

# 2 THE SYSTEM OF ASSESSMENT AND CARE OF THE PRIMARY SURVEY POSITIVE PATIENT

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**E**mergency situations cause stress, especially if they are unfamiliar or present new and different challenges. Specific life threatening medical emergencies may only be experienced by most practitioners a few times in their career<sup>1 2</sup> and even experienced clinicians require training and practice to maintain confidence and skills. Using a system of care and assessment will improve consistency. This article aims to set out a system of assessment for the patient with emergency care needs. It can only offer a framework, proper application will require training, flexibility, common sense, and experience.

## OBJECTIVES

The objectives are:

- ▶ To describe a system to identify immediately life threatening problems (the primary survey positive patient)
- ▶ To provide guidance on the management of the primary survey positive patient
- ▶ To introduce the SOAPC system for the full evaluation of a patient who might be suitable to treat and refer or treat and leave.

## RECOGNITION

Most acute medical patients do not have an immediately life threatening airway, breathing, circulation, or neurological problem. The patient who is talking normally, is fully orientated, is not pale or sweaty, has no dyspnoea, has a normal pulse, and is not breathless is unlikely to be in immediate danger. However the patient's condition may change very quickly and some need careful monitoring and re-evaluation (for example, the patient with chest pain may have a sudden cardiac arrest). Making decisions about the presence or absence of an immediate threat to life can be difficult. There is evidence that important clinical signs of urgent airway, breathing, circulation, or neurological problems may be easily missed, misinterpreted, or mismanaged in the emergency setting in hospital practice<sup>1 2</sup>; the risks of clinical errors in prehospital practice is likely to be greater.

Fortunately, there are common presentations for most acute medical emergencies that can be anticipated. These include shortness of breath, chest pain, abdominal pain, collapse, coma, and seizures (box 1)

### Box 1 Common emergency presentations

- ▶ Coma
- ▶ Difficulty in breathing
- ▶ Chest pain
- ▶ Collapse with hypotension
- ▶ Collapse with altered consciousness
- ▶ Gastrointestinal bleeding
- ▶ Abdominal pain
- ▶ Headache
- ▶ Seizures

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## RECOGNITION OF THE PRIMARY SURVEY POSITIVE PATIENT

A number of excellent reference texts and resources exist describing the priorities and immediate actions for assessing acutely unwell patients in the hospital and general practice setting.<sup>3–10</sup> The approach and techniques advocated are equally applicable in the resource limited prehospital

environment and during transport to hospital. Similarly, the ABCDE approach taught on standard life support courses is as applicable to acute medical emergencies as it is to resuscitation from cardiac arrest and the management of major trauma. This structured approach is illustrated in figure 1. This reflects the central doctrine of emergency care that immediate assessment and management of a life threatening condition does not require a precise diagnosis. It also illustrates the importance of considering early transport to definitive care with emergency treatment compared with resuscitation en route.

After ensuring the scene is safe, the practitioner should aim to undertake a rapid primary survey (box 2). In many patients, the primary survey may be completed very quickly. The common pathways to cardiac arrest in acute medical emergencies are airway obstruction, respiratory failure, circulatory failure, and neurological failure. The aim of the primary survey is to seek out evidence of these in order to target specific resuscitative interventions.

### Box 2 Rapid primary survey

#### Airway assessment

- ▶ Is there evidence of airway obstruction (noisy breathing, stridor, obstructive respiratory pattern)?
- ▶ Is there failure of airway protection (pooling of secretions, absence of spontaneous swallowing)?
- ▶ Is there evidence of mucosal oedema (anaphylaxis) or foreign body aspiration?

#### Breathing assessment

- ▶ Is there evidence of an increased work of breathing (tachypnoea, accessory muscle use, recession)?
- ▶ Is there evidence of hypoxia or fatigue (cyanosis, feeble respiratory effort)?
- ▶ Is there evidence of pneumothorax, asthma, anaphylaxis, heart failure, pneumonia, or chronic obstructive pulmonary disease?

