



Module 2: Patient Assessment Learning Resources

For use in First Responder Accreditation and
Reaccreditation programs

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Introduction

This module aims to develop members' ability to perform a systematic primary assessment in order to identify patients who are critically ill or injured and patients who are at risk of clinical deterioration. The patient assessment is a fundamental skill of all health care providers, especially those working in the out of hospital setting.

An effective physical patient assessment will require us to ask questions and perform an examination that might make the patient feel somewhat uncomfortable or vulnerable. Before starting the patient assessment, consider the following regarding the interview and physical contact process.

You are usually a stranger when you first meet the patient so a polite introduction is a good starting point. Introduce yourself before asking the patient's name. Use terms of respect such as Mr/Ms unless they introduce themselves by way of their first name. Do not use terms such as "sweetie", "darling", "sweet heart" as these are terms which some people find offensive.

Advise the patient of what you are about to do. Prior to initially commencing and at the commencement of each phase of the assessment process, advise the patient of what you are about to do. Keep the communication flowing at all times and ensure you obtain their consent.

Gain the confidence of the patient by acting, speaking and appearing in a professional manner. Remember such things as;

- Eye contact with the patient plays an important part in communication and reassurance. Sunglasses should NOT be worn during the assessment / treatment process
- Personal space. Everybody has a personal space and initially avoid entering this space until the patient feels more comfortable
- Where the patient is lying down on the ground or a bed, bring yourself down to a position closer to their level i.e. kneel beside them once you feel it is safe to do so but always make sure it is safe to do so first
- Speak in a calm, steady and reassuring voice. Raised voices can indicate elevated stress levels. The patient could be confused, frightened and in pain and having someone towering over them, barking heaps of personal questions at them, is certainly not going to reduce the stress levels.
- Use language which is appropriate and can be understood by the patient
- A neat & tidy uniform will assist with a professional image being portrayed to the patient, relatives and bystanders. Ensure personal grooming and hygiene are at a high level

The patient assessment process

The patient assessment process consists of four sections. This is known as the 'Four Point Technique'.

The sections are –

1. Primary assessment (DRSABCD) + ABCDE
2. Secondary assessment (look, listen & feel from 'nose to toes')
3. Vital signs
4. Take a history

The extent of the patient assessment will depend on the nature of the patient's condition. The comprehensive assessment described below is appropriate for patients presenting with a serious condition. If a patient presents with a minor and/or local condition (e.g. headache, blister), a considerably less comprehensive assessment is appropriate. The extent of the patient assessment depends on the circumstances – if you are uncertain how detailed the patient assessment should be for a particular patient, be more comprehensive initially (particularly when taking the patient's history) and modify the assessment when you have more information about the patient's condition.

Document all relevant information from your patient assessment on a Patient Report Form. You can start completing a patient report while you are taking base-line observations and patient history.

Primary Assessment - DRSABCD

In St John we follow the DRSABCD action plan. This is the foundation approach to recognising patients who are in cardiac arrest.

DRSABCD action plan

In an emergency call triple zero (000) for an ambulance



D DANGER
Ensure the area is safe for yourself, others and the patient.

R RESPONSE
Check for response—ask name—squeeze shoulders
No response
• Send for help.
Response
• make comfortable
• check for injuries
• monitor response.



S SEND for help
Call Triple Zero (000) for an ambulance or ask another person to make the call.

A AIRWAY
Open mouth—if foreign material is present:
• place in the recovery position
• clear airway with fingers.
Open airway by tilting head with chin lift.



B BREATHING
Check for breathing—look, listen and feel.
Not normal breathing
• Start CPR.
Normal breathing
• place in recovery position
• monitor breathing
• manage injuries
• treat for shock.



C CPR
Start CPR—30 chest compressions : 2 breaths
Continue CPR until help arrives or patient recovers.



D DEFIBRILLATION
Apply defibrillator if available and follow voice prompts.

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Primary Assessment - ABCDE

Where a patient is not in cardiac arrest, St John recommends first responders follow the ABCDE approach to assess and determine the most appropriate disposition for patients who present for first aid and health services.

