

# Health & Care Information Model: nl.zorg.GlasgowComaScale-v3.0

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# Content

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# 1. nl.zorg.GlasgowComaScale-v3.0

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## 1.1 Revision History

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-

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-

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Incl. algemene wijzigingsverzoeken:

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Publicatieversie 1.2.1 (16-07-2015)

Bevat: ZIB-414.

Publicatieversie 3.0 (01-05-2016)

Bevat: ZIB-453

## 1.2 Concept

Fifteen-point scale for expressing a person's level of consciousness, from fully awake to deep unconsciousness, in a number: the so-called EMV score.

The Glasgow Coma Scale score or EMV (Eye-Motor-Verbal) score is a scale to measure the extent of consciousness, based on eye, verbal and motor responses to specific prescribed sound and pain stimuli.

## 1.3 Mindmap

## 1.4 Purpose

The GCS score provides the opportunity to document a clinical observation of a patient's conscious state with a validated instrument which makes use of a patient's responses to stimuli.

## 1.5 Patient Population

## 1.6 Evidence Base

The Glasgow Coma Scale is used to evaluate a patient's consciousness by means of three elements:

1. opening eyes (eye response);
2. answering questions (verbal response);
3. motor response.

The three response values are looked at individually and as a whole. The total is referred to as the EMV score. The minimum total score is 3 and the maximum is 15. A slightly altered scale is used for infants (age 0-2) and toddlers (age 2-5).

The EMV score can be expressed as a combination of each of the three individual scores, such as: E3M2V4 (opens eyes when spoken to, arms stretch in response to pain and patient produces incomprehensible sounds).

If one of the EMV elements cannot be evaluated - such as might be the case if a patient is intubated and incapable of verbally responding, or is paralyzed/weak and incapable of fulfilling the motor request, then the individual score is included (score 1), but with an extra comment.

V1T is used for an intubated patient, in which t = 'tube'.

Clinical decisions must be based on each of the specific data of the eyes, motor and verbal responses and, if evaluation is not possible, an explicit explanation.

Standard values for the total score, depending on age:

