give oxygen ASAP
- Safeguard the airway. Use airway opening manoeuvres such as head tilt/chin lift)
- Insertion of an oropharyngeal or nasal airway

Over the past two years you have been exposed to a range of practices and airway adjuncts nurses can use to support a person's airway.

Paediatrics

nurses should

- establish a relationship with the child and their caregivers
- explain what is going on to the child and their caregivers using non-medical language
- show the child the instruments you will be using and
- use distraction as appropriate.

When you are caring for children you will be also caring for parents and caregivers- supporting them in possibly stressful and upsetting times. The assistance and information they provide to you when you are assessing their child is incredibly important, and their concerns should never be dismissed- **"parental anxiety should not be discounted: it is often of significance even if the child does not appear especially unwell"** (NSWHealth, 2019, p.2).

Consider the person-centred practice framework and the five person-centred processes- how will you use these processes to ensure you give person-centred care to the child and their family/caregiver in your care?

First impressions relate to General appearance and behaviour

Airway _ Is the child talking? Are there any inspiratory sounds?

Gurgling- fluids or secretions obstructing the airway. Consider fatigue or decreased LOC

Snoring- Consider decreased LOC

Stridor - **Partial airway obstruction** - consider croup, epiglottitis anaphylaxis. The stridor may decrease in volume as air entry decreases. Agitation or irrational behaviour decreased level of consciousness, hypotonia, and marked pallor indicate a dangerous airway. Hypoxaemia is a late warning sign of upper airway obstruction.

Lower airway obstruction

- Expiratory wheeze on auscultation- consider bronchoconstriction- look for an increase in work of breathing and silent chest- medical emergency- no audible air entry on auscultation

Airway opening manoeuvres-

- **Head chin tilt manoeuvre**

Anaphylaxis

Anaphylaxis is a potentially life-threatening, severe allergic reaction and should always be treated as a medical emergency.

Airway Obstruction may occur rapidly. In severe anaphylaxis, particularly in patients with angioedema, adrenaline (epinephrine) is the first-line treatment for anaphylaxis.

Anaphylaxis occurs after exposure to an allergen (usually food, insects, or medications) to which a person is allergic. Not all people with allergies are at risk of anaphylaxis. It is essential to know the signs and symptoms of anaphylaxis

Signs and symptoms of anaphylaxis are potentially life-threatening, and include any one of the following:

- Difficult or noisy breathing
- Swelling of tongue
- Swelling or tightness in the throat
- Difficulty talking or having a hoarse voice
- Wheeze or persistent cough

- Persistent dizziness or collapse
- Pale and floppy (in young children)

Several factors can influence the severity of an allergic reaction, which include:

- Exercise
- Heat
- Alcohol
- Amount of food eaten and how it is prepared - in food allergic people

Pathophysiology of anaphylaxis.

Anaphylactic shock is an allergic reaction that's severe enough to cause shock; shock is decreased tissue perfusion, in other words, decreased oxygenation of tissues.

Several different things can cause an allergic reaction. For example, bee stings, peanut allergies, food allergies, and pollen can cause allergic reactions, and so can certain medications.

There are two types of anaphylaxes. Immunologic and non-immunologic.

The most common anaphylaxis is Immunologic anaphylaxis, where an allergic agent somehow gets into the system. When this allergen first enters the body, it will interact with B cells. These cells are the antibody-creating cells of the immune system; they create antibodies.

Antibodies' role or job is to find foreign material, which, in this case, is an allergen. Antibodies created in response to an allergen are known as IgE. IgE stands for immunoglobulin E. Globulin means protein, and immo means immune.

IgE specifically docks onto other immune cells, known as mast cells, which are immune system mediators. Once IgE is created, it will dock onto these mast cells. This occurs when a person is first exposed to an allergen, called sensitisation.

The immune system is sensitised to this allergen. So, the next time this allergen comes along, it will create a rapid allergic response. The allergen will dock onto these antibodies and activate the mast cells.

Mast cells, when activated, release cytokines, signalling other white blood cells to join. This initiates a cycle, recruiting and activating more white blood cells in response to allergens.