The **ABCDE** approach to the primary assessment is standardised across ambulance services and emergency departments and is used in the assessment and management of both medical and trauma patients.

A is for **AIRWAY**

B is for **BREATHING**

C is for **CIRCULATION**

D is for **DISABILITY** (neurological function)

E is for **EVERYTHING ELSE (Expose and Evaluate)**

The initial approach is to look at the patient and make a quick assessment of ABCD. This can be performed without touching the patient. Consider the following.....

- Did the patient walk in or were they carried?
- Are they talking? Is it in full sentences or just words?
- Is their breathing noisy? Fast? Slow?
- Is their increased work of breathing?
- Are they pale? Sweaty?
- Is there any obvious bleeding?
- Is the patient awake, drowsy or unresponsive?
- Are there any obvious injuries?

A lot of information can be gleaned from your first impressions.

First impressions count – if the patient looks sick assume they are

Let us consider each element in turn. The working approach is that if you find an abnormality, fix it (if able) before moving on. Airway problems will kill you quickest, followed by breathing problems, circulation problems and so on. The key is to be systematic. If you perform a primary assessment on every patient (even if there are no threats to life) you will be ready when faced with a patient who is critically ill.

Take care of the small jobs and the big jobs will take care of themselves

Airway

Airway obstruction can be partial or complete. Complete airway obstruction will rapidly result in cardiac arrest necessitating the need for CPR. Often partial airway obstruction precedes complete airway obstruction. Besides foreign body (refer to Choking AFA Chapter 3) there are many other causes that we will encounter more commonly including:

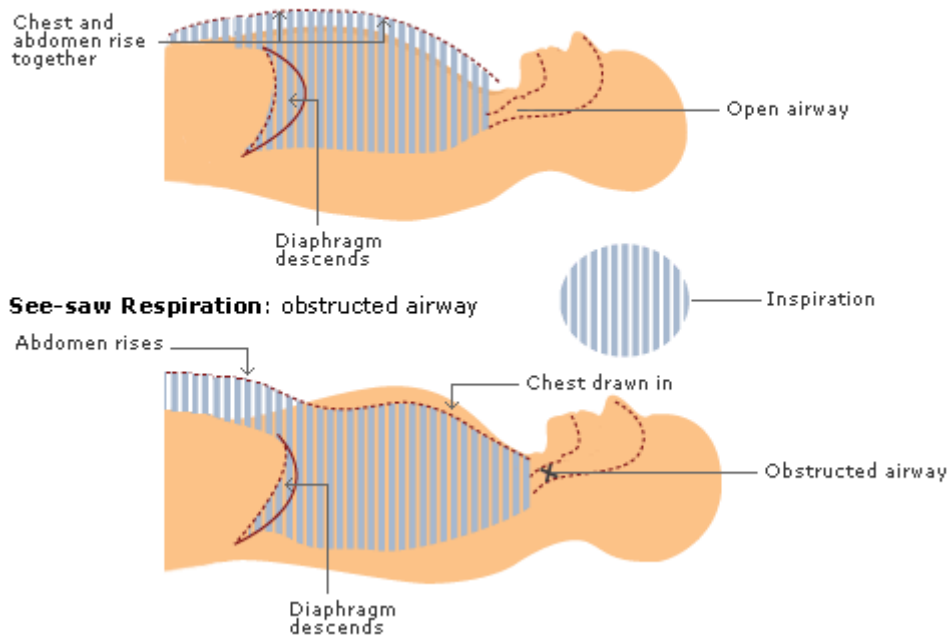
- Central nervous system depression (e.g. head injury, stroke, alcohol and other drugs)
- Blood
- Vomit
- Facial / neck trauma
- Facial swelling (e.g. anaphylaxis)
- Bronchospasm (e.g. asthma)
- Bronchial secretions
- Infections (e.g. epiglottitis, abscess)

Signs of airway obstruction

In partial airway obstruction, efforts of breathing are noisy and can result in stridor, snoring, gurgling and wheezing however **there is still movement of air at the mouth and nose** but may be decreased. Conscious patients with airway obstruction will be distressed and will complain of difficulty breathing. In complete airway obstruction, breathing efforts (if present) will be silent and there is no air movement at the mouth / nose. Efforts to breath are dramatic – accessory muscles will be activated resulting in ‘see-saw’ breathing where the chest is drawn in and the abdomen expands during inspiration and the abdomen contracts and the chest expands on expiration. Cyanosis is a late sign of airway obstruction and indicates severe hypoxia (lack of oxygen).