#### Circulation assessment

- ▶ Is there evidence of bleeding (haematemesis, melaena, concealed bleeding)?
- ▶ Is there evidence of shock (tachycardia, prolonged capillary refill time, increased respiratory rate, low blood pressure)?
- ▶ Does the patient have evidence of sepsis (any two of heart rate >90, respiratory rate >20 and temperature >38°C or <36°C)?
- ▶ Is there evidence of acute coronary syndrome, heart failure, or arrhythmias

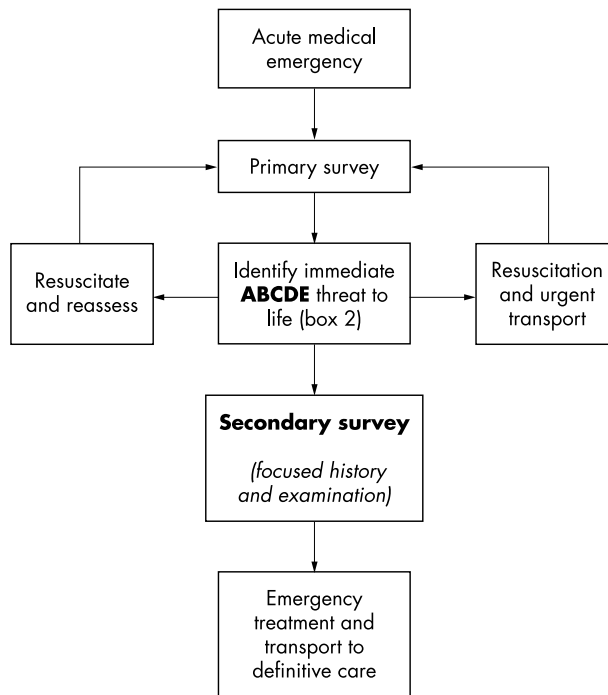
#### Disability assessment

- ▶ Is there an altered level of consciousness?
- ▶ Is the patient fitting?
- ▶ Is the patient hypoglycaemic?
- ▶ Is there any evidence of meningism (neck stiffness, photophobia)?
- ▶ Are there any localising signs (pupils, cranial nerves, limbs)?

#### Exposure assessment

- ▶ Is there a rash (urticaria, purpura)?
- ▶ Is the patient hypothermic or feverish?
- ▶ Are there any obvious physical stigmata of chronic disease?

Assess the airway looking for signs of obstruction and to check that the patient is maintaining and protecting the airway. The unconscious patient is at significant risk of *passive*



**Figure 1** Structured approach to identifying the primary survey positive patient.

*regurgitation* and pulmonary aspiration even if the airway is maintained with simple techniques and positioning. Failure to clear blood, saliva, or mucus from the oropharynx and absence of spontaneous swallowing indicate a failure of airway protection. Although the full range of basic and advanced airway management interventions should be available to manage such patients, simple adjuncts (especially nasopharyngeal airways), postural drainage, and head and neck positioning may be sufficient during the remainder of the primary survey and transfer to hospital.

To assess breathing, look for signs of increased respiratory effort, inadequate ventilation, and common physical signs associated with respiratory and cardiovascular disease. An increased respiratory rate, use of accessory muscles, splinting of the diaphragm, and recession of the chest wall are sensitive indicators of an increased work of breathing. Tachypnoea alone may reflect a very wide range of disease processes and it should not be assumed to reflect a breathing problem in the absence of other signs of respiratory distress. If wheeze is present, decide if the sound occurs mainly during inspiration (*stridor*) or expiration (most likely to be attributable to lower airways obstruction)

Assessment of the circulation should identify the presence of shock and a systemic inflammatory response to infection. Shock is a failure of tissue oxygenation. The classic signs include prolonged capillary refill, tachycardia, tachypnoea, and sympathetic nervous system stimulation (pallor, sweating, and peripheral vasoconstriction). "Sepsis" refers to evidence of systemic infection (for example, pneumonia, meningococcal disease) accompanied by systemic inflammatory responses. These include a pulse rate greater than 90, a respiratory rate greater than 20, and a temperature above 38°C or below 36°C. Acute gastrointestinal haemorrhage may be missed if the clinical signs of bleeding are not assessed. Finally, assessment of the circulation in medical emergencies

includes an assessment of heart rhythm and a search for evidence of heart failure and myocardial dysfunction (tachycardia, 3rd or 4th heart sounds, systolic murmur).

Assessment of disability entails a mini-neurological examination starting with level of consciousness, mental state, pupil signs, localising signs, posture, and limb function. (see below) The patient should also be exposed as much as practicable to look for evidence of a rash (urticaria or purpura), jaundice, anaemia, pitting oedema, and physical manifestations of chronic disease. An accurate assessment of temperature is essential in assessing whether the patient is feverish or hypothermic.

