

## WHEN TO WORRY



DETECTING DETERIORATION, EVALUATION, TREATMENT,  
ESCALATION, AND COMMUNICATING IN TEAMS

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## **DEDICATION**

*The DETECT programme is dedicated to the late Professor G A 'Don' Harrison, AM, MB BS, FANZCA, FJFICM, MHPed (3/11/1931-10/10/2007). Professor Don Harrison was widely known as a leader in each of the related disciplines of resuscitation, anaesthetics and intensive care. He never let go of his passion to improve the recognition and treatment of the deteriorating patient through research and the development of education and training. An acronym enthusiast, he would have been delighted with the name, as it describes all the important facets of the knowledge and skills this programme aims to promote: Detect deterioration, Evaluate, Treat, Escalate and Communicate with your Team. To detect is to 'discover the true character of', and so it is fitting that we dedicate the DETECT programme to Professor Don Harrison, a teacher and mentor of fine and diligent character.*

*Theresa Jacques 2009*

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## INTRODUCTION

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### BACKGROUND

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The DETECT education package is part of a series of programmes that make up the strategies for identifying and managing the deteriorating hospitalised patient. The strategies are highlighted in the Clinical Excellence Commission's (CEC's) *Between the Flags* project summary.

<http://www.cec.health.nsw.gov.au/moreinfo/betweentheflags.html>

The DETECT education package was developed to enact the recommendations of the NSW Health Greater Metropolitan Clinical Taskforce (GMCT) Working Party whose focus was on the detection and management of deteriorating patients<sup>1</sup>. The *Between the Flags* project of the Clinical Excellence Commission followed on to implement the GMCT recommendations and was endorsed by Commissioner Garling in his Inquiry into Acute Care Services in NSW Public Hospitals<sup>2</sup>. The inquiry was initiated because of community concerns about the failure to detect and manage patients whose condition deteriorated but was not recognised to have done so while they were in a health care facility. Analyses of adverse events including avoidable deaths reported to the NSW Department of Health support the need for addressing this failure to recognise the deteriorating patient. There are many life support and critical care courses in use but none addresses the deteriorating patient in such detail and in such a way as to empower ward staff to recognise and act upon signs of deterioration based on the scientific evidence at hand. Competency in the use of simple Basic and Advanced Life Support algorithms are integral to the success of this programme. These algorithms are included as they are in widespread use and are essential skills for modern health care practitioners.

The DETECT programme is about identifying and managing the deteriorating patient, and about educating health care practitioners to recognise when Rapid Response Systems need to be activated.

The essential components identified to ensure a successful and sustainable rapid response system are:

1. Minimum standards for the criteria used for early recognition of the deteriorating patient, i.e. clinical observation and the 'track and trigger' system.
2. Minimum standards for a process of escalation of concern and rapid response to the deteriorating patient.

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<sup>1</sup> Summary of GMCT Guidelines for In-Hospital Clinical Emergency Response Systems for Medical Emergencies. Prof G. Harrison, Assoc Prof T Jacques and the GMCT CERS Working Party, Sept 2006.

<sup>2</sup> Garling, Peter SC. 27/11/2008. The Final Report of the Special Commission of Inquiry into Acute Care Services in Public Hospitals in NSW.

3. Minimum standards for key performance indicators to be collected, collated and used to inform the users of the system and those managing the implementation and continuation of the strategies.
4. Tiered education packages aimed at ensuring skills in the recognition and management of the deteriorating patient; awareness of the 'track and trigger' and Rapid Response Systems; and essential skills and knowledge necessary to operate in the rapid response system.
5. Establishment of guidelines for an administrative structure to oversee the implementation and sustainability of the system in each of the State's acute hospitals.

## **AIM**

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The aim of the DETECT (Detecting deterioration, Evaluation, Treatment, Escalation and Communicating in Teams) programme is to:

- provide health care workers (medical, nursing, and allied health) with the skills and confidence to detect signs of deterioration in patients on the wards;
- develop a 'concern, communicate and care for' approach to these patients to ensure they get simple interventions to reverse deterioration;
- ensure timely intervention and escalation when indicated.

