APPENDIX C

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Structured Interviews for the Glasgow Outcome Scale and the Extended Glasgow Outcome Scale: Guidelines for Their Use

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ABSTRACT

The Glasgow Outcome Scale (GOS) is the most widely used outcome measure after traumatic brain injury, but it is increasingly recognized to have important limitations. It is proposed that shortcomings of the GOS can be addressed by adopting a standard format for the interview used to assign outcome. A set of guidelines are outlined that are directed at the main problems encountered in applying the GOS. The guidelines cover the general principles underlying the use of the GOS and common practical problems of applying the scale. Structured interview schedules are described for both the five-point GOS and an extended eight-point GOS (GOSE). An interrater reliability study of the structured interviews for the GOS and GOSE yielded weighted kappa values of 0.89 and 0.85, respectively. It is concluded that assessment of the GOS using a standard format with a written protocol is practical and reliable.

Key words: Glasgow Outcome Scale; outcome assessment

INTRODUCTION

THE GLASGOW OUTCOME SCALE (GOS) (Jennett and Bond, 1975) has become the most widely used scale for assessing outcome after head injury and nontraumatic acute brain insults. Despite its popularity, the GOS is increasingly recognised to have important shortcomings (Anderson et al., 1993; Gouvier et al., 1986; Grant and Alves, 1987; et al., 1985; Maas et al., 1983). The aim of the present paper is to argue that many of the main criticisms may be overcome by adopting a standard, well-specified format for the interview, and by being clear about the purposes and limitations of the GOS assessment. A set of guidelines are proposed for using the GOS and the extended GOS, and information is given concerning the reliability of the structured interviews.

ADDRESSING LIMITATIONS OF THE GOS

Traditionally, outcome on the GOS has been assigned after a short interview, usually unstructured, and not involving a written protocol. This open-ended format encourages impressionistic use of the scale; the results are variable among individual assessors (Maas et al., 1983), and there is evidence of systematic bias between different professional groups (Anderson et al., 1993). The upper levels of the GOS are multidimensional, and the criteria for the upper categories are therefore ambiguous (Grant and Alves, 1987). The approach described below attempts to overcome such problems by adopting a standard format for the interview and identifying specific criteria for assigning an outcome category. The major categories of outcome used in the present structured

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interviews (Appendix) follow closely the descriptions of the Glasgow Outcome Scale provided by Jennett and Bond (1975), Jennett et al. (1981), and Jennett and Teasdale (1981). The questionnaires are designed to achieve greater objectivity and reliability than the traditional method of assigning an outcome category.

The GOS is sometimes interpreted as emphasizing physical rather than cognitive and emotional problems (Anderson et al., 1993). In fact, Jennett and Bond (1975) and Jennett et al. (1981) pointed out that mental change was more important than physical limitation in determining disability after head injury. However, in practice this precept is often overlooked: thus, Good Recovery may be taken to be physical independence in the absence of neurological deficits (Htitter and Gilsbach, 1993). In constructing the questionnaires, we used the aspect of social disability described by Jennett et al. (Jennett and Bond, 1975; Jennett et al., 1981; Jennett and Teasdale, 1981), including effects on social and leisure activities and disruption to family and friendships. This approach will necessarily assign fewer patients to the Good Recovery category than an interpretation restricted to physical or neurological limitations, but is more faithful to the original concept of social disability.

The GOS has also been criticized because there are no guidelines for dealing with commonly encountered problems, including the effects of extracranial injury, epilepsy, and preinjury unemployment (Anderson et al., 1993; Boake, 1996). These specific issues are discussed below, and suggestions are made for resolving the difficulties that can arise.