### RESUSCITATION

Resuscitation entails physical interventions and the use of equipment and drugs. A further tenet of emergency care is that treatment of life threatening airway, breathing, circulation, and neurological problems should take place in parallel with the primary survey.

Start treatment of immediately life threatening problems as they are identified.

The range of equipment and drugs available to the practitioner will clearly influence how much can be done. In many cases, simple measures to support the airway, breathing, and circulation while en route to the emergency department are sufficient. There are however conditions where immediate on-scene treatment is essential if life is to be saved. Patients with anaphylaxis, inhaled foreign body, cardiac arrest, myocardial infarction, asthma, continuous seizures, and sepsis for example will usually benefit from immediate intervention at the scene if appropriate equipment and drugs are available. The specific resuscitative interventions for common presentations are discussed later in the series.

### PATIENTS WITH A SERIOUS ILLNESS REQUIRING IMMEDIATE TRANSPORT TO HOSPITAL

There are a number of common problems where the primary survey may confirm that the patient is "stable" but they may still have a condition that needs immediate treatment, usually in hospital. Chest pain, vascular occlusions, severe shortness of breath, severe abdominal pain, and acute neurological deficit are examples. In such cases the focus of treatment is rapid transport to hospital with any necessary interventions being provided during the journey.

These patients are usually identified during the primary survey and often require little further examination. It is only once life threatening problems have been excluded or identified and treated that a conventional history and examination can be conducted.

### THE SECONDARY SURVEY

All acutely unwell patients should undergo a primary survey to identify their immediate resuscitation needs but most patients asking for assessment through their primary care service are not likely to need immediate lifesaving treatment or to be rushed to hospital. There is time to perform a more detailed secondary survey. This follows the more traditional medical model of history and examination.

Any further clinical examination should then be dictated by history and clinical suspicion. A differential diagnosis can then be reached and further decisions made regarding treatment, transportation, and definitive care.

Most patients calling for assessment by their primary care system will not have a serious life threatening problem

### THE SOAPC SYSTEM

The system that we have adopted is based heavily on problem oriented methodology,<sup>11</sup>

- ▶ Subjective information: the history from the patient or carers
- ▶ Objective information: examination findings, augmented when appropriate, by investigations and information from the patient record (for example, electronic record or patient held records)
- ▶ Analysis: your opinion as to the probable cause of the problem and whether other serious problems need to be ruled out
- ▶ Plan: the further care of the patient including advice, treatment with drugs, whether the patient requires another healthcare facility or can stay at home with appropriate follow up and "safety net" advice.
- ▶ Communication with patients/carers/health team

#### Box 3 The SOAPC system of care

- ▶ Subjective information: the history
- ▶ Objective information: the examination, tests, records
- ▶ Analysis: working diagnosis or differential diagnosis
- ▶ Plan: treatment and ongoing care.
- ▶ Communication: with the patient, carers, and other healthcare professionals.

### S—THE SUBJECTIVE ASSESSMENT

Develop a system of appropriate history taking. "Ask the right questions, not every question"<sup>12</sup>

The history is the key to correct patient assessment.<sup>13</sup> When errors are made, it is usually attributable to inadequate history taking. It is not possible or desirable to probe every part of the patient's medical history. Instead it is important to have a system that obtains key information. A much more detailed history will be needed in the patient who is likely to be treated at home than the patient who is going to be transported to hospital. Box 4 sets out the main parts to history taking.

#### Box 4 Main parts of history taking

- ▶ Presenting complaint-symptoms and progress
- ▶ Associated symptoms
- ▶ Previous similar symptoms
- ▶ Previous medical problems/drugs
- ▶ Social context (including carer support, alcohol, smoking, drugs)

The *presenting complaint* is the main problem for the patient. When there are several presenting symptoms, choose the main problem. Explore its onset. What was the patient doing when it started? Is it getting better or worse?

Ask about *associated symptoms* relevant to the main complaint. For example, in chest pain ask about nausea, vomiting, sweating, and shortness of breath. At this point ask questions relevant to the presenting complaint, for example in a patient with chest pain, ask about hypertension, diabetes, and family history of heart disease.

The *history of previous episodes* may give important pointers to the diagnosis and treatment.

