

INITIAL ASSESSMENT AND MANAGEMENT—I: PRIMARY SURVEY

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The multiply injured patient has by definition multiple problems, and adequate treatment necessitates a team approach. The team must be organised appropriately and work in a well equipped resuscitation room. The overall management of the patient is the responsibility of the team leader, who should, ideally, not participate in practical procedures but should:

- (1) Organise the team
- (2) Assimilate the clinical findings and physical measurements
- (3) Devise immediate and definitive plans for management.

Objectives of the trauma team

- Identify and correct life threatening injuries
- Resuscitate the patient and stabilise the vital signs
- Determine the extent of other injuries
- Prepare the patient for definitive care, which may mean transporting him or her to another centre

Patients with multiple injuries seen in a British accident and emergency department have usually suffered blunt injuries, often caused by road traffic accidents. These patients are difficult to assess because their injuries are not overt. Management of a patient, coordinated by the team leader, will depend on priorities, with attention being paid to identifying and correcting life threatening problems. It is vital that problems should be anticipated and prepared for rather than reacted to.

Before the patient arrives

Responsibilities of members of the trauma team

Team leader—Primary survey; secondary survey; coordinate team effort; overall responsibility for patient while in accident and emergency department

Anaesthetist—Airway control; ventilation; central venous cannulation; fluid balance

Other doctor—All other procedures; chest drain; catheterisation; splintage of fractures; removal of clothes; etc

Nurses (ideally 2)—Measure vital signs; record data; removal of clothes; help doctors; attach monitor

Radiographers—Take specific radiographs of cervical spine, chest, and pelvis in all patients as soon as possible, coordinating with team and other radiographers as clinically necessary

Many accident departments are warned of the impending arrival of a patient with multiple injuries by the ambulance service. The team should assemble in the resuscitation room. Each member of the team should wear gloves, a plastic apron, and eye protection.

The trauma team's responsibility is to complete the primary survey and necessary resuscitation and subsequently complete the secondary survey, as well as recording all diagnoses and treatments. The team leader must ensure that this is achieved effectively and rapidly. Ideally, tasks are allocated to different members of the team at an early stage: in a well practised team this can be done even before the patient arrives.

Initial assessment and resuscitation

Primary survey and resuscitation

Airway and cervical spine control

Breathing

Circulation and haemorrhage control

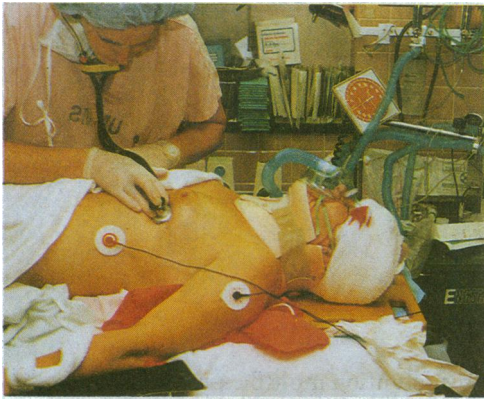
Dysfunction of the central nervous system

Exposure

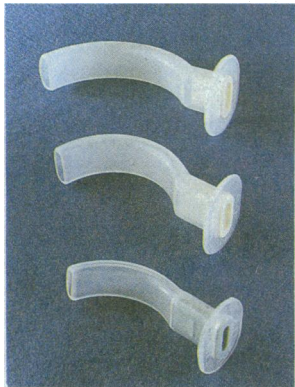
Secondary survey

Definitive management

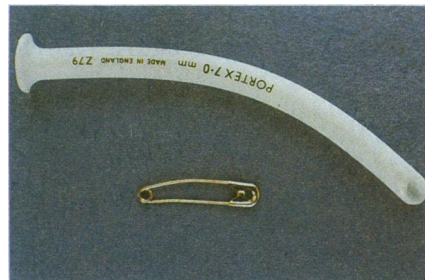
Each patient with multiple injuries should be assessed in the same way. The series of tasks in the box must be performed automatically and simultaneously by the team.



Patient with a rigid collar in place.



Guedel airways of different sizes.



Nasopharyngeal airway. The safety pin prevents inspiration of the airway.

Airway management with protection of the cervical spine

The following activities must not entail moving the neck. Assume that the cervical spine is damaged if there is any suspicion of injury above the clavicles. Keep a rigid cervical collar on the patient unless you are examining the neck, in which case stabilise the cervical spine manually.