It is often commented that the GOS categories are broad, and the scale is therefore insensitive to subtle changes in functional status (Gouvier et al., 1986; Hall et al., 1985; Hall, 1992). Jennett et al. (1981) suggested that the GOS can be extended by dividing each of the upper three categories into "better" and "worse," but did not give criteria for making these distinctions. Several schemes for extending the GOS have been suggested (Horne and Schremitsch, 1989; Livingston and Livingston, 1985; Maas et al., 1983; Smith et al., 1979), but a general consensus has not emerged. The eight-point, extended Glasgow Outcome Scale (GOSE), develops the proposal of Jennett et al. (1981) by providing various criteria to subdivide the upper three categories of the scale. These criteria evolved through pilot work, and, in the final version, they are easy to apply and reliable, and give a division of the patients in each category. The questionnaires used to obtain the GOS and GOSE are identical apart from the inclusion of the additional items in the GOSE.

There are many contexts in which a more detailed assessment of specific limitations and their effects than that provided by either the GOS or GOSE is appropriate and desirable. The precise neurological, neuropsychological, emotional, and behavioral indices used will depend on the purpose of the assessment and the resources available to carry it out. An issue not fully resolved is the best choice of tests to supplement the GOS when it is adopted as a primary end point: sensible decisions require an understanding of the relationship between the GOS and other measures of impairment and disability.

GUIDELINES FOR STRUCTURED INTERVIEWS FOR THE GOS AND GOSE

Purpose of the GOS

The Glasgow Outcome Scale was developed to allocate people who have suffered acute brain damage from head injury or nontraumatic brain insults into broad outcome categories. The scale reflects disability and handicap rather than impairment; that is, it focuses on how the injury has affected functioning in major areas of life rather than on the particular deficits and symptoms caused by injury (World Health Organization, 1980). It is not intended to provide detailed information about the specific difficulties faced by individual patients, but to give a general index of overall outcome. It is of particular value in allowing the outcome of different groups of patients to be compared in a simple and easily interpreted fashion (Marshall, 1987). It has been recommended as a measure of outcome for clinical trials (Clifton et al., 1992) and has been widely adopted for this purpose.

Principle Areas Requiring Judgement

The questionnaires are designed to be used in a structured interview, and some background knowledge is necessary in order to administer the scale. Areas that may sometimes involve exercise of judgement can be summarized in four rules for applying the GOS:

1. Disability due to head injury is identified by a change from preinjury status. The scale is designed to assess changes and restrictions that have taken place as a result of head injury. Questions are included concerning preinjury status because pilot work indicated that this was a major confounding factor when determining outcome in the general head-injured population. In research samples, patients with premorbid difficulties are often excluded, and the issue of preinjury status may be less salient. The inclusion of questions concerning preinjury status makes it possible to assess preexisting disability and to make appropriate qualifications on the assessment of outcome after head injury; there are more detailed instructions under "scoring" below.

2. Only preinjury status and current status should be considered. The person's initial state after injury and hopes for the future are not relevant in determining outcome. "Current" status includes problems and capabilities evident over the past week or so. Some patients are more severely injured than others, and some seem to make a "remarkable" recovery considering their initial state. Nevertheless, as previously stated, a patient should not be said to have made a good recovery "considering how bad he was" (Jennett et al., 1981). Such considerations are not relevant in determining outcome, because it is the level reached that is important, and the severity of initial injury should not be taken into account. For research studies, it is recommended that the person who is assigning the GOS not be someone who has been involved in the acute care of the patient (Anderson et al., 1993). Similarly, interview at a stage when there has recently been relatively rapid improvement in the patient's state may produce an overoptimistic view, because there is an expectation of continuing recovery in the future. It is important to establish current capabilities independently of hope for future progress.

3. Disability must be a result of mental or physical impairment. The injury is an event that has occurred at a particular time, but not all changes that have taken place following the event will be due to the injury. Thus, if a patient is capable of performing the activity but does not do it for some reason they are not considered disabled. For example, the patient's financial circumstances may have changed, and this can produce a restriction in lifestyle. The precise question that is being asked is sometimes hypothetical: what exactly is the patient capable of even though they do not actually do it? If the answer to a question indicates that the head-injured person has some difficulty in a particular area, then it may be necessary to probe more deeply. After most of the main questions is a note amplifying the hypothetical issue that is being addressed, and there are further notes below. If necessary, the questioning should be continued to determine the answer to the hypothetical question.