The *medical history* needs to be explored along with the patient's current medications. Most patients will have a list of their medications either in note form, on repeat prescriptions sheets, or in dispensing containers. Use these sources of information where possible.

The *social context* must be noted as this may have more bearing on the patient's future management than the diagnosis. Is there a carer who can observe the patient? Is the patient capable of performing the activities of daily life such as washing, eating, dressing, and toileting?

## O—THE OBJECTIVE ASSESSMENT

### The examination

The most important parts of the examination can usually be performed but may be limited at the scene or in the patient's home. This inability to examine the patient properly must be taken into account when making transport, referral, and treatment decisions.

As with history the examination should be targeted to the specific complaint but must always include vital signs and a general examination of the patient and their social context.

### Vital signs

Pulse, blood pressure, temperature, conscious level, and oxygen saturation are all easy to measure and provide objective proof of the patient's physiology at the time of the examination. Some might argue that a full set of vital signs are not required in cases of minor illness, but the situation can change and it is good practice to take baseline recordings, especially if the patient is unwell. Records of vital signs are also evidence of completion of an appropriate primary survey.

### Social context

Many illnesses will be treated at home. However, in some patients, particularly elderly people living alone, even a minor illness may make extra social support a necessity. This may need help from family, carers, or even from emergency community support team. It is important to understand the potential problems associated with the patient's immediate environment and the level of help available.

### General examination

The identification of the "unwell patient" is a prime skill of those involved in emergency medicine. There is no single sign that gives you the "gut feeling" that the patient is ill, it is a combination of the facial appearance and the demeanour. The eyes should be checked for jaundice and pallor, the colour and perfusion of the lips and hands noted. Hydration can be assessed by checking the mucous membranes, tongue, and skin turgor.

The unwell patient could have any combination of signs listed in box 5.

## Box 5 Some signs found in the unwell patient

- ▶ A flat affect
- ▶ Irritability
- ▶ Pallor, sweating, and "drawn" face
- ▶ Dark and slightly sunken eyes
- ▶ Reduced skin turgor
- ▶ A coated tongue and dry mouth.
- ▶ Tachypnoea

## SYSTEM SPECIFIC FINDINGS ON SECONDARY SURVEY

In the prehospital setting the examination should be focused on the major presenting complaint. This may need examination of more than one system. Abnormalities in one system may lead to symptoms and signs in another part of the body. For example, an increased respiratory rate is often a sign of chest disorder but is also abnormal in diabetic ketoacidosis, shock, and some poisoning.

### Respiratory system

Use the *look, feel, and listen* system.

*Look*—Measure the respiratory rate and assess if the patient has any difficulty in breathing. Look for tracheal tug, the use of accessory muscles (fig 2), or indrawing of intercostal muscles. Assess if the patient is becoming exhausted and look for excess sputum production, inhaler or home nebuliser use.



**Figure 2** Use of accessory muscles of respiration. Patient fixes the shoulder girdle, using neck and shoulder girdle muscles to assist chest expansion.



**Figure 3** Testing chest expansion. Note the thumbs are held above the chest wall.



**Figure 4** Checking percussion note.

*Feel*— Is the chest expansion the same on both sides (fig 3)

*Listen*—Check the percussion note (fig 4) and listen to the breath sounds on both sides at the apex, in the axilla and posteriorly at the top, middle and base (McGill virtual stethoscope, <http://projects.mmi.mcgill/mvs/mvsteth.htm>). The aim of auscultation is to determine whether *air entry* is normal and equal on both sides. Normal sounds are described as vesicular. If the lung is solid, sound transmission is different and the noise is similar to the sounds heard when the stethoscope is placed over the trachea (*bronchial breathing*). The next step is to assess if there are *added sounds*, these can be wheeze (inspiratory, expiratory or both) or crackles.

*Function*—In patients with respiratory symptoms check the oxygen saturation and in patients with asthma and other obstructive pulmonary disease check the peak expiratory flow rate.

#### Box 6 Summary of respiratory system examination

- ▶ Look at patients lips/tongue for cyanosis
- ▶ Measure respiratory rate
- ▶ Assess work of breathing/dyspnoea
- ▶ Check trachea and neck veins
- ▶ Check chest expansion
- ▶ Check percussion note
- ▶ Listen to breath sounds

#### Cardiovascular system

Where the main patient complaint is not directly associated with cardiovascular abnormality, it is still good practice to screen this system. Capillary refill time, heart rate, and blood pressure would be the minimum for an ill patient.

