

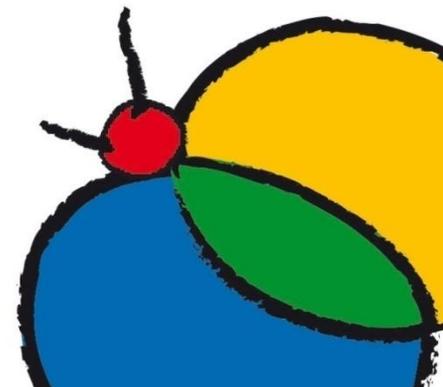
# Therapeutic interventions for an individual in a low awareness state

## A Case Study

Lorna Wales– Clinical Specialist Occupational Therapist

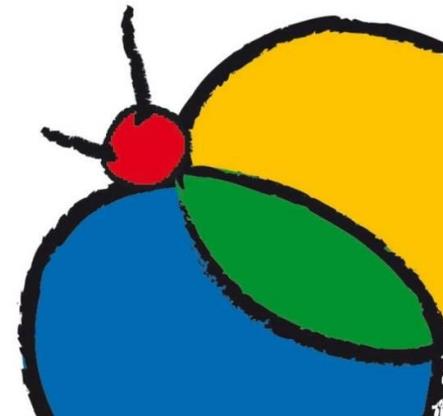
7<sup>th</sup> March 2012

(presentation/slides written by Milla Johnson, Clinical Specialist Occupational Therapist, The Children's Trust)



# Objectives

- Provide definitions of Low Awareness State Categories
- Explore characteristics features of Vegetative State (VS) & Minimally Conscious State (MCS)
- Consider appropriate assessment tools
- Demonstrate therapeutic interventions through a case study.



# Vegetative State

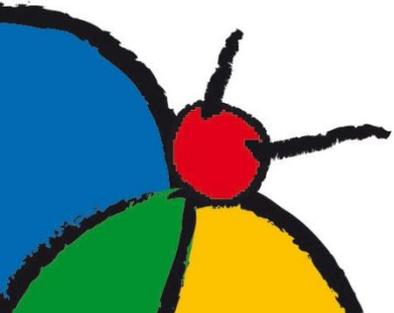
“ An organic body capable of growth and development but devoid of sensation, thought and social intercourse.”

Oxford English Dictionary

# Minimally Conscious State

“ The minimally conscious state is a condition of severely altered consciousness in which minimal but definite behavioural evidence of self or environmental awareness is demonstrated.”

Giacino et al 2002

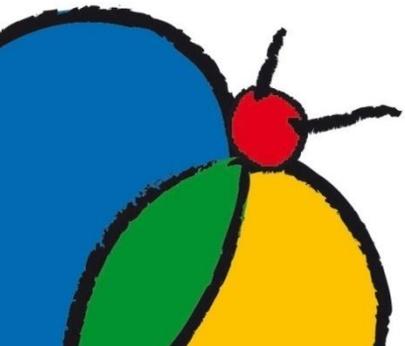
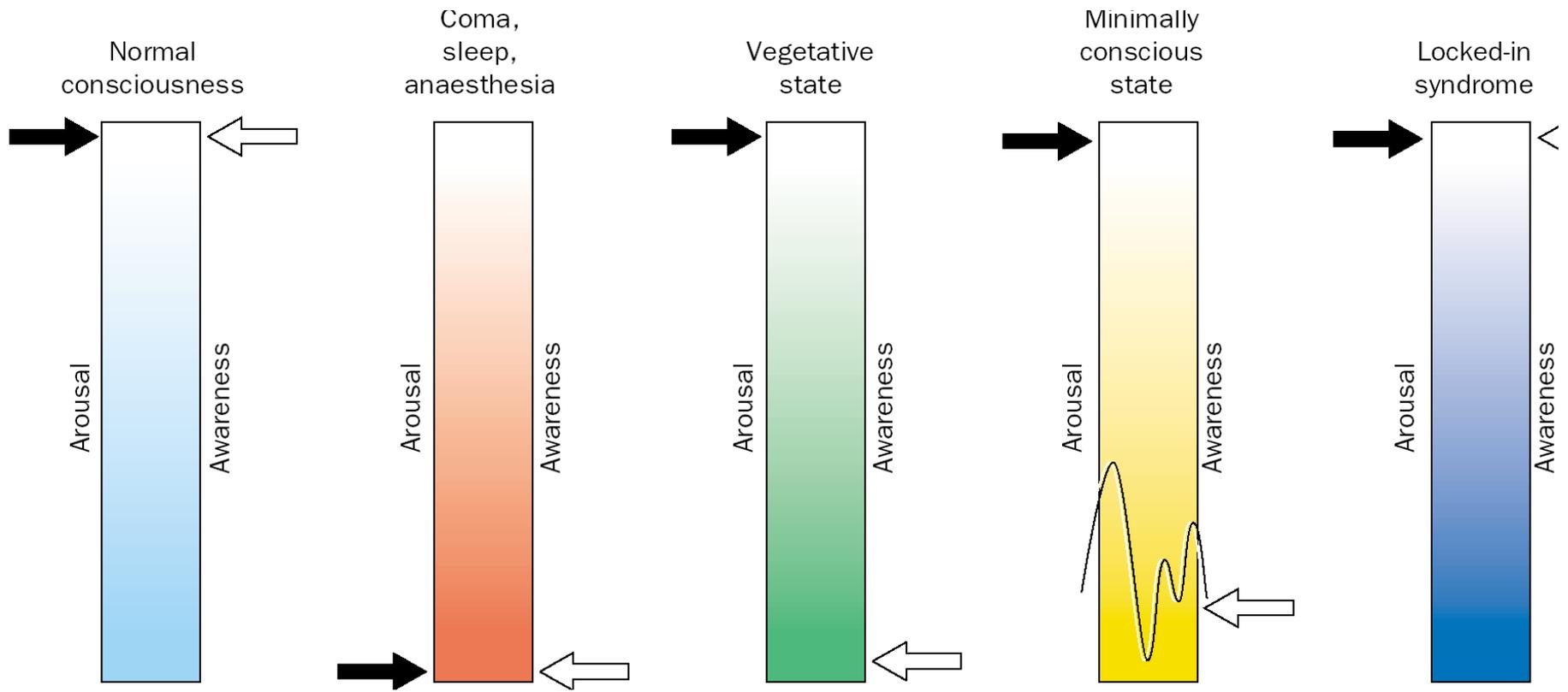


