

## **The Glasgow Scale GCS**

### **The Glasgow Coma Scale or GCS, sometimes also known as the Glasgow Coma Score**

objective way of recording the conscious state of a person, which aims to give a reliable and continuing assessment. A patient is assessed against the criteria of the scale, and the resulting points give a patient score between 3 (indicating deep unconsciousness) and either 14 (original scale) or 15 (the more widely used modified scale).

The Glasgow Coma Scale was initially used to assess head injury after consciousness level. It is now used by all acute doctors and EMS as a first aid scale. In hospital it is also used in chronic patient monitoring, medical and trauma patients. For instance, in intensive care.

The scale comprises three tests: eye, verbal and motor responses.

The scale is composed of three tests: eye, verbal and motor responses. The three values separately as well as their sum are considered. The lowest possible GCS (the sum) is 3 (deep coma or death), while the highest is 15 (fully awake person).

### **Eye response (E)**

There are four grades starting with the most severe:

1. No eye opening
2. Eye opening in response to pain stimulus. (a peripheral pain stimulus, such as squeezing the lunula area of the patient's fingernail is more effective than a central stimulus such as a trapezius squeeze, due to a grimacing effect).<sup>[1]</sup>
3. Eye opening to speech. (Not to be confused with the awakening of a sleeping person; such patients receive a score of 4, not 3.)
4. Eyes opening spontaneously

### **Verbal response (V)**

There are five grades starting with the most severe:

1. No verbal response
2. Incomprehensible sounds. (Moaning but no words.)
3. Inappropriate words. (Random or exclamatory articulated speech, but no conversational exchange)
4. Confused. (The patient responds to questions coherently but there is some disorientation and confusion.)
5. Oriented. (Patient responds coherently and appropriately to questions such as the patient's name and age, where they are and why, the year, month)

### **Motor response (M)**

There are six grades starting with the most severe:

1. No motor response
2. Extension to pain (extensor posturing: abduction of arm, external rotation of shoulder, supination of forearm, extension of wrist, *decerebrate response*)
3. Abnormal flexion to pain (flexor posturing: adduction of arm, internal rotation of shoulder, pronation of forearm, flexion of wrist, *decorticate response*)
4. Flexion/Withdrawal to pain (flexion of elbow, supination of forearm, flexion of wrist when supra-orbital pressure applied ; pulls part of body away when nailbed pinched)
5. Localizes to pain. (Purposeful movements towards painful stimuli; e.g., hand crosses mid-line and gets above clavicle when supra-orbital pressure applied.)

### **Interpretation**

Individual elements as well as the sum of the score are important. Hence, the score is expressed in the form "GCS 9 = E2 V4 M3 at 07:35".

Generally, brain injury is classified as:

- Severe, with GCS < 9
- Moderate, GCS 9–12 (controversial)<sup>[2]</sup>
- Minor, GCS ≥ 13.

Tracheal intubation and severe facial/eye swelling or damage make it impossible to test the verbal and eye responses. In these circumstances, the score is given as 1 with a modifier attached e.g. "E1c" where "c" = closed, or "V1t" where t = tube. A composite might be "GCS 5tc". This would mean, for example, eyes closed because of swelling = 1, intubated = 1, leaving a motor score of 3 for "abnormal flexion". Often the 1 is left out, so the scale