Talk to the patient. If he or she replies with a normal voice and gives logical answers to questions the airway is patent and the brain is being perfused adequately. If there is no reply open the patient's mouth and remove any liquid vomit with a rigid sucker. A patient with multiple injuries may have just eaten, and the risk of vomiting is high. Be prepared therefore to suck vomit out immediately. Turning the patient into the recovery position may exacerbate a cervical injury.

The tongue commonly obstructs the airway in unconscious patients, but the airway can be opened by using the chin lift manoeuvre. Remove false teeth and any other solid foreign objects with Magill forceps. Patients who have a gag reflex can maintain their own airway and do not need a Guedel airway, which can precipitate vomiting, cervical movement, and a rise in intracranial pressure. A nasopharyngeal airway is an alternative. If there is no gag reflex the only safe way to ventilate the patient and protect the airway is by using a cuffed endotracheal tube; ventilation with a mask may distend the stomach with air and induce vomiting. During intubation in line stability of the neck must be maintained. Orotracheal rather than nasotracheal intubation is recommended.

Every patient with multiple injuries should receive 100% oxygen.

Having secured the airway, quickly check the neck for swellings, the position of the trachea, and venous distension.

Common causes of inadequate ventilation

Bilateral:

Obstruction of the upper respiratory tract
Leak between the face and mask

Unilateral:

Intubation of the right main bronchus
Pneumothorax
Haemothorax
Lung contusion
Flail segment
Foreign body in main bronchus

Breathing

Ensure that both sides of the chest are being ventilated by inspecting for adequate movement and auscultating for breath sounds. Listen particularly in the axilla for ventilation of the periphery of the lung and also over the epigastrium to ensure that the stomach is not being ventilated. Count the respiratory rate.

Circulation and haemorrhage control

Control any major external haemorrhage with direct pressure. Tourniquets are used only when the affected limb is deemed unsalvageable.

The patient's pulse and blood pressure must be recorded, and a cardiac monitor must be attached to the patient.

Two intravenous lines (with needles of gauge 14) should be inserted peripherally. The antecubital fossae are usually the best sites for intravenous infusion, but failing this a cut down may be required. Blood specimens should be taken for determination of group and for crossmatch, and for determining full blood count and urea and electrolyte concentrations. A specimen of arterial blood for determination of blood gas tensions should also be taken.

A central line should be inserted primarily for measuring the central venous pressure. If a chest drain is already in place the central line should be inserted on the same side. Changes in the central venous pressure are more important than individual measurements.

A colloid solution is usually given in the first instance to maintain the fluid balance, and if there are any signs of hypovolaemia 2 litres should be given rapidly while the vital signs are being monitored. The need for further fluids and their rate of flow are determined by the vital signs. Blood is required after a major injury or when there has been a limited response to 4 litres of colloid. Blood should be warmed before use. The pneumatic anti-shock garment has been shown to be useful in shocked patients, particularly those suspected of having fractures of the pelvis and legs.

Rapid Assessment

Skin colour

Carotid pulse palpable (systolic blood pressure >60 mm Hg)

Femoral pulse palpable (systemic blood pressure >70 mm Hg)

Radial pulse palpable (systolic blood pressure >80 mm Hg)

Changes in the central venous pressure are more important than individual measurements

The photographs of the Guedel and nasopharyngeal airways were taken by Ashworth Assaye, *BMJ* department of medical illustration.

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The ABC of Major Trauma has been edited by Mr David Skinner, FRCS; Mr Peter Driscoll, FRCS; and Mr Richard Earlam, FRCS, who is consultant general surgeon at The London Hospital.

Dysfunction of the central nervous system

A rapid assessment of the brain and spinal cord is made by asking patients to put their tongue out, wiggle their toes, and squeeze your fingers. The more detailed Glasgow coma scale assessment is then carried out.

Exposure

By this stage all clothing should have been removed. Movement should be kept to an absolute minimum, which means that clothing has to be cut away with a large sharp pair of scissors. Do not, however, allow the patient to get cold: the resuscitation room should be warm and the patient covered when not being examined.

If a life threatening problem is identified during this rapid primary survey it must be corrected immediately rather than waiting until the end of the survey. For example, a tension pneumothorax must be treated on discovery.