DETECT is a multidisciplinary education and training programme. This programme complements the hospital Rapid Response System (RRS) whether it be a Medical Emergency Team (MET), Pre-Arrest Call criteria for Escalation of therapy (PACE) system or other rapid response system. Confidence in communicating concern, and ensuring appropriate responses and good teamwork, are integral to the success of the 'track and trigger' and Rapid Response Systems that are used in hospitals today. Such systems, with their narrow call criteria, will not prevent adverse events such as death and cardiac arrest by themselves. It is the skills and knowledge of the personnel using these systems that remains central. DETECT will provide a broad, straightforward approach to help us all care for the deteriorating patient.

## **INSTRUCTIONS**

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DETECT is a modular learning package that can be used as a one day interactive teaching programme with pre-reading material and pre-test and post-test Multiple Choice Question (MCQ) sections. Alternatively, it can be separated into modules. It is important that the modules are worked through from the beginning to the end in order to build skills in a logical fashion. The essential skills and knowledge base can be acquired by completing the first module. Each DETECT programme may differ slightly, and some chapters may be omitted in your DETECT course. The Airway Resuscitation chapter (Chapter Nine, p 91), for example, will not feature in all programmes. You should check with your local DETECT Course Coordinator to determine which chapters will be covered.

There is a Participant Package and a Trainer Package. It is important that the Trainer Package is completed only after the trainee has satisfactorily completed the Participant Package. Satisfactory completion includes completion of the post-programme MCQs to a level of at least 80% correct answers. No certificate of satisfactory completion will be issued if this standard is not achieved. Trainers are divided into those who have satisfactorily completed a Trainer Package and Senior Trainers who possess additional expertise in coordinating DETECT programmes and education processes as deemed appropriate by the editorial board. No-one should be engaged as a DETECT Trainer until they have completed a Trainer Package. No DETECT programme should be conducted without at least one Senior Trainer.

Familiarise yourself with the knowledge and skills in the first chapter before working through each of the subsequent chapters. The simple detection and intervention algorithm on page 7 should be applied in all subsequent chapters. At the end of each chapter revise your knowledge base in view of the stated key skills and knowledge, and use these to consider the case examples. Working through the case examples can be done individually or in group discussion. Working through each case with others is useful. Ensure you achieve the stated knowledge and skills through your discussions and check your understanding with others in your group. This is a useful way to check your own performance and may stimulate you to seek more information about the topic. Each case describes a very real situation of deterioration. Complete the pre-programme MCQs after reading the manual and complete the post-programme MCQs after attending a DETECT programme. At the end of the programme please complete the programme evaluation so feedback can be provided to presenters. Such feedback will be used to modify the programme as required to better meet participant needs.



Many of the key points and *When to Worry* signs will be flagged by our Worried Face symbol!

## SUMMARY OF DETECT PROGRAMME STEPS

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1. Read programme materials.
2. Complete and submit pre-programme multiple choice questions (MCQs).
3. Participate in a DETECT programme.
4. Complete and submit post-programme MCQs.
5. Satisfactorily complete DETECT through completion of the programme and attainment of at least 80% correct answers in post-programme MCQs.

**AIM**

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In this chapter you will become familiar with the rationale for *When to Worry*; that is, how to look at your patient, what to look for, and what physiological signs should cause you concern even if they don't fall into the call criteria for a rapid response call. We will equip you with some simple assessment skills and some interventions that you can institute immediately.

**WHY WORRY?**

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Recently, the *Sydney Morning Herald* ran a front page article reporting the findings of a large series of root cause analyses of patient related adverse events. The commonest cause for a reported adverse event (labelled as a 'fatal flaw' by the *Sydney Morning Herald*) was "delay in response to documented deterioration". The headline for the article was "Careless Killers". While eye catching, this heading does not reflect the truth of the hardworking clinical staff in the hospital wards. All health professionals are, in reality, motivated to continually improve the care of their patients. The patients you see are sicker than before, many are older, have multiple co-morbidities and complex medications regimens. Often you are faced with staff who are not familiar with the working environment as many move between hospitals. Prior to the NSW Health Clinical Excellence Commission's *Between the Flags* project, there had not been a system wide approach to this problem. As a member of the health care team you are an important part of the solution to "tragic and avoidable" events of failure to detect and manage patient deterioration. You should not feel you have to manage by yourself with any situation, nor that you will be thought of as stupid or lacking confidence. Apply the simple principles of the DETECT programme presented here and call for help when you cannot fix a patient problem, no matter how simple it may seem. This DETECT programme will help you to combine your observation skills, expertise, experience and decision-making to optimise patient care.