0-6 months : 9 and up

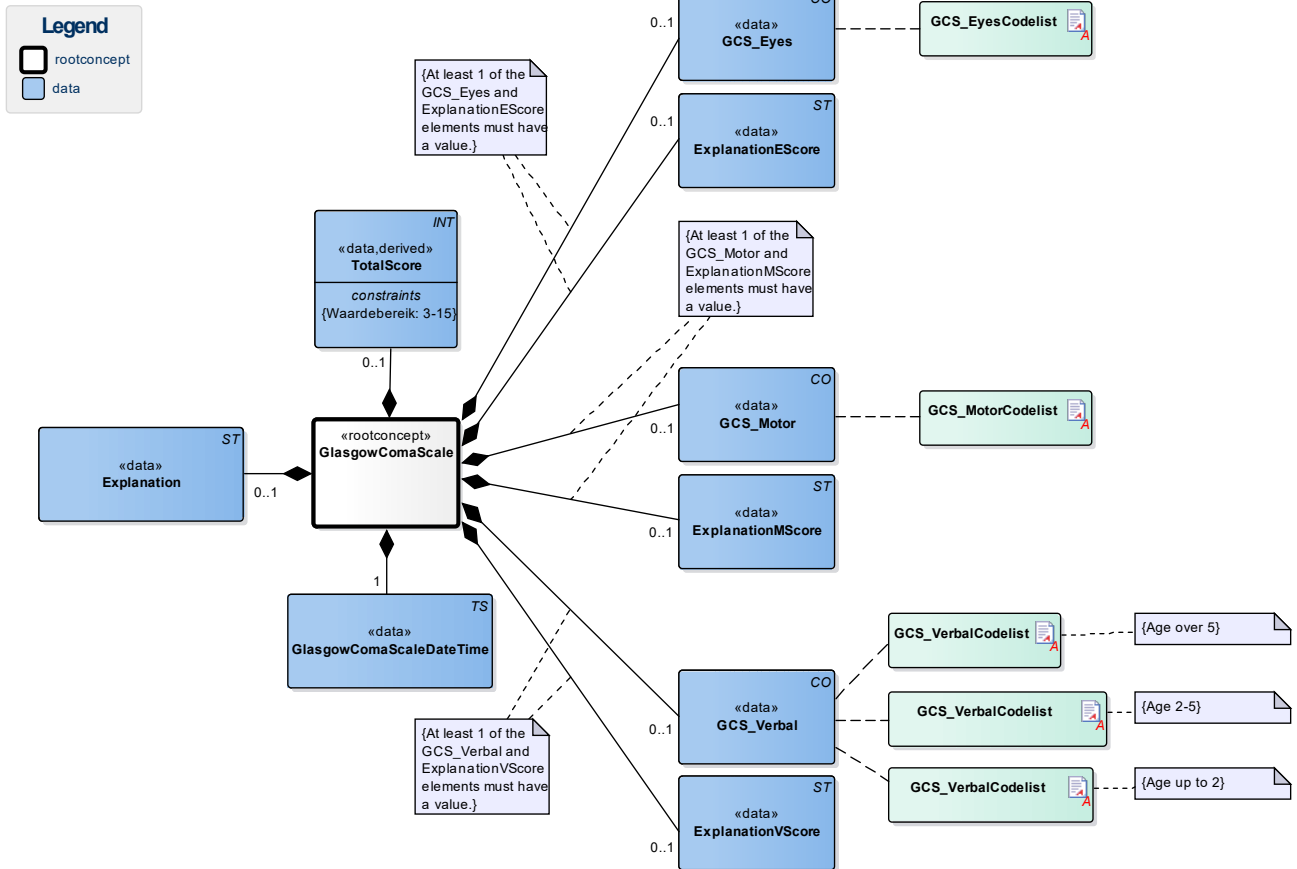
6-12 months : 11 and up

1-2 : 12 and up

2-5 : 13 and up

> 5 : 14 and up

## 1.7 Information Model



«rootconcept»	GlasgowComaScale	
Definitie	Root concept of the GlasgowComaScale information model. This root concept contains all data elements of the GlasgowComaScale information model.	
Datatype		
DCM::ConceptId	NL-CM:12.8.1	
DCM::DefinitionCode	SNOMED CT: 386554004	Glasgow coma scale (assessment scale)
Opties		

«data»	GlasgowComaScaleDateTime	
Definitie	Time at which the EMV score was determined.	
Datatype	TS	
DCM::ConceptId	NL-CM:12.8.8	
Opties		

«data»	GCS_Eyes	
Definitie	Best eye response to a stimulus. The element is mandatory, but does not require a numerical value. If no value is given, the reason for this is to be provided in the ExplanationEScore concept.	
Datatype	CO	
DCM::ConceptId	NL-CM:12.8.2	
DCM::DefinitionCode	SNOMED CT: 281395000	Glasgow coma score eye opening subscore (observable entity)

<b>DCM::ExampleValue</b>	3	
<b>DCM::ValueSet</b>	GCS_EyesCodelist	OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.1
<b>Opties</b>		

<b>«data»</b>	<b>ExplanationEScore</b>	
<b>Definitie</b>	Reason why no eye response test could be done. This is to be entered as free text. An often-used notation is the abbreviation c (closed), in the event that the eyes are closed.	
<b>Datatype</b>	ST	
<b>DCM::ConceptId</b>	NL-CM:12.8.3	
<b>Opties</b>		

<b>«data»</b>	<b>GCS_Motor</b>	
<b>Definitie</b>	Best motor response to a stimulus. The element is mandatory, but does not require a numerical value. If no value is given, the reason for this is to be provided in the ExplanationMScore concept.	
<b>Datatype</b>	CO	
<b>DCM::ConceptId</b>	NL-CM:12.8.4	
<b>DCM::DefinitionCode</b>	SNOMED CT: 281396004 Glasgow Coma Score motor response subscore	
<b>DCM::ExampleValue</b>	4	
<b>DCM::ValueSet</b>	GCS_MotorCodelist	OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.2
<b>Opties</b>		

<b>«data»</b>	<b>ExplanationMScore</b>	
<b>Definitie</b>	Reason why no motor response test could be done. This is to be entered as free text.	
<b>Datatype</b>	ST	
<b>DCM::ConceptId</b>	NL-CM:12.8.5	
<b>DCM::ExampleValue</b>	Spierverslappers	
<b>Opties</b>		

<b>«data»</b>	<b>GCS_Verbal</b>	
<b>Definitie</b>	Best verbal response to a stimulus. The element is mandatory, but does not require a numerical value. If no value is given, the reason for this is to be provided in the ExplanationVScore concept.	
<b>Datatype</b>	CO	
<b>DCM::ConceptId</b>	NL-CM:12.8.6	
<b>DCM::DefinitionCode</b>	SNOMED CT: 281397008 Glasgow coma score verbal response subscore (observable entity)	
<b>DCM::ExampleValue</b>	3	
<b>DCM::ValueSet</b>	GCS_VerbalCodelist	OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.3
<b>DCM::ValueSet</b>	GCS_VerbalCodelist	OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.4