Suspect airway obstruction in patients with decreased level of consciousness

Normal Inspiration: open airway



Management of airway obstruction

- Airway obstruction is a life threatening emergency → send for help (call triple zero)
- Clear the airway – suction for fluids, fingers for solids
- Open the airway - head tilt, chin lift, jaw thrust (in trauma avoid head tilt)
- Airway adjuncts → oropharyngeal airway if unconscious
- Recovery position
- Give oxygen as indicated
- Treat specific conditions e.g. choking, asthma, anaphylaxis etc.
- If patient becomes unconscious and is not breathing (or has agonal / gasping breathing) commence CPR (see Module 1 – Resuscitation)

Breathing

Inadequacy of breathing has many causes and can be acute or chronic. Inadequacy of breathing is a precursor of cessation of breathing and ultimately cardiac arrest.

Causes of inadequate breathing include:

- Reduced respiratory drive e.g. central nervous system depression (head injury, stroke, alcohol and other drugs)
- Reduced respiratory effort e.g. spinal injury, muscle weakness
- Lung disorders / conditions e.g. asthma / bronchoconstriction, COPD, infection, pneumothorax, pulmonary oedema, aspiration

Inadequate or ineffective breathing can be indicated by:

- The patient complaining of shortness of breath or difficulty breathing
- Abnormal respiratory rate (too slow or too fast)
- Increased work of breathing
- Reduced oxygen saturation
- Agitation or restlessness
- Drowsiness or reduced level of consciousness

Assessment of breathing

The methods for determining if breathing is present are:

1. LOOK for movement of the upper abdomen or lower chest
2. LISTEN for the escape of air from nose and mouth
3. FEEL for movement of the chest and upper abdomen

If breathing cannot be detected in 10 seconds assume that it is absent

Once it has been established that breathing is present, the next vital element of breathing assessment is to accurately measure the **respiratory rate**. Respiratory rate has been described as the neglected vital sign¹ as it is often not measured by healthcare providers. A raised respiratory rate is a strong and specific predictor of serious adverse events such as cardiac arrest and unplanned intensive care unit admission¹. Measuring and recording the respiratory rate is very simple but is often omitted.

**Assess breathing over at least 30 seconds (and multiply by 2)
– watch the chest and abdomen**

A range of 'normal' respiratory rates is indicated in the table below.

Age	Respiratory rate (per min)
< 3 months	30-55
3– 12 months	30-45
1-4 years	20-40
5-11 years	20-30
12-15 years	15-20
16 years and above (adults)	10-25

Work of breathing (effort)

Under normal circumstances, during inspiration the diaphragm contracts to create a negative pressure in the thorax to result in the movement of air into the lungs. Expiration occurs when the diaphragm relaxes and the lungs recoils. During illness or injury, the work of breathing often increases. This involves the use of muscles between the ribs (intercostals), muscles of the neck and abdominal muscles. These muscles try and assist to improve breathing but they result in increased fatigue which ultimately leads to worsening respiratory failure. In children, other features of increased work of breathing include nasal flaring, chest recessions (between ribs, below ribs and sternal), tracheal tugging, grunting breathing and gasping (a sign of impending arrest).

Pulse oximetry

Pulse oximetry is a good indicator of oxygen saturation in the blood however is not a good indicator of the adequacy of breathing. Pulse oximetry is an important part of the assessment of breathing but does not replace the need for assessment of respiratory rate and work of breathing. An oxygen saturation of < 95% indicates hypoxia.