*Look*— Is the patient pale? Are they sweating? Is the skin clammy? Is skin turgor normal? Look in the mouth—are the mucous membranes dry?

Check the neck veins, are they full or collapsed?

Check the jugular venous pulse (fig 5).

*Feel*—Check capillary refill time. Note the pulse rate and rhythm and character. Feel for peripheral pulses (fig 6). Look for ankle oedema. Check the calves for tenderness and swelling.

*Listen*—Measure the blood pressure. Listen to heart sounds (McGill virtual stethoscope) and at the lung bases for crackles (pulmonary oedema).



**Figure 5** Checking jugular venous pulse. The patient is at 45°. The neck muscles relaxed.



**Figure 6** Checking foot pulses.

#### Gastrointestinal system

Hydration, nutrition, and looking at the mouth and tongue are part of the general examination of the patient. While examining the mouth, smell the breath. *Foetor* is a characteristic smell of the breath in a patient who is unwell. If the patient is complaining of abdominal pain the chest should also be examined.

All books of surgical examination emphasise the importance of exposing the whole abdomen, including the genitalia. In the community setting the same principle applies but it can be difficult to do this because of facilities and lack of a chaperone. If conditions do not permit a full examination then it is important to recognise that examination is incomplete. Rectal examination and vaginal examination are even more problematic. Without adequate patient consent, privacy, and a chaperone these examinations should not be undertaken.

A full abdominal examination may be difficult in the patient's home, especially if there is no chaperone. If you are unable to carry out a full examination, take this into account when making treatment plans.



**Figure 7** Eliciting percussion tenderness, a good sign of peritoneal irritation.

The objective of the examination is to decide if there are signs of a condition requiring hospital assessment. Signs of peritonitis, intestinal obstruction, or a vascular emergency are especially important.

The abdomen is examined using the “look feel listen” system.

Look for distension and note how the abdomen moves. Ask the patient to cough. Pain on movement and coughing is a good indicator of peritoneal irritation. Note scars and any swelling or hernias.

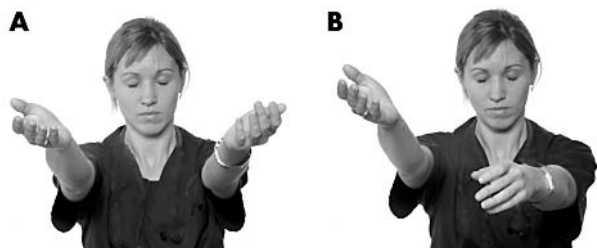
Feel gently at first to try and detect any rigidity in the abdominal muscles. If there is inflammation of the peritoneum then the overlying muscles will protect the area, this is known as *guarding*. Identify the areas of maximum tenderness. Another sign of peritoneal irritation is *percussion tenderness*. Place fingers over the area of tenderness and percuss these with fingers of the other hand (fig 7). Pain during this test is indicative of peritoneal irritation.

If gentle palpation is not painful then palpate more deeply trying to find any masses. Check for enlargement of the liver and spleen. Check in the groins for swellings that might indicate a hernia (this might be quite small).

Listen for bowel sounds. If they are absent this is a worrying finding. They may be increased in gastroenteritis but in obstruction as well as being increased they may be higher pitched or tinkling in quality.

### Central nervous system

**Screening** If the patient is lucid and able to give a full history and walk normally, can hold their arms out steadily with their eyes closed (fig 8), can stand on each leg with eyes closed and has normal facial expressions and eye movements there is no severe neurological deficit. This screening test is not sufficient for anyone with a primary neurological complaint.



**Figure 8** (A) Pronator drift. The patient holds out their arms with palms up. (B) In patients with mild limb weakness the arm drifts down and pronates (palm down).

Tests of higher mental function are a sensitive indicator of acute neurological dysfunction but they are not so specific, being very commonly affected by pre-existing problems. For example, the older patient may not be fully orientated but this may well be attributable to dementia. It is therefore important to seek information regarding the previous level of function and any change. Always take seriously a carer's view that there has been a sudden deterioration in mental function.

Record orientation in time, place and person and the Glasgow Coma score (see journal web site <http://www.emjonline.com/supplemental>). The Abbreviated Mental Test Score is more detailed (see box 7). It is especially useful in the older patient particularly if there is access to previous records. Patients should be able to score 8/10.