4. Use the best source of information available. A necessary limitation of the approach is that it relies on verbal report, and much of the time the information provided will have to be taken at face value. However, it is important to remain aware of the circumstances in which information given is likely to be misleading, and the practical steps that can be taken to improve the quality of information: (a) In some cases a patient will lack insight, and whenever possible a relative or close friend of the head injured person should also be interviewed (Anderson et al., 1993; Jennett et al., 1981; McKinlay and Brooks, 1984). Patients are particularly likely to deny psychological changes, but it should be noted that there is also some evidence that relatives who are "worriers" may overreport postinjury problems (McKinlay and Brooks, 1984). The questionnaire is worded so that it can be used either with the patient or with a caregiver or relative, and information can be recorded separately from these sources if desired. (b) Particular indices such as return to work should not be given too much weight (Jennett et al., 1981). Enquiry may reveal that special arrangements have been made by an employer to accommodate the patient or that the patient is capable but work is lacking. (c) Responses that are contradictory or inconsistent indicate the need to explore more deeply or find another informant. (d) We recommend that the complete questionnaire be normally administered, because sometimes responses to later items can indicate the need to go back and question more thoroughly on earlier points or reevaluate the significance of earlier answers. For example, occasionally, a patient will give responses that indicate that they have specific problems with shopping or travel, but subsequent questioning indicates that they have returned to work, or normal social and leisure activities. Further consideration may indicate that such a person should be considered to be moderately disabled rather than severely disabled, that is, that they are capable of activities of independence outside the home, even if they have some difficulties with them.

Other Considerations

Risk of epilepsy. A patient may be prevented from driving after head injury because there is a risk of late epilepsy, although the person has not actually had a seizure. The restriction on driving may interfere with return to previous employment and other aspects of return to normal life even when the patient has otherwise made a complete recovery. We suggest that in these cases the restriction should be ignored for the purposes of determining an overall score on the GOS/GOSE. On the other hand, if the patient has actually suffered a seizure, then restrictions imposed by the risk of epilepsy should be taken into account.

Effect of head injury versus effects of other injuries or illness. Although the scale is directed at the effect of brain injury, it does not itself distinguish changes due to injury to the brain from disability caused by injury to other parts of the body. Some patients with multiple injuries may have lost functioning due to injuries to the limbs. Depending on the purposes for which the scale is used, it may be important at the time of interview to distinguish any such effects from those caused by brain injury. Anderson et al. (1993) found that general practitioners may assign GOS score on the basis of physical disability independent of head injury. It is usually relatively easy to

discount any minor effects of injury to other parts of the body. However, in some cases when such injuries are severe, for example, major spinal injury, it will be difficult to assign a GOS that reflects only the effects of head injury. This should be noted appropriately when reporting the GOS.

Age Range

The GOS has customarily been used with both adults and children. However, the reliability of the GOS applied to children is unknown; in the case of very young children, the GOS criteria appear to be largely inapplicable. The current approach is designed for use with people aged 16 years and upwards.

Timing of Assessment Postinjury

The scale is intended for use after discharge from hospital, and, in particular, moderate disability and good recovery are not assessable until after discharge. Reports should always include the timing of assessment.

Assigning an Outcome Category

The GOS and GOSE are simple hierarchical scales in which the patient's overall rating is based on the lowest outcome category indicated. Outcome categories are given in brackets on the right side of the questionnaires.

Severe disability. Obtain answers to all the main questions concerning independence and the questions concerning preinjury problems in these areas (Q2—Q4). If the patient was fully independent before the injury, and the answers to one or more of the dependence questions indicate that this is no longer the case, then they are Severely Disabled (SD).