Cyanosis (turning blue) is a very late sign that breathing is ineffective

Management of breathing

- Get help → call triple zero (000)
- Position sitting (if possible) - Most patients with breathing difficulty will feel better if sitting up (this may not be possible in trauma or if there is a reduced level of consciousness)
- Administer oxygen as indicated
- Treat specific causes e.g. asthma, anaphylaxis, chest injury etc
- Support ventilation if respiratory rate is too slow or inadequate
- If patient becomes unconscious and is not breathing (or has agonal / gasping breathing) commence CPR (see Module 1 – Resuscitation)

Circulation

The assessment of circulation provides vital information on the blood flow to vital organs such as the brain, the heart, lungs and kidneys. When there is inadequate blood flow (perfusion) less oxygen is delivered to these vital organs and they begin to fail. Inadequate circulation has many possible causes however they are either primary cardiac causes (e.g. heart attack, dysrhythmias, heart failure) or other causes (e.g. shock states including blood or fluid loss, infection, anaphylaxis; hypothermia, hyperthermia, electrolyte abnormalities, poisoning / overdose etc.).

Circulation problems can be indicated by:

- Chest pain / discomfort
- Shortness of breath / difficulty breathing
- Increased heart rate (tachycardia)
- Slow heart rate (bradycardia)
- Low blood pressure (hypotension)
- Sweating
- Faintness / light headedness / history of collapse (syncope)
- Decreased level of consciousness

Assessment of circulation involves the following:

Element	What to look for	Comments
Pulse rate	Rate Rhythm (regular / irregular) Volume (faint / strong)	A normal pulse has a normal rate, is regular and is easy to feel
Blood pressure	Systolic blood pressure	Low systolic blood pressure is a late sign Loss of radial pulses indicates significant hypotension
Temperature	Temperature recorded using digital thermometer	Should be between 36.1 and 37.1 degrees Celsius
Capillary refill	Press capillary bed for 5 seconds then release – look for return of blood flow	Normal capillary refill is < 2 sec Abnormal capillary refill is 2 or more seconds
Fluids in / Fluids out	Enquire about fluid intake Enquire about urine output and losses	Fluid losses such as diarrhoea, vomiting, sweating might exceed oral intake Low urine output is a sign of poor kidney perfusion (e.g. not passing urine in 8 hours)

“Normal” limits for pulse rate and systolic blood pressure

Age	Pulse rate (per min)	Systolic blood pressure (mmHg)
< 3 months	110-160	60-100
3– 12 months	100-160	70-110
1-4 years	90-140	90-110
5-11 years	80-120	90-110
12-15 years	60-100	90-120
16 years and above (adults)	50-120	100-180

Common sites for pulse estimation are:

- Carotid
- Radial
- Brachial
- Dorsalis Pedis

Measuring temperature is normally done using digital thermometers:

- Oral recordings (only with adults)
- Readings under the arm (Axillary)
- Tympanic

Capillary Refill:

- Observation refers to the time that it takes for an area of skin to return to its original colour after being whitened by light pressure
- Peripheral blood supply can be tested by compressing and releasing the fingernail bed
- The fingernail bed should return to normal in less than TWO SECONDS
- Capillary filling can also be used to check the blood supply in a limb beyond the point of injury

Hypotension is defined as systolic blood pressure less than the lower end of the normal range

Whilst diastolic blood pressures are important in their own right as a component of identifying patients who are hypertensive, they are not an absolute requirement of the primary assessment although they are typically obtained where auscultation is practical.