# Differential Diagnosis

Condition	Coma	VS	MCS	Locked in Syndrome
Self awareness	No	No	Partial	Full
Cyclical Eye Opening	No	Yes	Yes	Yes
Motor function	Reflex and postural	Postures / withdraws	Localises / reaches for objects	Quadriplegic; vertical eye movements
Experience pain	No	No	?	Yes
Respiratory function	Depressed / varied	Normal	Normal	Normal

# Differential Diagnosis cont...

Condition	Coma	VS	MSC	Locked in Syndrome
Auditory function	None	Startle / brief orientation	Follows commands inconsistently	Preserved
Visual function	None	Startle / brief orientation	Sustained visual fixation / pursuit	Preserved
Communication	None	None	Inconsistent verbal / gestures	Vertical Eye movement and blinking
Emotion	None	None / reflex smiling or crying	Contingent smiling or crying	Preserved



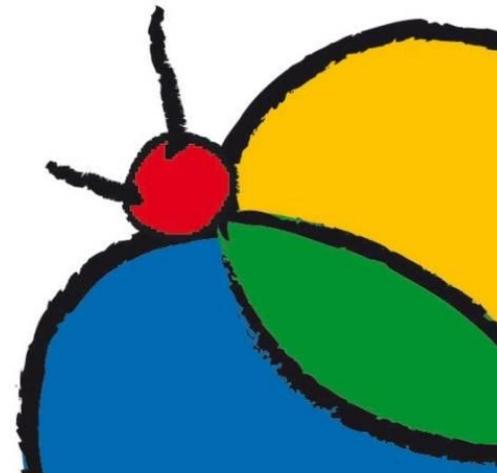
# Martha's Medical History

- 14 year old female
- Suffered hypoxic Central Nervous System damage in April 2009.
- Ventilated for 3 weeks, following extubation she began to breathe spontaneously.
- Due to nature of injury, the damage to her brain was diffuse, not focal.
- Low Awareness State
- Martha was admitted to The Children's Trust (TCT) approximately 6 months later.



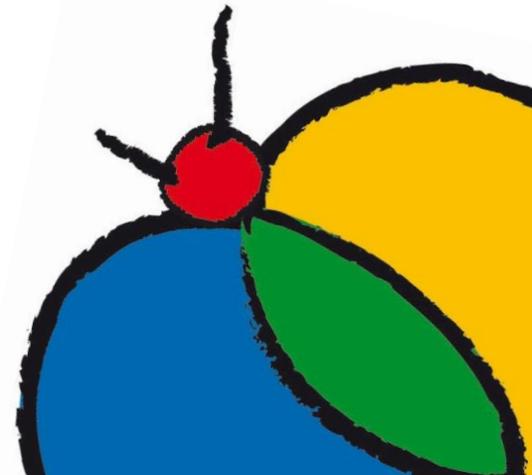
# Presentation on Admission

- No purposeful responses to sensory stimuli
- Reflexive responses, e.g. startle reflex, hyper-responsive to touch.
- Random eye movements.
- Some vocalisation, perceived to relate to –ve stimuli.
- Increased tone and spasticity in all four limbs
- No purposeful movements
- Poor arousal
- Unable to visit family home