Moderate disability. Obtain answers to all the main questions concerning disability, and the questions concerning preinjury problems (Q5—Q7). If the patient had no prior problems and the answers to one or more of the questions concerning current difficulties indicate that this is no longer the case, then they are Moderately Disabled (MD). If the patient had prior difficulty in one or two of the areas, then they can usually be rated on the basis of the answers to the remaining questions. Sometimes a patient will have had prior problems, but these have become markedly worse as a result of injury, and this change can be used in rating. If the person was unemployed and not seeking work before the injury, then they should be rated on the answers given to questions 6 and 7. For example, if the person is long-term unemployed or retired, then they should be rated on social and leisure activities and personal relationships. Question 6c is included because people may have a very restricted preinjury social repertoire (for example, the chronically ill or people who are socially isolated), and it may not be sensible to rate them on this question. In general, it is not uncommon for people to have preinjury difficulties in one or two of these areas, and it will usually be possible to determine an outcome on the basis of the other questions.

Good recovery. If the patient does not fulfill the criteria for any of the lower outcome categories, then they are considered to be a Good Recovery. Note that the "Good Recovery" category includes people with minor disability. On the GOSE, patients with minor disability are assigned to the lower band of Good Recovery, and those without any head injury related disability to the upper band.

Preinjury disability. There are some cases that are problematic because of the presence of very significant preinjury problems and severe preinjury dependency. Such cases will be excluded from studies aimed at researching the nature of the effects of injury on the brain but must be included in comparisons of clinical cohorts managed in different ways. It is therefore important to be able to give a rating to everyone if necessary. The approach suggested here is to rate such people on their current functional status and to indicate the existence of preinjury disability by putting a "*" beside the rating. These ratings can then be interpreted as meaning "still disabled at this level" or "disability no worse than this level" and dealt with appropriately in analysis. The circumstance in which we specifically suggest that cases are treated in this way is as follows. If the patient was not fully independent before injury, then they should be rated Severely Disabled* (SD*) (or upper or lower SD* on the GOSE depending on the degree of preinjury disability). Depending on the purpose of the study, this approach could be extended by collecting more detailed information concerning the nature and level of preinjury disability.

In addition to the overall rating, the form gives a permanent record of current problem areas and prior limitations. This information serves as a source for audit of the data and can also be coded and used in analysis of outcome. The responses can be recorded as numerals in the boxes to aid computer coding (it is not intended that these digits should be added up). It should be borne in mind that responses to individual items may have lower reliability than the overall rating.

Definition of terms and notes to individual questions are given in the Appendix. The information given is deliberately detailed to allow the scales to be used by the nonspecialist.

Reliability

Patients. Fifty patients (eight female) were recruited from head injury admissions to the regional neurosurgi-

TABLE 1. DISTRIBUTIONS OF GOS RATINGS MADE BY A PSYCHOLOGIST AND RESEARCH NURSE FOR 50 HEAD-INJURED PATIENTS

Nurse / Psychologist	Severe disability	Moderate disability	Good recovery	
Severe disability		0	0	36%
Moderate disability		11	0	24%
Good recovery	1	2		40%
	40%	26%	34%	

cal unit. The patients were aged 18-76 years of age at the time of injury (mean = 39.4; SD = 16.5). Classification of severity of injury by worst recorded GCS indicated that 30% were severely injured (GCS 3-8), 14% had moderate injuries (GCS 9-12), and 56% were mild (GCS 13-15). The study was restricted to conscious survivors.

Procedure. Patients were interviewed 5-17 months postinjury (mean = 10.2 months; SD = 3.9). In 36 cases, the patient was interviewed alone, and in 14 the patient was seen together with a caregiver, relative, or friend. The outcome category was independently assigned by a research psychologist and either one of two research nurses. Interviews were carried out face to face on the same day. Raters carried out a structured interview using the GOSE questionnaire and used the information to assign outcomes on both eight-point and five-point scales.