Management of circulation problems

- Get help → call triple zero (000)
- Position supine (if conscious) to improve brain perfusion – consider elevating the legs if shock is present
- Administer oxygen as indicated
- Treat specific causes e.g. blood loss, anaphylaxis, shock, heart attack, etc.
- If patient becomes unconscious and is not breathing (or has agonal / gasping breathing) commence CPR

Disability

Disability refers to neurological function. This refers to the conscious state and to explore potential causes for an altered conscious state. As you have read already, airway problems, breathing problems and circulation problems can all lead to an altered conscious state however there are many more. Other causes of unconsciousness can be recalled by using the mnemonic **AEIOU TIPS**:

- **A**lcohol
- **E**pilepsy with seizure
- **I**nfection
- **O**verdose
- **U**raemia (excess uraemia in the blood as a result of kidney failure or impairment)
- **T**rauma (e.g. head injury)
- **I**nsulin (BGL too high or too low)
- **P**oisoning
- **S**troke

Assessment of Disability

During DRSABCD you make an assessment of responsiveness (conscious or unconscious or responsive / unresponsive). Formal assessment of disability requires further assessment of the patient's level of consciousness to various stimuli.

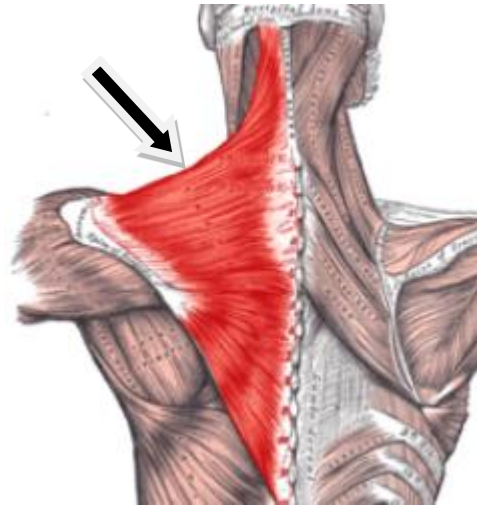
AVPU

- **A**lert - Patient awake and alert
- **V**oice - Patient responds to a voice command
- **P**ainful stimuli - Patient responds to stimuli such as a central sternum rub
- **U**nconscious - Patient does not respond to any stimuli

A patient with a LOC of A is **ALERT** – the patient has their eyes open spontaneously (i.e. without the need to speak to them or touch them) and is interacting with you (i.e. the patient is awake). They will also typically speak to you. It is possible for an alert patient to be confused and not orientated (this is assessed formally in the GCS). Alert patients can typically follow instructions. If the patient is not alert then assess response to voice.

A patient with a LOC of V is not alert but responds to **VOICE** – i.e. opens their eyes when spoken to loudly and clearly “Can you hear me?” “Open your eyes”, “What is your name?” “How are you?” etc [you can be more conversational – develop your own approach – find something that works for you]. It is important to not touch the patient during assessment of response to voice. If there is no response to voice then assess responsiveness to pain.

A patient with an LOC of P responds to **PAIN**. As they are not alert, have not responded to voice, it is appropriate to cause a painful stimulus. A simple and reproducible method is to squeeze the trapezius muscle (above the collarbone at the base of the neck) between your index finger and thumb.



You are looking for any response – eyes opening, making sounds or any movement. If there is no response to pain the patient is UNRESPONSIVE.

Assessment of pupils

Assessing the pupils is an important aspect of disability assessment. You are assessing the size, equality and reaction to light of pupil response.

Size - pupils are assessed for size against a uniform scale in millimetres. Differences are noted between the pupils.

Equality - an unequal pupil may indicate increasing pressure within the skull or indicate ischaemia of the brainstem.

Reaction - direct a small, bright torch from the side of the face to shine into the eye. Pupillary response is recorded as brisk, sluggish or non-reactive. If the response is difficult to see the surroundings should be dimmed. Changes are significant when accompanied by a decrease in the patient's neurological response.

To perform pupillary reactions:

1. Dim the room lights as necessary.
2. Ask the person to look into the distance.
3. Shine a bright light obliquely into each pupil in turn.
4. Look for both the direct (same eye) and consensual (other eye) reactions
5. Record pupil size in mm and any asymmetry or irregularity

One in five people have naturally occurring unequal pupils

Assessment of blood glucose

Extremes of blood glucose (very low or very high) is a cause of an altered conscious state. It is simple to measure. If hypoglycaemia is present (BGL is < 4 mmol/L) then (if able) it should be treated.