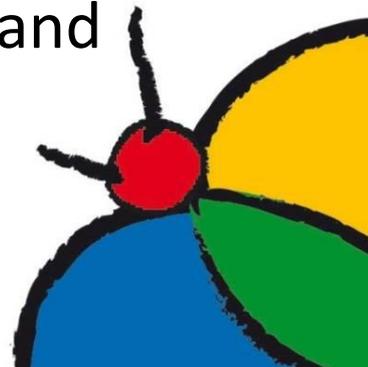
# Intervention and Management

- Communication
- Planning
- Supporting the whole family
- Palliative care
- Symptom management
- Rehabilitation



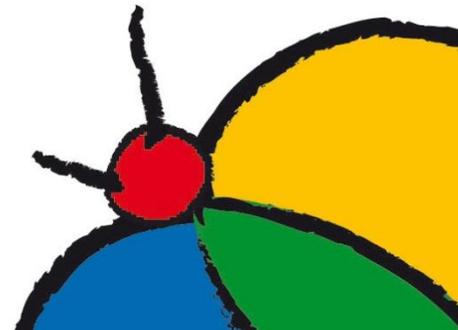
# Areas of Initial Rehabilitation Intervention.

- 24 hour postural management.
- Wheelchair and special seating provision
- Activities of daily living and postural management equipment
- Communication profile
- Environmental set up
- Management of nutrition and hydration
- Dysphagia
- Consistency of responses to sensory stimulation and cognitively mediated responses



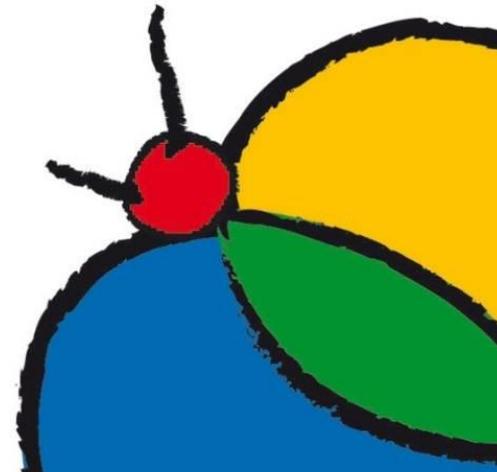
# Intervention continued

- Spasticity management including Orthotics.
- Hydrotherapy.
- Normalisation of sensation
- Activities of daily living (ADL)
- Major housing adaptation needs
- Wheelchair accessible vehicle
- Brain Injury training for Martha's family
- Contribution to Statement of Special Educational Needs
- Goal Attainment Scale goals

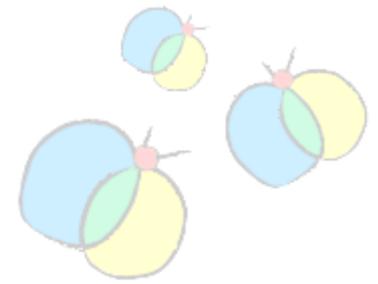


# Considerations for Intervention

- Symptom management
- Medication
- Pain
- Fatigue
- Parental involvement and communication
- Place of discharge



# Assessments Used



## Standardised Assessments

- Sensory Modalities and Rehabilitation Techniques (SMART)
- Wessex Head Injury Matrix (WHIM)
- Post-Acute Level of Consciousness Scale (PALOC-s)
- Nocioception Pain Scale
- Gross Motor Function Measure (GMFM)
- Rehabilitation Complexity Scale (RCS)

