

Glasgow Coma Scale

Eye Opening	E
spontaneous	4
to speech	3
to pain	2
no response	1
Best Motor Response	M
To Verbal Command:	
obeys	6
To Painful Stimulus:	
localizes pain	5
flexion-withdrawal	4
flexion-abnormal	3
extension	2
no response	1
Best Verbal Response	V
oriented and converses	5
disoriented and converses	4
inappropriate words	3
incomprehensible sounds	2
no response	1

E + M + V = 3 to 15

- 90% less than or equal to 8 are in coma
- Greater than or equal to 9 not in coma
- 8 is the critical score
- Less than or equal to 8 at 6 hours - 50% die
- 9-11 = moderate severity
- Greater than or equal to 12 = minor injury

Coma is defined as: (1) not opening eyes, (2) not obeying commands, and (3) not uttering understandable words.

GLASCOW COMA SCALE (GCS)

Elements of the scale

The scale comprises 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), whilst the highest is 15 (fully awake person).

BEST EYE RESPONSE (E)

There are 4 grades:

1. Eyes opening spontaneously.
2. Eye opening to speech. (Not to be confused with an awaking or a sleeping person; such patients receive a score of 4, not 3.)
3. Eye opening in response to pain. (Patient responds to pressure on the patient's finger nail bed; if this does not elicit a response, supraorbital and sternal pressure or rub may be used.)
4. No eye opening.

BEST VERBAL RESPONSE (V)

There are 5 grades:

1. Oriented. (Patient responds coherently and appropriately to questions such as the patient's name and age, where they are and why, the year, month, etc.)
2. Confused. (The patient responds to questions coherently but there is some disorientation and confusion.)
3. Inappropriate words. (Random or exclamatory articulated speech, but no conversational exchange).
4. Incomprehensible sounds. (Moaning but no words.)
5. None.

BEST MOTOR RESPONSE (M)

There are 6 grades:

1. Obeys commands. (The patient does simple things as asked.)
2. Localizes to pain. (Purposeful movements towards changing painful stimuli; e.g. hand crosses mid-line and gets above clavicle when supra-orbital pressure applied.)
3. Withdraws from pain (pulls part of body away when pinched; normal flexion).

4. Flexion in response to pain (decorticate response).
5. Extension to pain (decerebrate response: adduction, internal rotation of shoulder, pronation of forearm).
6. No motor response.

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, comas are classified as:

- Severe, with GCS ≤ 8
- Moderate, GCS 9 - 12
- Minor, GCS ≥ 13 .

The GCS has limited applicability to children, especially below the age of 36 months (where the verbal performance of even a healthy child would be expected to be poor). Consequently the Pediatric Glasgow Coma Scale, a separate yet closely related scale, was developed for assessing younger children.

Revisions

- Revised Glasgow Coma Scale: Some centers score GCS out of 14, not 15, omitting "withdraws from pain".
- The Rappaport Coma/Near Coma Scale made other changes.

See also

- Rancho Los Amigos Scale

References

- Teasdale G, Jennett B. *Assessment of coma and impaired consciousness. A practical scale.* Lancet 1974;2:81-84. PMID 4136544

Glasgow Coma Scale

The Glasgow Coma Scale provides a score in the range 3-15; patients with scores of 3-8 are usually said to be in a coma. The total score is the sum of the scores in three categories. For adults the scores are as follows:

Eye Opening Response	Spontaneous--open with blinking at baseline	4 points
	Opens to verbal command, speech, or shout	3 points
	Opens to pain, not applied to face	2 points
	None	1 point
Verbal Response	Oriented	5 points
	Confused conversation, but able to answer questions	4 points
	Inappropriate responses, words discernible	3 points
	Incomprehensible speech	2 points
	None	1 point
Motor Response	Obeys commands for movement	6 points
	Purposeful movement to painful stimulus	5 points
	Withdraws from pain	4 points
	Abnormal (spastic) flexion, decorticate posture	3 points
	Extensor (rigid) response, decerebrate posture	2 points
	None	1 point

For children under 5, the verbal response criteria are adjusted as follow

SCORE	2 to 5 YRS	0 TO 23 Mos.
5	Appropriate words or phrases	Smiles or coos appropriately
4	Inappropriate words	Cries and consolable
3	Persistent cries and/or screams	Persistent inappropriate crying &/or screaming
2	Grunts	Grunts or is agitated or restless
1	No response	No response