Oral glucose should only be given to ALERT patients

Management of decreased conscious states

- Get help → Call triple zero
- Position in stable side position if LOC is V, P or U

Module 2 Patient Assessment (December 2014)

- Administer oxygen as indicated
- Treat specific conditions (consider causes AEIOUTIPS)
- If patient becomes unconscious and is not breathing (or has agonal / gasping breathing) commence CPR

Everything else (expose and evaluate)

This is an opportunity to examine the patient thoroughly. Expose areas of the body that are appropriate to the clinical situation to ensure that nothing important is missed. Examination of the head, neck, chest, abdomen, back and limbs are important and where possible should be directly observed. Look specifically for injuries and rashes as well as signs of airway problems, breathing problems and circulation problems. Ensure you protect dignity and prevent heat loss.

If you don't look...you don't find

Secondary assessment (look, listen and feel from 'nose to toes')

A comprehensive secondary assessment is warranted when the patient is unconscious and/or has multiple injuries. The assessment can be more focused when the injuries are localised.

Use 'STDCAL' when assessing for local trauma –

- S** Swelling
- T** Tenderness
- D** Deformity
- C** Contusions
- A** Abrasions
- L** Lacerations

1. HEAD	<ul style="list-style-type: none">• level of consciousness (use the AVPU scale)• pupils – size, equality and reaction to light• presence of local trauma (STDCAL) or cerebrospinal fluid (CSF) leaks from nose/ears• presence of any facial fractures (ask the patient to bite and run tongue around inside of teeth)• note the presence of any bruising behind the ears or around the eyes
2. NECK	<ul style="list-style-type: none">• presence of local trauma (STDCAL)• check spinal cord function (ask patient to squeeze both hands, wiggle toes and ask if numbness or tingling is present in any limb)• presence of tracheal deviation (this is a late sign of a tension pneumothorax)
3. CHEST	<ul style="list-style-type: none">• presence of local trauma (STDCAL)• look and feel for chest movement – presence of, equality & tidal volume of both sides• gently 'spring' the ribs• note any scars that might indicate previous injury/surgery
4. ABDOMEN	<ul style="list-style-type: none">• presence of local trauma (STDCAL)• presence of distension• presence of rigidity• note any scars that might indicate previous injury/surgery
5. PELVIS	<ul style="list-style-type: none">• presence of local trauma (STDCAL)• gently 'spring' the pelvis (but do not push down if fracture of the pubic bone is suspected)

6. UPPER AND LOWER LIMBS	<ul style="list-style-type: none"> • presence of local trauma (STDCAL) - remove ALL footwear & socks • assess distal pulses (below the site of injury) & perfusion (capillary refill - i.e. < 2 seconds or > 2 seconds) • if no evidence of fracture/dislocation, ask the patient to move each limb in turn • note any swelling (oedema) of the lower limb/ankle
7. BACK AND SPINE	<ul style="list-style-type: none"> • check in natural hollows for local trauma (STDCAL) • log roll the patient towards you to look for trauma, including back of head and buttocks (whilst lateral, consider cutting down the rear of the clothes for ease of removal) • palpate (to examine a part of the body by feeling with the hands and fingers, especially to distinguish between swellings that are solid and those that are filled with fluid) carefully along the spine for tenderness and deformity • ensure the area immediately under the patient is free of foreign objects (e.g. glass and other debris, stones & sticks) before rolling patient onto back • if the patient is lying on a hot bitumen or concrete surface, consider providing protection to the skin

Give consideration to the placement of a spine board under the patient at the time of the log roll should this be appropriate

Vital signs

By completing ABCDE, you should have a full set of accurate base line observations which includes the following:

- Pulse - rate, rhythm & strength
- Capillary refill
- Temperature
- Level of consciousness - use of AVPU
- Blood pressure auscultate for both diastolic and systolic BP
- Respirations - rate, rhythm & depth
- Pupils - size, equality and reactivity to light
- Blood glucose level - assess the BGL where appropriate

The main reason we take observations is to establish a base line and then monitor for changes in the patient's condition.