**SIMPLE ASSESSMENT PROCEDURES – THE ABCDEFG ALGORITHM**

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We want everyone to be familiar with this simple assessment and management algorithm. "ABCDEFG, give oxygen, position your patient, call for help" (the ABCGEFG algorithm). As you work through in the order of the algorithm, remember to use those simple clinical examination tools – eyes, ears and hands – and look at your patient, listen to your patient and palpate your patient. You are aiming to detect physiological abnormalities and possibly putting history, signs and tests

together to make a diagnosis. More importantly, you will be applying some simple treatments to make the patient safe and prevent further deterioration, even if you are unsure of the underlying problem. Gather information to at least put simple treatments in place, and when time allows, take a more comprehensive history. What follows is not a comprehensive clinical examination list. More detail will be provided in subsequent chapters.



Often you will be taking a history, examining and treating at the same time and **always** according to the ABCDEFG algorithm priority.




















**Note:** Absence of any of Airway, Breathing or Circulation should prompt a Cardiac Arrest Call and immediate resuscitation should be commenced. You should be familiar with and competent in the International Liaison Committee on Resuscitation (ILCOR) standards for Basic and Advanced Life Support, which are provided in the appendices (p 118–119).





## THE ABCDEFG ALGORITHM

GIVE OXYGEN, POSITION PATIENT, CALL FOR HELP

<b>A</b>	• Airway	  
<b>B</b>	• Breathing	  
<b>C</b>	• Circulation	  
<b>D</b>	• Disability (neurological assessment)	  
<b>E</b>	• Exposure	
<b>F</b>	• Fluids	
<b>G</b>	• Glucose	
GIVE OXYGEN		
POSITION YOUR PATIENT		
Call for help if you can't manage		Establish IV if not present +/- fluids
Never leave a deteriorating patient without a priority management and review plan		

Look  
Listen  
Feel

## A Start with examining the Airway

- When approaching the patient introduce yourself and ask the simple question “How are you?” Their response or absence of a response can give an immediate assessment of the airway and conscious state of the patient.
- Look for signs that the patient’s airway is obstructed, look for accessory breathing muscle use; listen to speech; listen for noisy respiration, gurgling, snoring or stridor; and look for tracheal tug, intercostal recession, and paradoxical chest and abdominal wall movement (i.e. abnormal movement during inspiration and expiration) as signs of airway obstruction. **Beware** of silence or inability to talk in sentences. **Beware** of high pitched noises and inspiratory stridor. These indicate upper airway (at or above the larynx) obstruction and will trigger immediate escalation.
- Simple interventions to deal with an obstructed airway include a **change in position** by sitting the patient up if alert, or placing them in the left lateral (coma) position. Remember the head tilt, chin lift, jaw thrust airway manoeuvres to clear the airway (see Chapter Nine, pp 91) and **suction** any debris immediately from the oropharynx.



**If you detect an obstructed airway you should call for help immediately.** Placement of an oropharyngeal or nasopharyngeal airway may help relieve obstruction and allow you to deliver oxygen to the patient.