### Box 7 Abbreviated Mental Test Score

- ▶ How old are you?
- ▶ What is your date of birth?
- ▶ What time is it?
- ▶ What month is it?
- ▶ What year is it?
- ▶ Where are we?
- ▶ Queen's name?
- ▶ Start of first world war (or second world war)
- ▶ Address recall (for example, 42 West Street)
- ▶ Count backwards from 20 (20, 19, 18, etc)

The examination for the main neurological presentations can be tailored to suit the situation.

In the patient with sudden onset of headache (see “headache” in neurological article) a full general examination is very important. Vital signs including pulse, blood pressure, and temperature may give clues. There should be a full examination of the whole body looking for any signs of rash. Photophobia and neck stiffness should be examined (fig 9). Other signs such as muscle tenderness and Kernig's signs may be checked (see journal web site <http://www.emjonline.com/supplemental>).



**Figure 9** Looking for neck stiffness. The patient firstly is asked to bring their neck down to the chest and pain noted. For the second part of the examination the examiner passively flexes the neck and assesses the resistance. If active movement is very painful and limited then passive movement should be omitted.



**Figure 10** Visual field screening by confrontation. The patient and examiner have corresponding eyes closed and the patient looks at the examiner's nose. The patient's fields are checked against the examiner own.

In the patient with an acute stroke, the focus will be on determining the extent of deficit and if vital functions such as airway protective reflexes are preserved.

Detailed examination of the nervous system is usually divided into testing the function of the *cranial nerves*, the nerves that provide motor and sensory function to the head and neck (or structures derived from this area of the embryo) and testing of the neurological function of the limbs.

### CRANIAL NERVE (CN) SCREENING

*CN 1* Smell not routinely tested in the emergency situation.

*CN2* Assessment of vision should include acuity, visual fields by confrontation (fig 10), pupillary responses, and fundoscopy when required.

*CN 3,4,6* Eye movements are examined to check for diplopia.

*CN 5* Ask the patient to open the lower jaw against resistance of your hand. Check sensation over the forehead, cheeks, and jaw.

*CN7* Look for symmetry when the patient to screws up their eyes, frowns, raises eye brows, shows their teeth, and puffs out cheeks their cheeks (fig 11).

*CN8* Rub fingers together gently at each ear, asking the patient if they can hear and if there is a difference between ears.

*CN9/10* Ask the patient to open their mouth and to say "aah". Assess the movement of the uvula. Check gag reflex. If there is no obvious deficit, assess swallowing by asking the patient to take a sip of water.

*CN12* Ask the patient to stick their tongue out.



**Figure 11** Checking function of the CN7 (facial nerve).

*CN11* Ask the patient to shrug their shoulders and check the power of this movement.

### PERIPHERAL NERVOUS SYSTEM TESTING

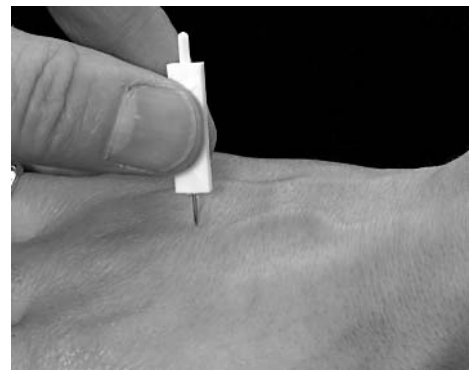
The objective is to assess muscle power and tone, compare sensation on each side, to check reflexes, and then to check coordination, balance, and if possible, gait.

*Muscle tone* is assessed by flexing and extending the elbows, wrists, and knees.

*Muscle power* The initial screening test for muscle power of holding out both arms is described above (fig 8). Then assess power in the major groups acting over major joints.

*Sensation* Use a blunt point to assess touch (special single patient use disposable points are available). Compare sensation in both limbs. Patients may be able still to feel something even if there is a sensory deficit. You are looking for a qualitative difference in sensation. (fig 12).

*Reflexes* are compared.



**Figure 12** Checking sensation (sharp/blunt). Compare sensation in similar areas on each limb. You are looking for *altered* sensation in the distribution of a nerve/nerve root/or central lesion.



**Figure 13** Finger-nose test for coordination.



**Figure 14** Balancing on one leg with the eyes closed is a test of many neurological pathways including proprioception, lower limb power, balance, and the patient's general strength.