MEDICINE AND THE MEDIA

Landscape Channel *The Matthew Manning Relaxation Video*
International Stress and Tension Control Society *Lifestyle, Stress and the Mitchell Method of Relaxation*

The ultimate in relaxation?

Many years ago in the sequestered and darkened sitting room of an old Welsh cottage hospital a clinical psychologist, a community psychiatric nurse, and I spent part of one afternoon a week restoring the equanimity of anxious patients. At last we could offer them a daily exercise which would triumph over tranquilisers. A few of our group had borrowed an audio tape to listen to at home—my colleagues's Ceredigion accent on it was comfortingly melodious.

Audio and video tapes now abound but the market forces of commercialised psychology can allow them to reach vulnerable targets. People with "bad nerves" are particularly susceptible to attractively packaged "cures," but the fears of those with psychoses will not be allayed by relaxation training.

In *The Matthew Manning Relaxation Video* the man described as "Britain's leading healer" claims "the ultimate in relaxation . . . four powerful components of music, spoken suggestions, striking visual images, and colour." The photography flows and the music relaxes but I do not care for the brief interludes of heavenly voices. Matthew Manning's spoken suggestions evoke those of Émile Coué, the apostle of autosuggestion. I learnt at my mother's knee the story of the little engine who said "I will get to the top, I will get to the top," and then did. Manning advises his pupils to learn a similar message: "Today my confidence in my ability to deal with any problem that may arise will continue to grow . . . today I will succeed." This is

encouraging but not necessarily achievable.

Lifestyle, Stress and the Mitchell Method of Relaxation is a longer, less elegant video produced for trainers as well as trainees. It is didactic and practical, explaining the physiology of anxiety and then showing a class with people of various ages under instruction in a variety of postures. Laura Mitchell is a "well known teacher, author and broadcaster on relaxation with a particular interest in the elderly" and her video is promoted by the International Stress and Tension Control Society, an organisation that includes several psychiatrists. Mitchell says that "relax" is not an order, but an encouragement to achieve a goal. Matthew Manning tells his audience to say the word three times and thereby "revitalise your being." Success seems more likely with the first method.—JOHN CULE, *general practitioner, Llandysul, Dyfed*

The King's Fund *Art in Hospitals: A Guide*

Hospital art

In many of our hospitals there are long corridors with extensive wall spaces, unadorned and often dirty. Thanks to the inspiration of a few altruistic individuals, an important start has been made in introducing art into hospitals to provide a comforting and caring atmosphere for the patients and staff. The pattern that seems to work well is for medical, nursing, and administrative staff interested in art to form small committees that then commission work, possibly with the aid of a professional art consultant. The King's Fund for London and the Greater London Arts have since 1979 sponsored a scheme for art in hospitals.

This video is short, helpful, and to the point. It starts with a commentary by the art critic and Slade Professor of Art at the University of Cambridge, Richard Cork. He

traces the coexistence of art and hospital buildings back to the time of the Greeks and shows an example of the Innocenti Hospital in Florence, where the architecture and the terracotta paintings blend most beautifully to give a feeling of caring and peacefulness, no doubt communicated to patients when medicine and surgery had little otherwise to offer in the fifteenth century. He then discusses hospitals today: some Victorian and 18th century buildings still in use are juxtaposed with modern functional additions and the freestanding purpose built concrete hospitals of the past two decades.

The King's Fund Art in Hospitals Project has been put into practice with art forms that vary from geometrical abstract images to representational pictures and three dimensional sculpture. The examples shown are mostly interesting and pleasing. (It is important not to provide frightening or disturbing pictures, especially in children's wards.)

The accompanying booklet contains much common sense about how to go about sponsoring art in a hospital, but it does not emphasise the enormous amount of work entailed. It is full of helpful tips on how to encourage, commission, site, take care of, and—above all—fund art in hospitals. It also points out that—with the introduction of shopping centres and advertising encouraged by the government in the new commercial approach to medicine—a retail environment is often antipathetic to art and the siting of paintings and works of art must be taken into consideration when hospital managements permit commerce to metastasise into the hospital environment.

The King's Fund has recently sponsored Richard Cork to commission a series of original works especially for hospitals, and these contemporary prints have been exhibited in London and are available for purchase by hospitals at very low cost (28 October, p 1063). The King's Fund is to be congratulated on starting the ball rolling to make our hospitals more "user friendly."—ROY CALNE