## B For assessment of Breathing

- Make a quick assessment of conscious state and look at chest wall movement; count the respiratory rate for one minute; look for central cyanosis; listen for breath sounds on the right and the left; feel for bilateral chest wall movement and surgical crepitus (crackling of air under the skin).
- Feel for the position of the trachea. Percuss (tap a flattened finger laid onto the chest) the chest wall. Are the breath sounds normal, reduced, absent or abnormal, including wheezing? If the breathing is noisy ask the patient to cough. Be concerned if they cannot cough or clear the noisy breathing or secretions. Is the chest wall movement reduced and/or asymmetrical?
- Remember to count the number of breaths for the whole minute. Normal adult respiratory rate is 12–20 breaths per minute. Rapid respiration (>25 bpm) or tachypnoea is not just a sign of respiratory problems, but can flag serious illness including cardiovascular problems, infection and metabolic or acid-base disturbance.
- Assessment of the jugular venous pressure is relevant to breathing and circulation. Pressure may be raised with tension pneumothorax and asthma. Absent breath sounds on one side,



tracheal deviation away from the absent breath sounds, hyper-resonance to percussion, and/or raised jugular venous pressure may indicate pneumothorax.

- Dullness to percussion may indicate pleural fluid or consolidation of the lung.
- If you have access to pulse oximetry and the oxygen saturation is satisfactory ( $\geq 97\%$ ) think of metabolic (including acid-base abnormalities) and neurological causes of tachypnoea. If the oxygen saturation is low ( $< 97\%$ ) apply oxygen therapy immediately. Remember pulse oximetry does not tell you anything about the carbon dioxide levels ( $\text{PaCO}_2$ ).



Always treat life threatening emergencies such as a tension pneumothorax immediately. Simple interventions include application of oxygen and assistance with ventilation. If the latter is required you should call for help immediately. Change of position by sitting the patient up may assist laboured breathing. If you have access to pulse oximetry, aim for an oxygen saturation above 97%.

## **C** For Circulation

- Look for pallor and peripheral cyanosis. Listen for confusion in the pattern of speech.
- Note any complaint of chest pain, feel for warm hands and warm feet and note the rate and rhythm of the pulse for 30 seconds.
- Measure the blood pressure and conscious state and note the urinary output.
- Quickly exclude sources of bleeding.
- Tachycardia, irregular pulse, bradycardia and hypotension ( $< 100$  mmHg) are all important signs. The character of the pulse can be helpful. Warm hands with bounding pulses may indicate infection. Cool hands with a thready pulse may indicate low cardiac output.
- Don't forget to feel central and peripheral pulses and do the capillary refill time test, i.e. apply fingertip pressure with the patient's hand at heart level for 5 seconds, then release. Capillary refill is normally less than 2 seconds. This is a test of cutaneous perfusion. Assessing tissue perfusion and hence oxygen supply is as important as blood pressure and heart rate measurement. In addition to cold hands and cold feet, skin mottling, poor urine output, confusion and decreased conscious state can indicate inadequate tissue (vital organ) perfusion.



**Cool and clammy** peripheries are an ominous sign of poor breathing or poor circulation and low oxygen levels in the tissues, but note both the systolic and diastolic pressures. Systolic pressure will be the first sound heard when measuring blood pressure. Diastolic pressure is after the sound disappears. (Measurement of blood pressure is considered in more detail in Chapter 3: Warm Hands, Warm Feet, pp 42).

- Simple interventions include **application of oxygen, fluid challenge and change of position** to lying the patient down for low blood pressure. **Establish intravenous access** preferably using a wide bore (14–16 gauge) cannula. If you do not suspect cardiogenic shock **give a fluid bolus** for tachycardia, poor peripheral perfusion and low blood pressure. A bolus of 250 mL, even if cardiogenic shock is a possibility, may be helpful. Assess the response to the fluid bolus and be prepared to give another bolus. Re-evaluate and call for help if the patient is not responding to simple treatment measures.

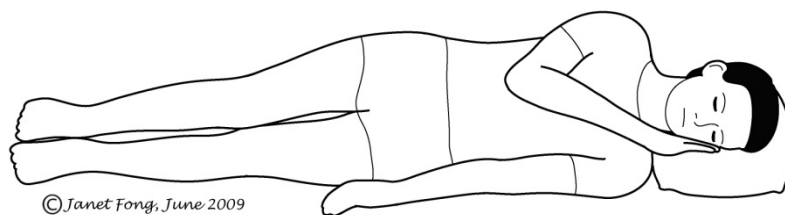
## **D** For Disability or neurological assessment

- Remember that introducing yourself to the patient and their response tells you a lot. Look for facial asymmetry and abnormal movements (including seizure activity) or absent limb movements, and listen for slurred speech. Check the size and reaction to light of both pupils.