Take a History

The history is collected from various sources. These include the scene, the patient, relatives and bystanders. You can collect the history while you are carrying out the preceding physical examination and taking base-line patient observations. Collect the following details:

1. Chief complaint

Analyse pain with the **PQRST** system

- P Provoking factors – What was the patient doing when the pain occurred? Did anything specific bring the pain on or make it worse? Is there anything that relieves the pain or lessens it?
- Q Quality – Ask the patient to describe the pain e.g. a burning sensation, dull ache, sharp intense pain etc. Allow the patient to describe the pain and not any observer.
- R Region/Radiation – Where on the body is the pain located? Has it moved or radiated to any other location since the onset?
- S Severity – Ask the patient describe the severity of the pain. Use the linear pain score scale of 0 to 10. Allow the patient to describe the pain severity – it is the severity they feel and not that of the observer
- T Time of onset and duration – How long has the pain been present? If you have had similar pain before, has this lasted a longer or shorter period of time?

2. **Treatment prior to your arrival.** Has the patient been moved?

3. **If the patient was unconscious prior to your arrival, was it continuous and for how long?**

4. AMPLE history

- A** Allergies
- M** Medication (current/recent administration?)
- P** Previous relevant illness/injury
- L** Last meal
- E** Event leading up to the illness/injury

Patient reassessment

The need for regular re-assessment and monitoring of the patient, including repeat observations) depends on the nature of condition and treatment provided and whether significant changes to the patient's condition are likely (monitoring commonly at 5-15 minute intervals).

Recognising at risk at and deteriorating patients

St John members see the spectrum of injury and illness from very minor to very severe. A challenge when providing clinical care is to identify patients that are deteriorating or at risk of deterioration. Abnormal vital signs have been shown to be predictive of adverse outcomes including admission to intensive care, cardiac arrest and death. For this reason, the routine recording of vital signs on all patients is required at their initial presentation and serial observations on patients that remain in our care to ensure that deterioration of seemingly well patients is identified.

It cannot be over emphasised how important the primary assessment (ABCDE) is. A key element of this is to measure and record vital signs. Initial vital signs can tell us what patients are immediately at risk and have a significant threat to life. Whilst some of the events we cover will regularly encounter patients who are at immediate risk many of these will improve quickly. The key is to identify these patients and seek expert assistance by calling triple zero (000) or arranging prompt review by an onsite advanced care model.

Key principles:

1. Measure and record baseline observations on all patients who present for assessment and management
2. Reassess and record vital signs at regular intervals whilst patients remain in your care
3. Consider if the vital signs you obtain are within low risk limits, at risk limits or indicate high risk of deterioration or death (having reference charts at events can assist)
4. Seek assistance with patients with abnormal vital signs from health professionals (if available) or ambulance service as appropriate
5. Provide treatment in accordance with your accredited scope of practice in accordance with the clinical accreditation framework

What patients are at immediate risk?

Features of patients with life threatening / potentially life threatening injury or illness include ANY of the following:

High risk / Require immediate response	
ABCDE	ALL respiratory and cardiac arrests
A	Airway obstruction or stridor
B	Respiratory rate in red zone
B	Oxygen saturation < 90%
B	Severe respiratory distress
C	Heart rate in red zone
C	Systolic blood pressure in red zone
D	LOC of U (unresponsive to pain) or LOC of P (responds only to pain)
D	Fitting
D	Blood glucose < 2 mmol/L
E	Temperature < 34.5 or > 40 degrees C
E	Three or more yellow zone criteria
E	Serious concern by <u>any</u> clinician

If any of the above high risk criteria are present then:

1. Initiate clinical care consistent with your level of clinical accreditation
2. Escalate care of the patient immediately to appropriate health professionals (usually the ambulance service unless a Medical Assistance Team (MAT) or Health Emergency Response Team (HERT) is onsite and available to respond.
3. Repeat observations at regular intervals until help arrives or patient condition improves

Send for help / call triple zero (000) immediately for all confirmed or suspected cardiac arrests. If not immediately available (i.e. on scene) arrange for a defibrillator to be brought to the scene

What patients are at risk?