DCM::ValueSet	GCS_VerbalCodelist	OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.5
Opties		

«data»	ExplanationVScore	
Definitie	Reason why no verbal response test could be done. This is to be entered as free text. An often-used notation is the addition 'Tube' for an intubated patient.	
Datatype	ST	
DCM::ConceptId	NL-CM:12.8.7	
DCM::ExampleValue	Vtube	
Opties		

«data»	TotalScore	
Definitie	The sum of the EMV scores, expressed as a number on a scale from 3-15. The value does not have to be recorded, as it can always be calculated based on the individual scores, and as recording the total is not common for a difficult to determine individual score.	
Datatype	INT	
DCM::ConceptId	NL-CM:12.8.10	
DCM::ExampleValue	10	
Opties		
Constraint	Waardebereik: 3-15	

«data»	Explanation	
Definitie	Comment on (the context of) the EMV score measurement, such as any problems or factors that may influence interpretation.	
Datatype	ST	
DCM::ConceptId	NL-CM:12.8.9	
DCM::ExampleValue	Patient was direct voor intubatie volkomen helder; reageert nu minder maar is ook onderkoeld (temperatuur rectaal 35°C).	
Opties		

«document»	GCS_EyesCodelist	
Definitie		
Datatype		
DCM::ValueSetId	2.16.840.1.113883.2.4.3.11.60.40.2.12.8.1	
Opties		

GCS_EyesCodelijst			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.1		
Concept Name	Value	Concept Code	Coding Syst. Name	Coding System OID	Description
Spontaneous	4	E4	GCS_Eyes	2.16.840.1.113883.2.4.3.11.60.40.4.2.1	Spontaan [De ogen worden spontaan geopend]
To verbal stimuli, command, speech	3	E3	GCS_Eyes	2.16.840.1.113883.2.4.3.11.60.40.4.2.1	Bij aanspreken of aanroepen [De ogen worden pas geopend op aanspreken van de patiënt]
To pain only	2	E2	GCS_Eyes	2.16.840.1.113883.2.4.3.11.60.40.4.2.1	Bij pijn [De ogen worden pas geopend bij een pijnprikkel]

No response	1	E1	GCS_Eyes	2.16.840.1.113883.2.4.3.11.60.40.2.12.8.2	Geen reactie [De ogen blijven gesloten]
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«document»		GCS_MotorCodelist			
Definitie					
Datatype					
DCM::ValueSetId		2.16.840.1.113883.2.4.3.11.60.40.2.12.8.2			
Opties					
GCS_MotorCodelijst			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.2		
Concept Name	Value	Concept Code	Coding Syst. Name	Coding System OID	Description
Obeys	6	M6	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Voert opdracht uit [Een eenvoudig bevel wordt uitgevoerd]
Localises pain	5	M5	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Lokaliseren [In staat zijn de pijn duidelijk te lokaliseren]
Withdrawal response	4	M4	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Terugtrekken [In staat om een afwerende of wegtrekkende beweging te maken op een pijnprikkel]
Flexor response	3	M3	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Buigreactie [Armen en handen op krampachtige manier geplooid. Meestal benen gestrekt.]
Extensor response	2	M2	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Strekreactie [Armen en handen op krampachtige manier geplooid met naar buitengedraaide hand. Mogelijk alle spieren van het lichaam gespannen]
No response	1	M1	GCS_Motor	2.16.840.1.113883.2.4.3.11.60.40.4.2.2	Geen reactie op pijnprikkel [Geen enkele lichamelijke reactie op een pijnprikkel]

«document»		GCS_VerbalCodelist			
Definitie					
Datatype					
DCM::ValueSetId		2.16.840.1.113883.2.4.3.11.60.40.2.12.8.3			
Opties					
GCS_VerbalCodelijst			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.3		
Concept Name	Value	Concept Code	Coding Syst. Name	Coding System OID	Description
Oriented	5	V5	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Georiënteerd [Helder en duidelijk bewust van de situatie]
Confused	4	V4	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Verward [Verwarde conversatie maar wel in staat om te antwoorden op de vragen]
Inappropriate speech	3	V3	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Inadequaat [Woorden zijn te verstaan maar vormen geen zinnen]
Incomprehensible sounds	2	V2	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Onverstaanbaar [De spraak is niet te verstaan]