A marked reduction of conscious level (a Glasgow Coma Score of 8 or less) indicates either severe neurological disease or severe disturbance of another vital organ or metabolic process. Severe hypoxia and severe hypercapnia can cause a decreased conscious state. **You should call for help immediately.**

Simple interventions include **placing the patient in the left lateral position** if they are unconscious but have adequate breathing and circulation (and where there is no evidence of spinal injury, see 'E for Exposure').



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**Left Lateral Position**

## **E** For Exposure

- Look for any bleeding. Make sure you look at things such as wounds and drains that may be hidden by the patient's position or bedclothes; examine the abdomen and look at the back of the patient; look at their bags, drains and bottles.
- Note the skin turgor and central venous pressure, or height of the jugular venous pressure.
- If at any stage a spinal injury is suspected your examination and posture manoeuvre will have to be reconsidered in keeping with spine precautions, e.g. maintain supine patient and inline cervical immobilisation and log roll.

## **F** For Fluids

- As part of your patient assessment, include a review of the patient's observation chart. You should confirm many of the recorded findings in your own patient examination and fill in any missing pieces of information, e.g. the respiratory rate.
- Look at the fluid chart noting what's going in and what's going out of the patient.
- Check losses from **all** drains and tubes.

## **G** For Glucose

Don't forget to note the patient's blood glucose level, and look for signs of a low glucose, which may include confusion, decreased conscious state, and sweaty or clammy skin.



Give glucose if the blood glucose level is below 3 mmol/L or 3–5 mmol/L with decreased conscious state.

At this stage, as you have worked through the priorities of the ABCDEFG algorithm, you can focus on the potential cause, review your assessment findings, take a more detailed history and review the drug chart and any test results available.

## PATIENT BACKGROUND

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As part of your assessment you will need to decide how much deterioration has occurred in the patient's condition in comparison with what is usual for your patient. This can be established by reviewing the previous history in the medical record and observation chart, asking the patient or their relative, or checking with on-site staff. If in doubt, escalate.



There are some groups of patients which we know are at risk of deterioration and you should be particularly vigilant for changes in their condition. We have called them the 'E' patients (see Table 1, below).

### THE ES FOR PATIENTS AT PARTICULAR RISK

Emergency
Elderly
Existing co-morbidities
Extreme illness
Emerging from anaesthesia
Exsanguinating
Exiting from Critical Care Units

*Table 1*

## DETECT PATIENT ASSESSMENT

The summary of patient assessment for applying the ABCDEFG algorithm and taking appropriate action is presented here as the DETECT Patient Assessment table (Table 2, below).