*Co-ordination* can be assessed by finger nose test (fig 13).

*Balance* is checked by asking the patient to stand on each leg with eyes closed. It is essential to hold the patient's hands when doing this test and it may not be possible in many patients (fig 14).

## EAR, NOSE, AND THROAT

ENT examination is an integral part of the examination of the ill adult and especially the unwell child. Check the throat and tonsils, feel the neck for lymph nodes, and check the tympanic membranes. If the patient is complaining of difficulty in swallowing, observe them drinking some water. Full details will be given in the article discussing ENT problems.

## MUSCULOSKELETAL

The history will indicate if the problem is attributable to a recent injury or a non-traumatic problem. This is a very important distinction in a patient with musculoskeletal symptoms as the diagnostic range is very different. In the patient with no history of trauma you will need to consider if the pain is attributable to sepsis, ischaemic or vascular problems, or referred from the spine or heart/chest or abdomen.

### General

In the patient with no history of injury check the temperature and pulse.

The *look, feel move* system is again used. By careful observation and palpation you can locate the *area* that has been injured, by moving it is possible to begin to decide the structure that might be injured.

*Look* for swelling, bruising, redness, and deformity.

*Feel* Palpation should start away from the most painful areas. Often checking the joint above the injury is a good way to start to gain the patient's confidence.

*Movement* entails checking the active and passive *range* of the joint (limitations by indicate a joint problem). *Resisted movement* assesses muscle function and *stress testing* checks ligaments. Note function (for example, can the patient walk). Check distal nerve function and pulses.

Details of musculoskeletal examination may be found in standard texts.<sup>14 15</sup>

Signs of fracture include tenderness over the bone and reduction in movement. Many patients with musculoskeletal injuries will need radiography. However, where there is no deformity and no neurovascular problems the radiograph might be delayed to the most convenient time for the patient and the emergency system. Simple splints and analgesia will give you time to arrange the radiograph at the most appropriate time.

## A – ANALYSIS

Decision making and diagnosis are necessary evils. Necessary as it is not possible to decide on treatment without a working diagnosis, and evil because clinical decision making can be imprecise. A diagnosis is reached by a synthesis of the information you have. Each "bit" of information will carry different weights. Some features, either in the history or examination, will carry so much weight that the diagnosis is easy (fig 15).

The skill of diagnosis lies firstly in eliciting the right information and secondly in the ability to "weigh up" the evidence. This should allow you to place the patient into one of five diagnostic categories:

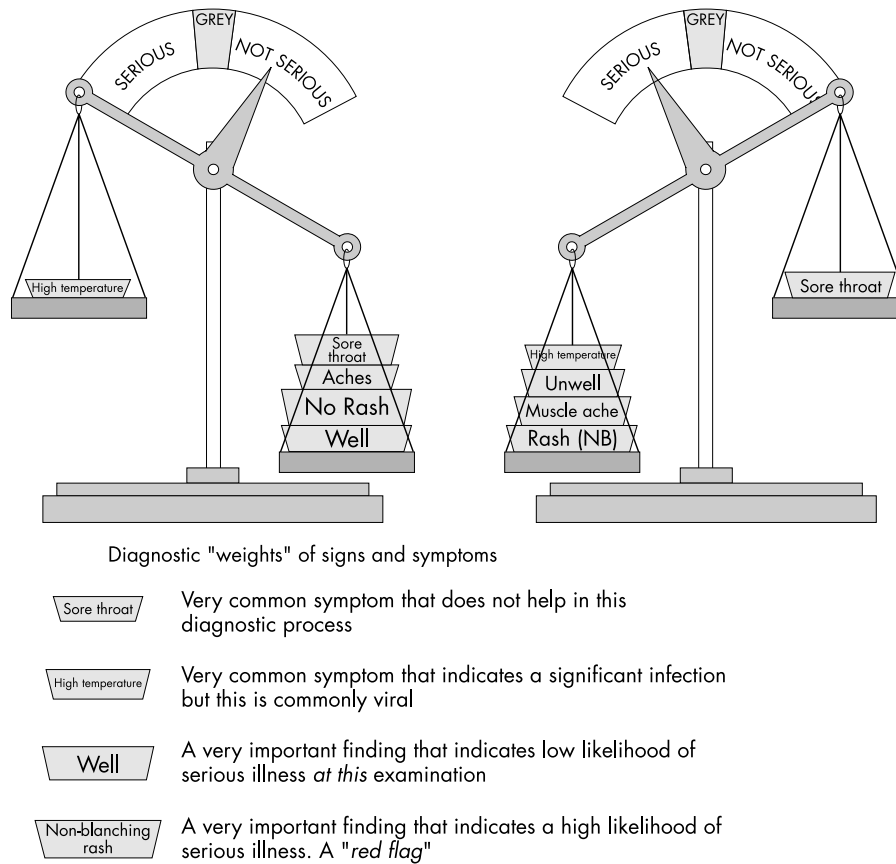
- ▶ Group 1: high likelihood of serious illness requiring hospital admission.
- ▶ Group 2: some features or symptoms that might suggest a serious illness, needs further investigation, or a period of observation
- ▶ Group 3: high likelihood of illness that can be treated at home.
- ▶ Group 4: non-specific symptoms with no signs of serious illness at present. The patient may be treated at home, with advice to seek further help if symptoms get worse.
- ▶ Group 5: no evidence of a new medical condition but concern about social support and ability to cope