Results. Preinjury limitations were reported in the following areas (number of cases in brackets): independence in home (1); shopping (1); work (17); social and leisure activities (2); family and friendships (6); other complaints (4). Two cases were rated as upper SD*, and these were treated as upper SD in the analysis. Distributions of ratings for the GOS and GOSE are shown in Tables 1 and 2. Overall agreement between raters was 92% for the GOS and 78% for the GOSE. As can be seen from Table 1, there were four cases in which there was disagreement between raters on the GOS, and in one case there was a disagreement of two categories. Review of these cases indicated that in three instances the respondent had given different information to the interviewers, and in one case the interviewer had misinterpreted a question. The patient with the largest disagreement had a history of alcoholism and was suffering from a wasting disease of the spine; he told one interviewer that he needed assistance for daily activities and did not like being away from home; however, he told the second interviewer that he went out six or seven times per week. The weighted kappa statistic was computed for observations between raters; this statistic takes into account the seriousness of disagreement between raters (Brennan & Silman, 1992). For the five-point scale κ_w was 0.89 and for the eight-point scale κ_w was 0.85.

CONCLUSION

The proposed structured interviews achieve a systematic subdivision of patients into outcome categories and have satisfactory interrater reliability. The kappa values for both the GOS and GOSE are regarded as "very good" (Brennan and Silman, 1992). Overall levels of interrater agreement in the present study compare favorably with previous reports (Anderson et al., 1993; Jennett et al., 1981; Maas et al., 1983): for example, Maas et al. (1983) report kappa values of 0.77 for the five-point scale and 0.48 for the eight-point scale in a "live" situation. Improved reliability does not completely eliminate limitations such as the use of broad social roles to define outcome categories, the reliance on verbal report, and the need for the exercise of some judgement by the interviewer. Nevertheless, the advantages of the GOS remain its simplicity, wide recognition, and the fact that differ-

TABLE 2. DISTRIBUTIONS OF GOS RATINGS MADE BY A PSYCHOLOGIST AND RESEARCH NURSE FOR 50 HEAD-INJURED PATIENTS

Nurse	Severe disability		Moderate disability		Good recovery		
Psychologist	Lower	Upper	Lower	Upper	Lower	Upper	
Severe disability							
Lower	a						16%
Upper	3	2					20%
Moderate disability							
Lower		1	7				18%
Upper							6%
Good recovery							
Lower		1	2		2	2	28%
Upper					20%	5	12%
22%		18%	18%	8%		14%	

ences in disability are clinically meaningful. Provided that the purpose and limits, as well as the benefits, of the GOS are appreciated, it can continue to have a central place in the assessment of head injury outcome.

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APPENDIX: Notes to Questions and Definition of Terms

Q1. Vegetative State

The definition of the vegetative state given in Q1 follows that given by Jennett et al. (1981). The Royal College of Physicians have published guidelines for deciding whether a patient is in a persistent vegetative state, and the simple approach suggested here is not intended to replace these guidelines in the management of the individual patient. If the patient is unable to obey commands or say words for some other reason, for example, because they are severely demented, then they are not in the vegetative state. "Any words" includes repetition of a simple word such as "No." A person able to communicate using a code would no longer be in the vegetative state.

Q2. Independence in the Home

Q2a. Dependency may be caused by physical impairment, but it is also often due to mental changes. People may require actual assistance with activities of daily living, they may need prompted or reminded to do things, or they may need someone with them to supervise them because they would be unsafe otherwise. In all these cases, they are dependent. However, many people receive assistance, but do not absolutely depend on it. This care or protection that is given by others should be distinguished from dependency: the person may well benefit from this help and may well have a real need for it, but such care does not mean that they are dependent in the sense required here.

A difficulty may arise if an activity was not normally carried out before the injury. For example, many men have little practical involvement in domestic matters and quite often will not usually prepare meals for themselves. In this case, it is sufficient that the person could, if the necessity arose, prepare food, even if this would be in a simple fashion.

Examples of minor domestic crises: what you do if . . . a glass gets dropped and broken, a tap is left running, a light goes out, it begins to get cold, a stranger comes to the door, . . . The person should be able to use the telephone to report problems or summon help.

Q2b (GOSE only). The patient is considered to be in the lower category of severe disability if they cannot be left alone for 8 h. This limit implies that a relative who is caring for them cannot work. If it is necessary to establish a time limit, it can be helpful to ask "what is the maximum amount of time they can be left alone?"