	LOOK	LISTEN	FEEL	SPECIAL/TEST
<b>AIRWAY</b>	<ul style="list-style-type: none"> <li>▪ Accessory muscles</li> </ul>	<ul style="list-style-type: none"> <li>▪ Speech, extra sounds</li> <li>▪ wheeze</li> </ul>		<ul style="list-style-type: none"> <li>▪ Tracheal tug</li> </ul>
<b>BREATHING</b>	<ul style="list-style-type: none"> <li>▪ Conscious</li> <li>▪ Chest movements</li> <li>▪ Count respiratory rate (1 min)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bilateral air entry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bilateral movement</li> <li>▪ Tracheal position</li> </ul>	<ul style="list-style-type: none"> <li>▪ Respiratory distress</li> <li>▪ SpO<sub>2</sub></li> <li>▪ ABGs</li> </ul>
<b>CIRCULATION</b>	<ul style="list-style-type: none"> <li>▪ Skin colour-pale, cyanosis</li> <li>▪ JVP</li> </ul>	<ul style="list-style-type: none"> <li>▪ Confusion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Warm hands, warm feet</li> <li>▪ Pulse rate -30 seconds (rate and rhythm)</li> </ul>	<ul style="list-style-type: none"> <li>▪ BP</li> <li>▪ Conscious state</li> <li>▪ Fluid balance</li> <li>▪ Urine</li> </ul>
<b>DISABILITY</b>	<ul style="list-style-type: none"> <li>▪ Pupils (size and function)</li> <li>▪ facial symmetry, limb movements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Slurred speech</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plantar reflexes</li> </ul>	<ul style="list-style-type: none"> <li>▪ LOC - Glasgow Coma Scale, AVPU</li> </ul>
<b>EXPOSURE</b>	<ul style="list-style-type: none"> <li>▪ Bleeding</li> <li>▪ Rash</li> <li>▪ Contusion</li> <li>▪ Wounds</li> </ul>			<ul style="list-style-type: none"> <li>▪ Look under patient</li> <li>▪ Check drains bags and bottles, aspirates</li> </ul>
<b>FLUIDS</b>	<ul style="list-style-type: none"> <li>▪ Check fluid chart</li> <li>▪ Check all drain/tube losses</li> </ul>		<ul style="list-style-type: none"> <li>▪ Skin turgor</li> </ul>	<ul style="list-style-type: none"> <li>▪ CVP</li> <li>▪ Establish IV if not present (+ or – fluids)</li> </ul>
<b>GLUCOSE</b>	<ul style="list-style-type: none"> <li>▪ Confusion</li> <li>▪ Sweaty</li> <li>▪ LOC</li> </ul>		<ul style="list-style-type: none"> <li>▪ Sweaty</li> </ul>	<ul style="list-style-type: none"> <li>▪ BSL – give glucose if below 3mmols/L or 3-5 mmols/L with decreased conscious state</li> </ul>

Table 2

## WHEN TO WORRY: SIGNS OF CRITICAL CONDITIONS AND EMERGENCY RESPONSES

Rapid Response Systems (RRS) with a set of ‘track and trigger’ call criteria and an agreed escalated response such as the Medical Emergency Teams (MET) remain important response systems for the deteriorating patient. It is apparent from the scientific literature that RRS alone do not prevent the deteriorating patient from having a cardiac arrest, dying or ending up in Intensive Care. Why is it that the evidence for the efficacy of Medical Emergency Teams and other RRS is so mixed? It may be that the ‘call criteria’ (see MET call criteria identified in Table 4, p 16) are too far down the slippery slope of physiological deterioration or have been present at that level for too long to be effectively reversed. It is not that you should not be using a set of simple call criteria to call for help in the form of an RRS. We encourage you to do so. You should be familiar with the RRS at each health care facility in which you work. You should be familiar with the set of call criteria used. But we would also like you to “worry” outside of these simple parameters.

We have developed a list of early and late When to Worry signs, see Tables 3 and 4, following. We base these signs and symptoms on the SOCCER<sup>3</sup> research results. In this study, a broad range of early

<sup>3</sup> SOCCER: Signs Of Critical Conditions and Emergency Responses, from Jacques, T., Harrison, G.A., McLaws, M-L. and Kilborn, G. ‘A Model for Predicting Adverse Events in the Inpatient Setting’. Resuscitation 2006 69:175-183

and late signs of physiological deterioration were examined across all ward patients, and a list of early and late signs of deterioration associated with cardiac arrest and death have been derived. These are attached in the appendix, p 120-123 with the relative risks of death for each sign. Familiarise yourself with these signs.

We know that some signs, such as modest systolic hypotension (80–100 mmHg) and measured oxygen desaturation of 90–95%, are common. This is where you can have a big impact: recognise and treat. Simple interventions such as a fluid bolus or supplemental oxygen may be all that is required. It may be that an individual patient gradually moves through early and late signs of physiological deterioration over time (hours, days), or it may be that they move quickly from early to late signs, or something happens to cause immediate

serious deterioration as manifest in the late signs. Whichever pattern, each deteriorating patient is on the slippery slope of deterioration and whether it be a steep or slow decline we know that the longer there is abnormal physiology, vital organ damage will occur. Cardiac arrest and death may result. We need to be vigilant, be concerned or worried, communicate our concerns appropriately and institute appropriate care in a timely way. These signs will be considered in more detail in subsequent chapters. Remember, clinical research shows these signs are associated with increased risk of cardiac arrest and death. You are provided with *When to Worry* prompt cards to assist you in recalling these significant signs of deterioration.