If you are unsure about the diagnosis then a number of options will be available.

- ▶ Refer the patient to hospital
- ▶ Ask for another opinion
- ▶ Seek advice over the telephone (or telemedicine link)
- ▶ Give initial treatment and return within a few hours and reassess.
- ▶ Give initial treatment and advise the patient to seek advice if the condition does not follow the predicted course, if the symptoms get worse, or new symptoms develop.

The course of action you will take depends on the illness, the severity of possible alternative diagnoses, the patient location, your capabilities and resources, and the social context. For example, if there is uncertainty about the diagnosis in a patient with central chest pain, they should rightly be referred or transported to hospital. Equally the





**Figure 15** Diagnostic decision making. Features in the history and examination, both positive and negative, have different "weights" in helping you reach a working diagnosis. Try to use all the important findings rather than relying on a single point. However, some findings will have such great importance that they should not be ignored (red flags).

young man with non-specific abdominal symptoms and signs might be best treated by active observation at home.

### INVESTIGATION

There are a few investigations that are routinely available in the community. These include urine analysis, pregnancy testing, and capillary blood glucose analysis. In the future this list is likely to include near bedside testing such as cardiac troponins, D-dimers, and acute phase proteins such as C reactive protein.

### P—PLAN

Not every patient will fall neatly into one of the five categories listed above but this is a good framework that may guide treatment and advice.

Most patients in group 1 and 2 will need to be taken to hospital. A few in group 2 might be observed at home especially if advanced diagnostic facilities are available in the community. This is rare at present.

Group 3 patients will be treated at home along local guidelines and patient group directions.

Many in group 4 will be treated at home, with appropriate symptomatic treatment, and clear advice to seek further assessment if symptoms persist.

The management of patients in group 5 with social and nursing problems is difficult. Many areas now have very active community social support teams who can be called to assess the patient at home.

### C—COMMUNICATION

This last phase of the consultation is the most crucial part of the whole episode. Practitioners have to communicate with the patient, the carers, other parts of the emergency care system, and the patient's general practitioner.

Communication with the patient and carers is vital. Check that they agree with your interpretation of the information provided. Ensure they understand your diagnosis and the treatment you are planning. Ask if they have questions. Make sure all understand what to do if the symptoms get worse or they do not improve as you predict. This process is called "safety netting" (box 8).

#### Box 8 Safety netting

- ▶ Confirm information
- ▶ Confirm understanding of treatment plans
- ▶ Ask if the patient has any questions
- ▶ Ensure they know what, how, and when to seek further advice

Communication with other parts of the healthcare system is an integral part of the emergency consultation. Making a good record of a consultation is essential. Use the same system of SOAPC to record your findings and to outline the treatment plan. The patient's general practitioner should be notified.

You may need to consult with other parts of the emergency system. A second opinion or advice should be available by

telephone. Some emergency care systems may have telemedicine links.

## SUMMARY

This article has described a system of patient assessment that follows set patterns of information gathering leading to a working diagnosis.

Developing and practising your own system takes time and experience. Many readers will have already developed their own methods of examination. Those who are new to clinical examination will need tuition and practice.

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## FURTHER READING

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Details of the Glasgow coma score are available on the journal web site (<http://www.emjonline.com/supplemental>).

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