

Coma Recovery Scale-Revised (CRS-R) Recommended Training Program

The Coma Recovery Scale-Revised (CRS-R) Training Program provides a *suggested structure* for orienting new examiners to the CRS-R Administration and Scoring Guidelines. There is no formal overarching CRS-R certification process. The training modules below are provided as recommendations and their use will vary by site and objective. It is recommended that this training be completed within 6 months. **The CRS-R Administration and Scoring Guidelines can and should accompany the trainee throughout the training process and during the final exam.**

Module 1: Review Key material

1. Read the CRS-R Administration and Scoring Guidelines, FAQs, and Ten Guiding Principles for Administration and Scoring.
2. Watch the training video found [here](#) (password = CRSR). Please note that there are some discrepancies between the item administration demonstrated in the video and the updated manual. The discrepancies are identified with text-boxes that appear throughout the video.

Module 2: Observe CRS-R administration

1. Observe 3 administrations of the CRS-R conducted by an experienced examiner. Follow the examination procedures in the manual as the CRS-R is being administered.
2. Ideally, the observation will include patients diagnosed as VS/UWS, MCS, and eMCS.

Module 3: Observe and score CRS-R administration

1. Observe administration of the CRS-R on at least 4 different patients (1 VS/UWS, 2 MCS, 1eMCS) *while actively scoring the behavioral responses*.
2. Provide a diagnosis based on the scoring of each assessment.
3. Review the scoring and diagnosis with the examiner.

Module 4: Administer and score CRS-R

1. Administer and score the CRS-R under the supervision of an experienced examiner, including patients across the diagnostic spectrum (VS/UWS, two MCS, and one eMCS patient).

Module 5: Complete written test

1. Review and score four CRS-R vignettes. A sample CRS-R vignette is below.
2. Identify errors in CRSR administration and scoring in a fifth vignette. A sample CRS-R vignette with errors in administration and scoring is below.

Upon successful completion of all 5 modules, CRS-R Administration and Scoring can be conducted independently.

Trainee Name: _____

Module 1: Key materials

	Date
Review CRS-R Manual, FAQ, 10 Guiding Principles and other readings	
Watch training video	

Module 2: Observe CRS-R administration

	Date	Examiner	Patient ID	Observations
1.				
2.				
3.				

Module 3: Observe CRS-R administration and score

	Date	Examiner	Patient ID	Observations	Patient diagnosis			
					Coma	UWS /VS	MCS	eMCS
1.								
2.								
3.								
4.								

Module 4: Administer and score CRS-R

	Date	Examiner	Patient ID	Observations	Patient diagnosis			
					Coma	UW S/Vs	MCS	eMCS
1.								
2.								
3.								
4.								
5.								

Module 5: Written test

Date Completed

CRS-R Training Sign-off

	Completion Date	Signature
Module 1		
Module 2		
Module 3		
Module 4		
Module 5		

CRS-R Training Vignette: Scoring a CRS-R Administration

Instructions: Read the case below. Score the case using the CRS-R Administration Guidelines and Scoring Manual. Record the subscale scores, total score and diagnosis using the scoring sheet below. In addition, provide the rationale for each subscale score (e.g., followed 3 of 4 commands) as well as potential confounding issues and comments. If the rationale and comments require additional space, please continue on a separate page and label each comment with the subscale it applies to. Good Luck!

Mr. Ventri is a 43 gentleman who was involved in a motor vehicle accident six months ago. He sustained a severe traumatic brain injury with grade III diffuse axonal injury as well as trauma to both lower extremities and his left upper extremity. He was in the acute care setting for one month before transferring to an inpatient rehabilitation hospital. At the rehabilitation hospital, serial assessments with the CRSR resulted in a diagnosis of: UWS, MCS-, UWS. He has been home for four months and is returning for a consultation because his family has reported that he is now communicating by looking up to say “yes” and looking down to say “no”. His family reports that his right hand has the greatest range of motion but does not seem to move purposefully. Mr. Ventri is seated in a wheelchair when you begin your examination. During the first minute of observation, you note that his eyes are open, he is looking around the room and there are some spontaneous chewing motions. There is no movement of the extremities. Given the families reports, you administer four trials of commands to look up. On the first trial there seems to be some attempt to move the eyes, but you are not certain whether he looks up. On trials two and three he looks up immediately after you ask him to. On trial four he closes his eyes. You ask him to open his eyes, but as he does not you administer the arousal facilitation protocol and his eyes open immediately. You then present Mr. Ventri with a cup and ball and ask him to touch the objects on four alternating trials. He touches the cup on all four trials. You stand to the left of Mr. Ventri and say his name close to his left ear. He immediately responds by looking towards you. You repeat this once more on the left and twice on the right and observe the same response. You present a ball to the right and left of Mr. Ventri’s right hand and ask him to touch the ball. He does not reach out for the ball on any of four trials. You then present a mirror in front of Mr. Ventri’s face and tilt it in the left, right, top and bottom planes. Mr. Ventri follows his gaze in the mirror each time. When you put a toothbrush or a pen in Mr. Ventri’s hand and ask him to show you how to use it, he does nothing. There is also no response when you ask him to wave or not wave at you on four trials. When you roll a ball on the back of Mr. Ventri’s hand he turns his hand and grasps the ball for 7 seconds before throwing it to you. He does this on two trials. You then apply pressure on his left middle finger and he withdraws his hand and pushes your hand away both times. Flexion is observed when pressure is administered on the right middle finger. Mr. Ventri does not say any words when prompted to speak.

