CHAPTER 1

THE ROLE OF OBSERVATION IN FIRST AID

CYNERGEX GROUP has specifically designed its first aid training courses to give students the confidence to respond to medical emergencies by providing them with good skills and background knowledge in relevant techniques. Our courses concentrate on teaching students how to identify a problem, measure its impact and utilise a range of techniques and equipment to deal with it. Our emphasis also ensures that the techniques we train students to use are part of an integrated approach which allows the emergency medical services to pick up the treatment and progress it as seamlessly as possible.

A significant part of effective first aid is measurement. Without measurement, we cannot assess a casualty's condition and we have no idea of how sick they are or whether what we are doing to treat them is working to improve their situation or not. Measurement in first aid is about measuring and recording the pulse rate, rhythm and strength; recording the respiratory rate, rhythm and strength; recording the blood pressure (where available); recording the level of the casualty's consciousness; and recording their skin condition.

HISTORY

In addition to the above measurements, it is vital that we have a clear understanding of what is happening or has happened to the casualty. The story of the incident is the history we collect and it is essential that it is accurate.

HISTORY

The history of an incident is the story of the incident and the casualty's role in it. History is one of the most useful tools available to first-aiders, ambulance and medical staff as they attempt to determine the specific problems faced by a specific casualty. The unconscious or confused casualty left in a hospital casualty department is a complete mystery to the medical staff unless they gain insight through a good history. A good history is of great benefit whether the casualty's problem is a medical condition or an injury.

HISTORY OF AN ILLNESS

With medical conditions the history of the casualty, and even their family, is of great use in identifying the possible cause of a casualty's illness. For example, the casualty who develops crushing, central chest pain which radiates to the left neck and arm may be suffering the first signs of an acute myocardial infarction (AMI) (a very serious heart attack). If the casualty is able to tell you that they have had episodes of breathlessness and chest tightness over the last few weeks, then it adds strongly to the evidence that the casualty is having an AMI. If the casualty also details a family history that includes a father dying of a heart attack, an uncle having had heart problems and a brother also having had a heart attack, then the evidence is overwhelmingly in favour of this casualty having an AMI.

HISTORY OF AN ACCIDENT

In a car accident the history is also of great importance in estimating the way in which the casualty was injured and thus the injuries that the casualty may have suffered. In accidents, a good history allows medical staff to quickly focus their attention on areas with a high probability of injury and this gets the casualty into the operating room faster.

For example, a car runs off the road at around 11:30pm in light rain at a Y intersection and travels towards an electricity pole approximately 50 metres from the edge of the roadway in a direct line with the bottom end of the Y. The car was travelling along the stem or bottom part of the Y and has left the road stopping short of the pole by about 5 metres.
At first glance, the scene seems simple enough. The car has left the road and stopped just short of the pole. There is little likelihood that anyone has sustained an injury. However, the history and the physical evidence tell an interesting story.

On arrival at the scene, the first thing you notice is that there were no skid marks on the surface of the road and that the tyre marks on the soft edges and the wet soil leading up to the tree show tread marks all along their length. This indicates that the driver did not apply the brakes during the accident (under braking the marks would be smooth, that is true skid marks). You also note that the wheel ruts are dead straight, indicating that the driver made no effort to turn the steering wheel. You also note wet mud freshly sprayed over the rear of the car indicating that the driver was driving the car under power. This tells you that the casualty was probably conscious throughout.

On arriving at the driver’s side door you noticed the driver is sitting up and looking forward at the pole. Following your knock on the window the driver, the only occupant, winds down his window and talks to you confirming that he was conscious when he ran off the road.

The indications we have is that the vehicle ran off a wet road in the dark and that the driver did not attempt to steer away from a pole towards which the car was travelling. We also know that he did not attempt to brake and that he actually applied power to the car. This indicates a deliberate attempt to drive the car into the pole and indeed this was the case as the driver in this case later admitted. The history told a story that indicated no physical injury but a possibility of a person in distress. That is why the ambulance crew in this case persevered with questioning the driver until he admitted the truth. This allowed them to ensure that the police at the scene did not leave him alone and that they arranged further help for him.

In addition to reporting a closely observed history the next set of observations that the first- aider can establish is that of Clinical State. The clinical state of the casualty can also be defined as being the measurement of how sick, or likely to die, the casualty is. Indeed, once the first-aider learns to rely on the clinical state most of the doubt is removed from the decision making process.
OBSERVATION AND MEASUREMENT

THE HEALTHY CASUALTY

For a healthy adult the measurements listed in the box below are normal.