### When to Worry Early Warning Signs



Poor peripheral circulation	PaCO <sub>2</sub> 50–60 mmHg
SBP 80–100 mmHg	pH 7.2-7.3
Pulse rate 40–49 or 121–140/min	Base deficit –5 to –8 mmol/L
SBP 181–240 mmHg	Any seizure
Note of decreased urine output	C/O chest pain
Urine output <200 mL/8hrs	Uncontrolled pain
Alteration in mentation	New pain
GCS 9–11	Pain changed location
A fall in GCS of >2	> Expected blood loss
Partial airway obstruction	New bleeding any site
RR 5–9 or 31–40 breaths/min	> Expected drain fluid loss
SpO <sub>2</sub> 90–95%	BSL 1–2.9 mmol/L
PaO <sub>2</sub> 50–60 mmHg	BSL 16–25 mmol/L

Table 3

<i>When to Worry Late Warning Signs</i>	
* Cardiac arrest	PaO <sub>2</sub> <50 mmHg
* SBP <80 mmHg	PaCO <sub>2</sub> > 60 mmHg
* Pulse rate <40 or >140 breaths/min	pH <7.2
SBP >240 mmHg	Base Deficit < -8 mmol/L
Urine output <200 ml/24 hours Anuric	* 2 or more seizures with no return to baseline
* Unresponsive to verbal command	* Failure to reverse variable within 1hr
* GCS ≤8 * Airway obstruction/stridor complete	Excess blood loss unable to be controlled by local staff
* RR <5 or >40 breaths/min	BSL <1 mmol/L
SpO <sub>2</sub> <90%	BSL >25 mmol/L



\* = common MET call criteria

Table 4

## A SITUATION AND RESPONSE FRAMEWORK FOR DEALING WITH EACH CASE OF A DETERIORATING PATIENT

Now that you have the knowledge base of *When to Worry* and are familiar with the ABCDEFG algorithm you need to have a logical approach for dealing with each situation. A useful framework and check list for your approach to dealing with the deteriorating patient is to **Recognise, Task Manage**, have a **Situation Awareness** for each unique case, use **Team Work**, use appropriate and timely **Decision Making** and **Communicate** your concerns:

- **Recognise** you have a problem using the ABCDEFG algorithm, give oxygen, position your patient, establish IV, and call for help.
- Plan your **Task Management**.
- Consider each case through **Situation Awareness**.
- Use **Team Work**.
- Be confident in **Decision Making**.
- **Communicate** clearly.

<b>RECOGNISE</b>	<b>Apply the ABCDEFG algorithm and your knowledge of signs of early and late deterioration.</b>
<b>TASK MANAGEMENT</b>	You must prioritise your patient assessment and interventions when using the ABCDEFG algorithm. When doing this identify and use the resources you have, including human resources. Make an assessment of whether your skills and the skills of those around you meet the patient's needs.
<b>SITUATION AWARENESS</b>	Each patient is different. You are gathering information that needs to be held in your mind in a logical way aided by the ABCDEFG algorithm. By working through the subsequent chapters you will gain a better understanding of the significance of each of your assessment findings and the patient's current situation. By being aware of the early and late signs of deterioration you should be able to anticipate possible problems.
<b>TEAM WORK</b>	Working effectively within a team is so important. Chaotic situations often occur when a team approach is not adopted and there is no clear leadership. You should provide leadership when appropriate, coordinate activities within the team and communicate clearly using the situation awareness skills. Use authority and assertiveness appropriately. You can now speak with the authority of someone confident in the knowledge of When to Worry! Know your own capabilities and support other team members.
<b>DECISION MAKING</b>	When you are worried about a patient, or your assessment has revealed they are at risk of deterioration, you need to make some important decisions. You need to decide what interventions you are going to institute (e.g. give oxygen, administer a fluid bolus). You need to decide to call for help in a timely fashion. If you are the one being called to respond to a deteriorating patient you need to decide the urgency of your response. Continue to constantly RE-EVALUATE. Come back and reassess your patient.
<b>COMMUNICATE</b>	The importance of clear communication is worth emphasising. Prepare to communicate. Use the ISBAR algorithm: Introduction: Identify yourself, your role and location. Situation: State the patient's diagnosis or reason for admission and current problem. Background: What is the clinical background or context? Assessment: What are your patient's clinical observations? What do you think the problem is? Don't forget to have the current vital signs at the ready! Recommend: What do you recommend or what do you want the person you called to do? Be clear about what you are requesting and the timeframe.