No response	1	V1	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.2.12.8.4	Geen reactie [Geen enkel verbale response]
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«document»		GCS_VerbalCodelist			
Definitie					
Datatype					
DCM::ValueSetId		2.16.840.1.113883.2.4.3.11.60.40.2.12.8.4			
Opties					
GCS_VerbalCodelistKleuter			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.4		
Concept Name	Value	Concept Code	Coding Syst. Name	Coding System OID	Description
Oriented	5	V5	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Adequate woorden en zinnen [Woorden of kleine zinnen in context van de situatie]
Confused	4	V4	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Onjuiste woorden [Verwarde woorden]
Inappropriate speech	3	V3	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Huilen [Aanhoudend huilen of krijsen]
Incomprehensible sounds	2	V2	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Kreunen [Alleen kreunen]
No response	1	V1	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Geen reactie [Geen enkel verbale response]

«document»		GCS_VerbalCodelist			
Definitie					
Datatype					
DCM::ValueSetId		2.16.840.1.113883.2.4.3.11.60.40.2.12.8.5			
Opties					
GCS_VerbalCodelistBaby			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.8.5		
Concept Name	Value	Concept Code	Coding Syst. Name	Coding System OID	Description
Oriented	5	V5	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Lachen en huilen [Lacht of huilt zachtjes]
Confused	4	V4	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Huilen [Huilt en is onpasselijk]
Inappropriate speech	3	V3	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Niet adequaat huilen [Aanhoudend huilen of krijsen]
Incomprehensible sounds	2	V2	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Kreunen [Kreunen en onrustig/rusteloos]
No response	1	V1	GCS_Verbal	2.16.840.1.113883.2.4.3.11.60.40.4.2.3	Geen reactie [Geen enkel verbale response]

## 1.8 Example Instances

GlasgowComa ScaleDatumTijd	GCS_Eyes	GCS_Motor	GCS_Verbal	TotaalScore	Toelichting
08-02-2013 6:43	2	4	5	11	Beste score voor intubatie, kleding stond in brand

GlasgowComa ScaleDatumTijd	GCS_Eyes	GCS_Motor	GCS_Verbal	TotaalScore	Toelichting
07-02-2013 11:34	4	4	1		Lijkt adequaat

GlasgowComa ScaleDatumTijd	GCS_Eyes	GCS_Motor	GCS_Verbal	TotaalScore	Toelichting
07-02-2013 8:00	1	1	1	3	Zonder spierverslappers na 2 uur reanimatie

## 1.9 Instructions

### 1.10 Interpretation

### 1.11 Care Process

### 1.12 Example of the Instrument

### 1.13 Constraints

### 1.14 Issues

### 1.15 References

1. openEHR-EHR-OBSERVATION.glasgow\_coma.v1[Online] Beschikbaar op: <http://www.openehr.org/knowledge/> [Geraadpleegd: 23 februari 2015].

2. Glasgow Coma Schaal [Online] Beschikbaar op: <http://www.tabellenboekje.nl/menselijk-lichaam-tabel-glasgow-coma-schaal.php#glasgow-coma-schaal-volwassen> [Geraadpleegd: 23 februari 2015].

### 1.16 Functional Model

### 1.17 Traceability to other Standards

## 1.18 Disclaimer

This Health and Care Information Model (a.k.a Clinical Building Block) has been made in collaboration with several different parties in healthcare. These parties asked Nictiz to manage good maintenance and development of the information models. Hereafter, these parties and Nictiz are referred to as the collaborating parties. The collaborating parties paid utmost attention to the reliability and topicality of the data in these Health and Care Information Models. Omissions and inaccuracies may however occur. The collaborating parties are not liable for any damages resulting from omissions or inaccuracies in the information provided, nor are they liable for damages resulting from problems caused by or inherent to distributing information on the internet, such as malfunctions, interruptions, errors or delays in information or services provide by the parties to you or by you to the parties via a website or via e-mail, or any other digital means. The collaborating parties will also not accept liability for any damages resulting from the use of data, advice or ideas provided by or on behalf of the parties by means of this Health and Care Information Model. The parties will not accept any liability for the content of information in this Health and Care Information Model to which or from which a hyperlink is referred. In the event of contradictions in mentioned Health and Care Information Model documents and files, the most recent and highest version of the listed order in the revisions will indicate the priority of the documents in question. If information included in the digital version of this Health and Care Information Model is also distributed in writing, the written version will be leading in case of textual differences. This will apply if both have the same version number and date. A definitive version has priority over a draft version. A revised version has priority over previous versions.

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