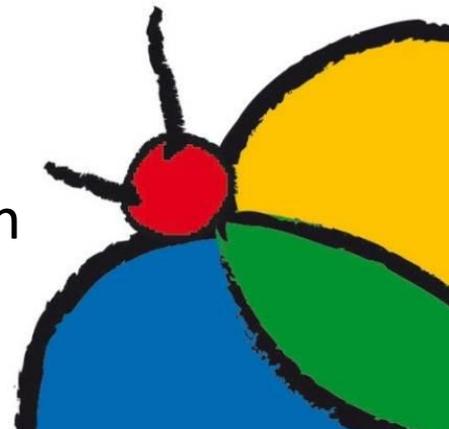
## Informal observations



# SMART

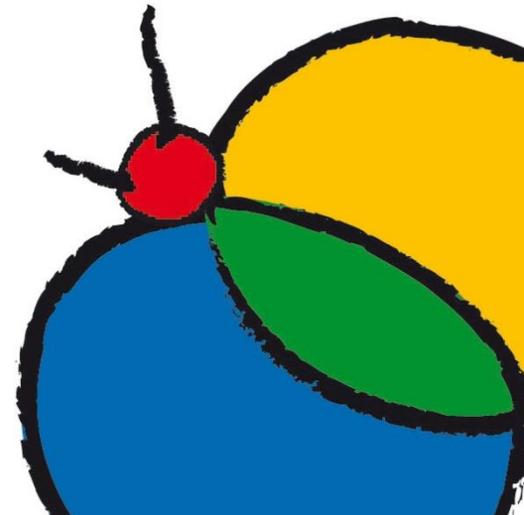
## Sensory Modalities and Rehabilitation Techniques

- Lifestyle History questionnaire
- Informs
- Behavioural observations
- Sensory Assessment
- Analysis of results
  - Treatment plan
  - Re- assessment after 8 week of intervention



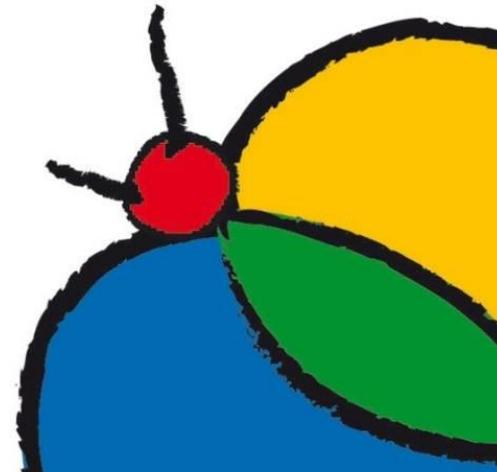
# SMART Modalities

- Visual
- Auditory
- Tactile
- Olfactory
- Gustatory
- Functional Movement
- Functional Communication
- Arousal Level



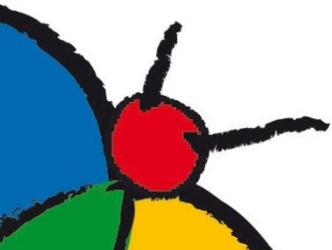
# Results of the SMART based assessment for Martha

- No consistent responses observed apart from Martha's arousal levels.
- Her most frequent response was at a reflexive level for all modalities.
- No purposeful movements demonstrated.
- A fatigue pattern was identified
- Responses were dependent on posture



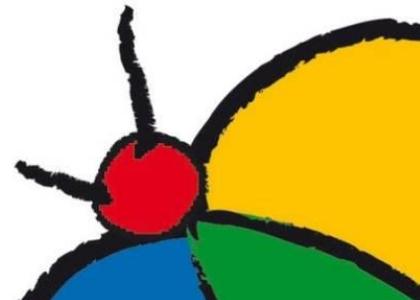
# Implications for Treatment following SMART

- Treatment programme concentrated on multimodal sensory input to elicit reflexive and withdrawal responses.
- Inclusion of repetition during sessions.
- Structured timetable, allowing rest periods between sessions
- Use of monitoring charts to record responses in sessions & increase objectivity.



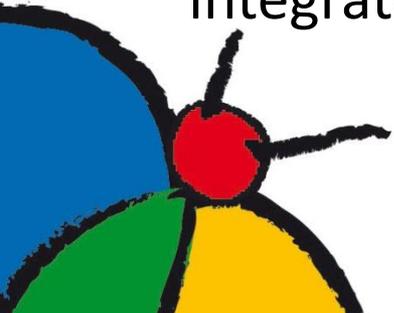
# Outcomes of Martha's period of rehabilitation

- Initial 'formal' assessment period provided a baseline for ongoing intervention.
- Formal standardized assessment did not indicate change
- Care giver burden was significantly reduced
- Able to put together an accurate communication passport
- Able to interpret non verbal behaviours communicatively.
- A total communication approach implemented
- Able to use movement and Martha's reflexive patterns to access adaptive equipment.



# Outcomes cont..

- Less hyper sensitive to touch and movement.
- More tolerant of 'busy' environments.
- Tone reduced, particularly in her upper limbs.
- Range of movements maintained
- Equipment needs identified and where possible purchased
- Martha's parents had greater understanding of her abilities.
- Education given to the extended family
- The family moved house and were able to have Martha home
- A suitable education environment identified and Martha integrated in





**A care pathway** for children and young people with life-threatening and life-limiting conditions related to **severe acquired brain injury**



  
**The Children's Trust**  
**Tadworth**  
The children with multiple disabilities

  
**Child Brain Injury**  
Trust

**ACT**  
Association for Children with Traumatic Brain Injury

Thank you for listening

Your thoughts?