CRS-R Training Vignette: Scoring a CRS-R Administration

Date:		Trainee Name:			
#	Subscale	Score	TCC	Evidence	Confounds and Comments
AUDITORY FUNCTION SCALE					
4	Consistent Movement to Command				
3	Reproducible Movement to Command				
2	Localization to Sound				
1	Auditory Startle				
0	None				
VISUAL FUNCTION SCALE					
5	Object Recognition				
4	Object Localization: Reaching				
3	Visual Pursuit				
2	Fixation				
1	Visual Startle				
0	None				
MOTOR FUNCTION SCALE					
6	Functional Object Use				
5	Automatic Motor Response				
4	Object Manipulation				
3	Localization to Noxious Stimulation				
2	Flexion Withdrawal				
1	Abnormal Posturing				
0	None/Flaccid				
OROMOTOR/VERBAL FUNCTION SCALE					
3	Intelligible Verbalization				
2	Vocalization/Oral Movement				
1	Oral Reflexive Movement				
0	None				
COMMUNICATION SCALE					
2	Functional: Accurate				
1	Non-Functional: Intentional				
0	None				
AROUSAL SCALE					
3	Attention				
2	Eye Opening w/o Stimulation				
1	Eye Opening with Stimulation				
0	Unarousable				
TOTAL SCORE				Diagnosis (circle): VS MCS- MCS+ eMCS	

CRS-R Training Vignette – Identifying Errors in CRS-R Administration and Scoring

Instructions: Read the case below. Document all errors in administration (n=8) by highlighting each error in the text and explaining the error on the Scoring Record Sheet below. In addition, document and explain scoring errors using the Scoring Record Sheet. Do not provide a final diagnosis.

Mr. Radiata is a 50-year-old gentleman who sustained an anoxic brain injury as the result of cardiac arrest 2 months ago. The family is in disagreement regarding the continuation of life-sustaining therapies and would like a thorough assessment of diagnosis before making final decisions. CRS-R assessment conducted over the last week has indicated the following diagnoses: VS/UWS, MCS-, MCS-, MCS-, VS/UWS. Today is the final CRS-R examination before the family meeting.

When you enter Mr. Radiata's room, he is lying in bed with his eyes closed. There is no spontaneous movement of the limbs and he does not open his eyes when you introduce yourself. Considering the underaroused state, you administer the arousal facilitation protocol and observe eye-opening, mouth opening, grimacing, and groaning. There is also flexion of the upper extremities. You begin administering commands, starting with "look up". Mr. Radiata does not follow the commands on the three trials so you move on to another command. You ask Mr. Radiata to give you a "thumbs up" and demonstrate for him by showing your thumb. He does a "thumbs up" on the first trial but does not respond to the next 3. Next, you stand in front of Mr. Radiata and clap your hands next to each ear, but he looks directly at you. You move to the back of the bed, clap your hands loudly, and notice a blink on two of four trials. You show Mr. Radiata a cup and ball and ask him to look at the ball (twice, after reversing the position) and do the same with the cup. He fixates on you on the first trial, then looks accurately at the ball, at the cup, and fixates you again for the last trial. When you place a ball once to the left and once right of his right hand, he does not respond. You show Mr. Radiata a mirror and tilt it up, down, left and right. He follows the mirror up on one occasion then when you do it again and his eyes do not move. He does not respond when you place a cup or pen in his hand and ask him how to use it, twice each. There is also no response when a spoon is brought up to his mouth and you ask him to show how to use it, or not to move, twice for each stimulus. When a ball is rolled on the dorsal surface of his right hand, he turns his hand over, extends his fingers and holds the ball for 5 seconds, twice out of 4 trials. You squeeze his left finger and he lifts his right hand twice. You then press the edge of a pencil into the nailbed on the right index finger and there is brisk withdrawal of the right hand, but no movement in the left. You are unable to elicit any speech. You ask six yes/no orientation questions but there is no response to any of the questions.

CRS-R Training Vignette: Identifying Errors in CRS-R Administration and Scoring

Document all errors in administration and scoring below.

Date:		Trainee Name:	
AUDITORY FUNCTION SCALE		Score	Comments
4	Consistent Movement to Command *		
3	Reproducible Movement to Command	3	
2	Localization to Sound		
1	Auditory Startle		
0	None		
VISUAL FUNCTION SCALE			
5	Object Recognition		
4	Object Localization: Reaching		
3	Visual Pursuit		
2	Fixation	2	
1	Visual Startle		
0	None		
MOTOR FUNCTION SCALE			
6	Functional Object Use		
5	Automatic Motor Response		
4	Object Manipulation	4	
3	Localization to Noxious Stimulation		
2	Flexion Withdrawal		
1	Abnormal Posturing		
0	None/Flaccid		
OROMOTOR/VERBAL FUNCTION SCALE			
3	Intelligible Verbalization		
2	Vocalization/Oral Movement	2	
1	Oral Reflexive Movement		
0	None		
COMMUNICATION SCALE			
2	Functional: Accurate		
1	Non-Functional: Intentional		
0	None	0	
AROUSAL SCALE			
3	Attention		
2	Eye Opening w/o Stimulation	2	
1	Eye Opening with Stimulation		
0	Unarousable		
TOTAL SCORE		13	