*(derived from air safety training methodology and non-procedural safety training for anaesthetists<sup>4</sup>).*

*Table 5*

<sup>4</sup> Fletcher G, Flin R, McGeorge P, Glavin RJ, Maran NJ, Petey R. Anaesthetists' Non Technical Skills (ANTS): Evaluation of a behavioural Marker system. British Journal of Anaesthesia, 2003; 90:590-8

The Harvard Criteria (Table 6) for assessing team function is a useful framework to evaluate the function of your team and how you perform within that team either within a simulated scenario as you practise your DETECT skills or in a real life clinical situation.

### HARVARD CRITERIA <sup>5</sup>

1. ROLE CLARITY	•Every team member should have an assigned role within 1 minute of the event.
2. COMMUNICATION	•Every team member should used closed loop communication (see chapter 6 p69).
3. PERSONNEL MANAGEMENT	•The team leader decides whether extra staff are needed within 2 minutes of the event.
4. RESOURCE MANAGEMENT	•The team leader decides whether extra resources are needed within 2 minutes of the event.
5. GLOBAL ASSESSMENT	•The team leader conducts a global assessment and summary of the situation with team members within 5 minutes of the event.

Table 6



In Summary, when a patient causes you acute concern remember:

ABCDEFGG

Give oxygen

Position the patient

Call for help if you can't manage

Establish IV access if not present

Anticipate, Prevent, Treat, Communicate

Never leave a deteriorating patient without a priority management and review plan.

### KEY KNOWLEDGE AND SKILLS

- Be familiar with the ABCDEFGG algorithm of assessment of the deteriorating patient.
- Be able to describe signs of airway obstruction, have a systematic clinical assessment of breathing, oxygenation, circulation.

<sup>5</sup> Personal Communication. Dan Raemer MD Center for Medical Simulation Harvard University Boston USA and Roger Russell MD (1994).

- Give oxygen to all seriously ill patients.
- Establish an intravenous line and give fluids where appropriate.
- Understand the importance of repeated and timely assessment of the deteriorating patient.
- Know when to worry and when to call for help.
- Understand the signs of deterioration that can lead to cardiac arrest and death.
- Understand the importance of working as part of a multidisciplinary team.
- Never leave a patient without a plan of review or management.

Before you progress to the chapters that follow, work through the following two cases using the **ABCDEF algorithm** and **the Situation and Response Framework** to develop your plan for dealing with each of the two scenarios.

## CASE STUDIES

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### CASE 1

You are faced with a 75 year old female who is in the ward 12 hours after a total right hip replacement. Her current situation is that she is hypotensive, has a patient controlled analgesic infusion in progress, intravenous fluids running (0.9% normal saline at 125 mL/hr). Her vital signs are: blood pressure has fallen from 130/60 to 80/40 mmHg in the last 3 hours, her pulse rate is 90–98 beats per minute and regular, the wound drainage in the vacuum drain to her right hip has been 300 mL.

### CASE 2

You receive a phone call at 2 a.m. about a 75 year old male smoker with multiple medical problems including insulin dependent diabetes mellitus, ischaemic heart disease, atrial fibrillation and chronic renal failure. He also receives a long list of medications. He was admitted two days prior with right lower lobe community-acquired pneumonia for which he is receiving intravenous antibiotics and chest physiotherapy. You are called because he has become increasingly confused and his conscious state is now decreasing.

What are your responses and management plan in these two cases?