Outcome Measure	**Glasgow Outcome Scale – Extended (GOSE)**
Sensitivity to Change	No
Population	Adult and paediatric
Domain	Global Outcome
Study Suitability	Intervention - Rehabilitation
ICF-Code/s	b1, d1-d9
Description	The Glasgow Outcome Scale is a practical index of social outcome following head injury designed to complement the Glasgow Coma Scale as the basis of a predictive system (Jennett and Bond, 1975, Jennett et al. 1981). It is a simple, hierarchical rating scale with a limited number of broad categories. The scale focuses on how head injury had affected function in major life areas and is not intended to provide detailed information on specific deficits (Wilson et al. 1998). Individuals within any single outcome category represent a range of abilities (Jennett and Bond, 1975). Patients are assigned to one of 5 possible outcome categories: death, persistent vegetative state, severe disability, moderate disability, and good recovery (Jennett and Bond, 1975). In 1981, a revision to the scale was proposed to better classify patients who had regained consciousness (Jennett et al. 1981). In the Extended Glasgow Outcome Scale (GOSE), each of the 3 categories applicable to conscious patients are subdivided into an upper and lower band resulting in 8 possible categories (Death, Vegetative State, Lower Severe Disability, Upper Severe Disability, Lower Moderate Disability, Upper Moderate Disability, Lower Good Recovery, Upper Good Recovery. GOS ratings can be derived from the GOSE by collapsing these subdivisions (Wilson et al. 2000). The assignment of an individual to an outcome category should be based on the results of a structured interview focused on social and personal functional ability (Jennett et al. 1981). The final rating is based on the lowest category of outcome indication in the interview (Wilson et al. 2000).
Properties	**Test-retest reliability**: k ranged from 0.40 – 0.92 for the GOS and 0.40 – 0.87 for the GOSE; however, the retest period was lengthy ranging from 3 – 6 months (Maas et al. 1983); temporal stability on the GOSE demonstrated between in-person interview and telephone interview with the same rater approx. 6 days apart (k=.92) and between different raters 16 days apart (k=.84) (Pettigrew et al., 2003) . **Interobserver reliability**: Jennett et al. (1981) reported 95% agreement between observers using the original GOS; agreement between assessment based on a mail-administered research questionnaire and assessment via interview by a psychologist was reported to be r=0.79 while agreement between a GP's assessment and the psychologist

	interview was r=0.49 (Anderson et al. 1993); based on live interviews k=0.77 for GOS and 0.48 for GOSE – when ratings were based on previously recorded data, k=0.58 for GOS and 0.49 for GOSE – agreement between live and recorded data ratings, k=0.77 for GOS and 0.53 for the GOSE(Maas et al. 1983); 70% of GOS ratings were in perfect agreement while none differed by more than one category – for the GOSE none differed by more than one category –most discrepancy seen in the middle categories (Brooks et al. 1986); interviews by two independent rates of the same day (k=.85) for GOSE (Wilson et al., 1998); **Construct validity**: GOS ratings reported to be associated with results neurological testing of motor tasks, psychomotor tests, assessments of memory variables, attention variables such that neuropsychological test performance decreased as a function of increased severity on the GOS rating scale (Satz et al. 1998); performance on cognitive tests 3 months post injury differed significantly between outcome subgroups corresponding to GOS ratings demonstrating a clear gradation in cognitive scoring between groups in the expected direction – this relationship was not as clear when the GOSE was used (Brooks et al., 1986) **Construct validity (known groups)**: GOS scores could discriminate between groups based on categories of vocational recommendations (return to work, vocational training, supported work and continued remedial therapy; p<0.0001), GOS scores accounted for 76% variance between cell means (Mysiw et al. 1989) **Concurrent validity:** Admission DRS scores correlated with initial Stover& Zeiger (S-Z) ratings (r=0.92), discharge DRS scores correlated with discharge SZ scores (r=0.81), GOS scores (0.80) and EGOS scores (0.85) (Gouvier et al. 1987); GOS ratings correlated with SF-36 subscale scores (r=0.51 – 0.68, p<0.01; Jenkinson et al. 1993 cited in Teasdale et al. 1998); GOS scores correlated with DRS ratings at admission to (r=0.50, p<0.01) and discharge from rehabilitation (r=0.67, p<0.01; Hall et al. 1985) Predictive validity: GOS at discharge from rehabilitation significantly correlated with GOS 5 – 7 years after head injury (r=0.60, p<0.001) and with discharge destination (p<0.0001; Massagli et al. 1996); GOSE correlated with the DRS (r--.89), Barthel Index (r=.46), duration of PTA (r=.52), Beck Depression Inventory (r=.64), SF-36 subscales (r=.47-.71) and neruropsychological tests. The GOS-E Peds is highly correlated with its parent instrument, the GOS, and in a sample of infants, toddlers, and young children, the concurrent and predictive validity analyses indicate that the GOS-E Peds is an improvement over the GOS in relation to the VABS, a commonly used and developmentally appropriate parent rating of daily living skills (Beers et al. 2012).
Advantages	Well-established and commonly used measure world-wide. Psychometric properties well-established. Administration is relatively quick as interview begins with lowest levels of

	function and if able to perform at those levels then unlikely to do be able to do higher levels.
Disadvantages	Provides general index of global outcome, without detail of specific difficulties.
Additional Information	The GOSE is a Core measure in the Global Outcome Domain in both McCauley et al (2012) and Wilde et al (2010).
Reviewers	Vicki Anderson (paediatrics) Cathy Catroppa (paediatrics) Jenny Fleming (adults)

References

All references from:

Tate, R. L. (2010) *A compendium of tests, scales, and questionnaires: The practitioners guide to measuring outcomes after acquired brain impairment*. Psychology Press.