Features of patients at risk of deterioration or serious adverse outcomes include ANY of the following:

At risk / Require clinical review	
B	Respiratory rate in yellow zone
B	Oxygen saturation 90-95%
B	Moderate respiratory distress
C	Heart rate in yellow zone
C	Systolic blood pressure in yellow zone
C	Reduced urine output / not passed urine - 8 hours adults / 4 hours children
C	Poor peripheral circulation (cool peripheries, capillary refill \geq 3 sec, weak pulses)
D	LOC V (responds only to voice) or confusion
D	Altered mental state – agitation combative / restlessness / inconsolable (in children)
D	Blood glucose 2 – 4 mmol/L and symptomatic
E	Temperature < 35.5 or > 38.5 degrees C
E	Any non-traumatic chest pain / discomfort
E	New, increasing or unrelieved pain – moderate or severe pain (pain score 4 or more)

1. Initiate clinical care consistent with your level of clinical accreditation
2. Repeat observations at regular intervals until help arrives or patient condition improves
3. Arrange for clinical review by a health professional if vital signs do not normalise (become low risk)

Patients with 'at risk' criteria should not return to the event or be discharged home without clinical review – if onsite clinical review is unavailable then refer the patient to hospital.

A table identifying at **high risk**, **at risk** and **low risk** for adults is shown below

ADULT 16+	High risk	At risk	Low risk	At risk	High risk
RR	< 5	5-9	10-24	25-29	30+
HR	< 40	40-49	50-119	120-139	140+
SBP	< 90	90-99	100-160	160-199	200+
Capillary refill	-	3+ sec	< 3 sec	-	-
SpO2	< 90	90-94	95+	-	-
AVPU	P or U	V	A	-	-
Temp	< 34.5	34.5-35.4	35.5-37.4	37.5-39.9	40.0+
BGL	< 2	2.0-3.9	4.0+	-	-
PAIN	-	-	Nil	4-10	-

A table identifying at **high risk**, **at risk** and **low risk** for children aged 12-15 is shown below

Child 12-15	High risk	At risk	Low risk	At risk	High risk
RR	< 5	5-9	10-29	30-39	40+
HR	< 40	40-49	50-129	130-149	150+
SBP	< 90	90-99	100-139	140-199	200+
Capillary refill	-	3+ sec	< 3 sec	-	-
SpO2	< 90	90-94	95+	-	-
AVPU	P or U	V	A	-	-
Temp	< 34.5	34.5-35.4	35.5-37.4	37.5-39.9	40.0+
BGL	< 2	2.0-3.9	4.0+	-	-
PAIN	-	-	Nil	4-10	-

A table identifying at **high risk**, **at risk** and **low risk** for children aged 5-11 is shown below

Child 5-11	High risk	At risk	Low risk	At risk	High risk
RR	< 10	10-14	15-34	35-49	50+
HR	< 60	60-69	70-139	139-159	160+
SBP	< 80	80-89	90-129	130-159	160+
Capillary refill	-	3+ sec	< 3 sec	-	-
SpO2	< 90	90-94	95+	-	-
AVPU	P or U	V	A	-	-
Temp	< 34.5	34.5-35.4	35.5-37.4	37.5-39.9	40.0+
BGL	< 2	2.0-3.9	4.0+	-	-
PAIN	-	-	Nil	4-10	-

A table identifying at **high risk**, **at risk** and **low risk** for children aged 1-4 is shown below

Child 1-4	High risk	At risk	Low risk	At risk	High risk
RR	< 15	15-19	20-49	50-59	60+
HR	< 70	70-79	80-149	150-169	170+
SBP	< 70	70-79	80-119	120-149	150+
Capillary refill	-	3+ sec	< 3 sec	-	-
SpO2	< 90	90-94	95+	-	-
AVPU	P or U	V	A	-	-
Temp	< 34.5	34.5-35.4	35.5-37.4	37.5-39.9	40.0+
BGL	< 2	2.0-3.9	4.0+	-	-
PAIN	-	-	Nil	4-10	-