<table>
<thead>
<tr>
<th>OBSERVATIONS FOR A HEALTHY CASUALTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Conscious State</td>
</tr>
<tr>
<td>Normal Skin</td>
</tr>
<tr>
<td>Normal Pulse</td>
</tr>
<tr>
<td>Normal Respiratory Rate</td>
</tr>
<tr>
<td>Normal Blood Pressure</td>
</tr>
<tr>
<td>Normal Temperature</td>
</tr>
<tr>
<td>Urine Output</td>
</tr>
</tbody>
</table>

EMERGENCY OBSERVATIONS

THE HEALTHY PERSON WITH GOOD PERFUSION

1. Conscious state: person is alert and aware of time and place
2. Skin condition: pink skin in mouth and dry, warm skin on rest of body
3. Pulse: 60 to 80 beats per minute and a regular rhythm
4. Respirations: 12 to 20 per minute
5. Blood Pressure: 120mm Hg above 80mm Hg

These four observations tell you that the heart is pumping blood filled with oxygen, food and water through the blood vessels to the cells of the body and removing carbon dioxide and waste products from them. In an emergency the following four observations have real importance:

POOR PERFUSION (SHOCK)

1. Conscious state: altered, usually depressed
2. Skin condition: pale, cold and wet or clammy
3. Pulse: more than 100 beats per minute or less than 50 per minute
4. Respirations: more than 24 per minute or less than 10 per minute
5. Blood Pressure: 120mm Hg above 80mm Hg

Where a casualty has two or more of the above signs get help immediately by calling an ambulance. Do not wait for the casualty to get worse.

The Sick casualty - A person who is seriously ill or injured will suffer poor perfusion because the body cannot supply enough oxygen, water and food to the body's cells and cannot remove carbon dioxide and waste products quickly. Poor perfusion exists where a casualty has two or more of the following observations:
TAking the Pulse

There are two pulses that the first aider needs to take: the carotid pulse, for sick casualties, and the radial pulse, for when the casualty is unwell but not at immediate risk of serious illness or death.

Fig.1-1: Taking the carotid pulse
The carotid pulse is found on either side of the neck nestled in between the sterno-mastoid muscle and the windpipe (trachea).

Fig.1-2: Taking the radial pulse
The radial pulse is located in the wrist at the base of the thumb running up along the radius.

Measuring Respiration

In primary patient assessment observe that the patient has an adequate respiratory rate and depth by visual observations. Respirations should be regular and inaudible. Count respirations for one minute by observing the rise and fall of chest. Assess whether the accessory muscles are being used, as the overuse of accessory muscles could indicate respiratory distress. Listen for abnormal/noisy breath sounds e.g. gurgling, sighing, and wheezing.

Measuring Consciousness

Rapid Assessment

Initial assessment of a casualty’s conscious state is based upon their awareness of their surroundings. Thus, a casualty who responds to your presence, is able to tell you where they are and when they are (aware of time and place), and is able to speak clearly is conscious.

Detailed Assessment

In order to more accurately track changes in a casualty’s conscious state a scale, called the Glasgow Coma Scale (GCS), is used. The GCS enables us to objectively chart a casualty’s level of consciousness at a given point in time using a standardised measure. The elements of the GCS are the ability of the casualty to open their eyes, to speak and to use their muscles.

The GCS requires no equipment other than a watch and a pen/pencil and paper.

It is important that you record the best response to the test, even if the casualty cannot immediately reproduce it.
GLASGOW COMA SCALE

EYE OPENING

Spontaneous 4
To Speech 3
To Pain 2
Nil 1

BEST VERBAL RESPONSE

Orientated 5
Confused conversation 4
Inappropriate words 3
Incomprehensible sounds 2
Nil 1

BEST MOTOR RESPONSE

Obeys 6
Localises 5
Withdraws 4
Abnormal Flexion 3
Extensor Response 2
Nil 1

The importance of the GCS is that over time the carer can track changes (decline or improvement) in the casualty's condition. The sooner you establish accurate recording of the GCS the closer to an injury or event you can move treatment. The charts below provide an example of what some conditions look like.
MEASURING BLOOD PRESSURE

Blood Pressure is the pressure exerted by the blood on the walls of a blood vessel. The most usual blood vessel for the measurement of the blood pressure is the Brachial artery in the casualty's master arm (the one they write with).

Blood pressure is measured against a column of Mercury (chemical symbol is Hg) as it takes a significant amount of pressure to lift the mercury a millimetre. Therefore blood pressure is written as 120 mm Hg (the pressure is sufficient to lift a column of Mercury 120mm) over 80mm Hg for the lower pressure.

Blood pressure is split into two parts, the systolic (or upper number) which usually measures 120mm Hg and the diastolic (the lower number), measuring around 80mm Hg. These numbers are found by applying a blood pressure cuff attached to a calibrated gauge and then inflating it until the pulse disappears in the brachial artery. Once the pulse disappears the cuff is inflated a little more (around 20mm Hg) and the stethoscope is applied to where the pulse was felt. The valve on the pump is opened slowly and the pressure released from the cuff until the first beat is heard. This often follows a point where the needle of the dial begins to jump. The point at which the pulse is heard again (say 120mm Hg) is the systolic pressure.

Continue to release pressure from the cuff and listen for either where the pulse disappears or the sound changes notably (usually a swish, swish sound). This is the point at which the diastolic pressure is noted (say 80mm Hg).