Activating mast cells and immune cells release histamine, a potent vasodilator. This widens blood vessels. This process occurs throughout the body, causing a significant drop in blood pressure. Consequently, the circulatory system loses functionality, hindering oxygen distribution. Additionally, histamine induces vessel leakage, leading to widespread swelling. Patients experience both substantial swelling and a drastic decrease in blood pressure.

The second type of anaphylaxis, non-immunologic shock, is like immunologic shock, with a slight difference in pathology. Instead of IgE stimulating mast cells, the allergen directly targets mast cell receptors. This leads to histamine and cytokine release, causing an exaggerated immune response, recruiting more white blood cells and resulting in a drop in blood pressure.

Symptoms of anaphylactic shock are characterised by histamine actions, including a significant drop in blood pressure due to vessel dilation, skin flushing, swelling, and itchiness. Additional symptoms may include a runny nose (rhinorrhoea). A crucial sign is bronchospasms, causing difficulty breathing, exacerbated by throat swelling, making breathing even more challenging.

What is Adrenalin?

Adrenalin (also called **epinephrine**) is a **hormone and medication**.

As a hormone

- Produced by the **adrenal glands**.
- Released during stress or danger as part of the **fight-or-flight response**.
- Increases heart rate, blood pressure, and airflow to the lungs.

As a medication

- It is the **first-line, life-saving treatment** for **anaphylaxis**.

- Works by:
 - Reversing airway swelling
 - Opening the airways
 - Raising blood pressure
 - Reducing hives and swelling

What dose and route should be given in anaphylaxis?

The recommended dose is **intramuscular (IM) adrenaline 1:1000 (1 mg/mL)** into the **anterolateral thigh**.

Standard dosing (Australia - ASCIA / Australian Immunisation Handbook)

- 0.01 mg/kg (0.01 mL/kg)
- **Maximum single dose: 0.5 mg (0.5 mL)**
- **Route: IM only** (never IV in community or non-specialist settings)

Adult dose

- **0.5 mg IM** (0.5 mL of 1:1000)

Paediatric doses (if weight unknown)

Approx Age	Dose (1:1000)
	0.10 mL
1–2 years	0.10 mL
2–3 years	0.15 mL
4–6 years	0.20 mL
7–10 years	0.30 mL
10–12 years	0.40 mL
>12 years	0.50 mL

Repeat dosing

- If symptoms **do not improve within 5 minutes**, repeat the same IM dose.

Why IM is preferred

- Rapid absorption
- Safer than IV bolus
- Lower risk of arrhythmias

Tracheostomy and Laryngectomy Recap SNUG205

Tracheostomy potentially 2 Airways

Laryngectomy only 1 Airway

For a deteriorating patient, if in doubt, administer supplemental oxygen to the mouth and stoma.

There are many indications including

- overcoming anatomical obstruction of the trachea due to swelling, tumours, abscesses or haematomas
- prophylactic insertion during head and neck or ENT surgery
- as a weaning step where a patient has been ventilated with respiratory failure
- To protect the airway where an individual might have a compromised swallow, gag or cough
- Allow for suction of the lower airways where a patient might have an inadequate cough

Nurses play an essential integrating and advocacy role when providing care of individuals with a tracheostomy

1. Flange	Serves as the main stabilising portion of the tube. The securement tapes are attached via the holes
2. Pilot tube	Connects the pilot cuff to tracheal cuff
3. Main body	Major component of the tracheal - this is the person's airway
4. Pilot balloon	Serves as external evidence of cuff inflation
5. Inner cannula	Sits within the main of the tracheal tube and serves as a key safety feature. That is if the tube looks blocked the inner cannula can be easily removed to restore the person's airway
6. Obturator	Is used during insertion of the tracheal tube
7. Cap	Is applied to the end of tracheal tube during the weaning stage
8. Cuff	when inflated this creates a seal within the trachea to prevent micro aspiration and a closed breathing circuit. Cuff pressure should be 20-30 cmH ₂ O
9. Holes for tracheal tube holders	these allow for holders to be attached to the flange and then looped around the neck to ensure the tracheal tube remains secure within the throat
10. Where syringe is attached to inflate cuff	
11. Where humidification +/- oxygen tubing is attached	