Q3. Shopping and Q4. Travel: Independence Outside the Home

Independence outside the home requires ability to plan, to take care of money, and behave appropriately in public. It must be established if the person is actually capable of carrying out these activities, rather than whether they do or not.

Q5. Work

Work is only used as an indicator of outcome if the person was working or actively seeking work before the injury, or if they were studying.

Q5a. "Work" refers to jobs that are paid at a reasonable rate and which, in principle at least, are open to others. "Reduced capacity for work"—Any of the following indicate reduced capacity for work: (a) change in level of skill or responsibility required; (b) change from full-time to part-time working; (c) special allowances made by employer (e.g., increased supervision at work); and (d) change from steady to casual employment (i.e., no longer able to hold steady job).

Note that sometimes change in employment status may be unrelated to head injury, e.g., due to end of contract, retirement, or redundancy. Such changes do not indicate a reduced capacity for work.

Students Q5a. If the person was a student before injury, then "study" can be substituted for "work." Students should be able to return to their previous course and not have noted adverse effects on their ability to study. If someone has been absent from college because of injury, then there may be some disruption caused by the absence itself, and this needs to be discounted when considering if the person has problems due to the head injury. Examples of problems which indicate reduced capacity for study: (a) increased difficulties in studying (e.g., needing to spend much more time than before); (b) unaccustomed problems with progress (e.g., failing examinations); and (c) revised program of study because of problems (e.g., studying for a lesser qualification).

Q5b (GOSE only). "Noncompetitive work" includes work done voluntarily, jobs that are specifically designated for disabled people, and work in sheltered workshops. Normally, ability to work is indicative of independence; however, occasionally, someone in the upper severe disability range may be working in a sheltered workshop.

Students, QSb. (a) If the student has a reduced capacity for study but is still studying, then they are Upper Moderate disability; and (b) if the student is currently unable to study, then they are Lower Moderate disability.

Q6. Social and Leisure Activities

Social and leisure activities will vary depending on the age and background of the patient. Representative social and leisure activities reported by patients in Glasgow include the following: (a) participating in sport, e.g., football, swimming etc., (b) attending sporting events as a spectator, (c) going walking, (d) going to a club or pub, and (e) visiting friends.

Some leisure activities are seasonal, and one must be careful to exclude changes in activity that are simply due to this factor.

Typical problems that may interfere with social and leisure activities: lack of motivation or initiative, avoidance of social involvement, physical problems such as loss of mobility, cognitive problems such as poor concentration, and problems such as poor temper control or impatience.

Q6b. Extent of restriction. If it is necessary to question in detail, then ask the person how often they participated in social and leisure activities outside the home before the injury (i.e., how many occasions per week) and how often they participate now.

Measuring extent of participation is in terms of occasions per week emphasizes a quantifiable aspect of social and leisure activities. Sometimes, quality of participation is affected by the head injury; for example, the person may become a spectator in a sport rather than an active participant. However, changes such as this are very difficult to quantify and can reflect the specially demanding nature of some sports. Thus, for the sake of simplicity, it is the fact of participation that is rated in the interview. Experience suggests that the main effect of head injury on social and leisure activities tends to be withdrawal from activities that involve social interaction: the simple approach adopted here is sensitive to such changes.

Q6c. Participating regularly in social and leisure activities means participating in at least one activity outside the home each week.

Q7. Family and Friendships

The question is specifically aimed at alterations in relationships as a result of head injury. The presence of a reported change in personality is not of itself sufficient to warrant classifying the person as moderately disabled—the change must be having an adverse impact on family and friendships.

Q7b. Extent of disruption or strain. The following definitions apply: (a) Occasional—Some problems since injury, but less than once a week and not causing continuous strain. For example, occasional bad temper, but things blow over. (b) Frequent—Problems at least weekly, strain on relationships, but regarded as tolerable. For example, temper outbursts at least once a week resulting in modification of closeness of relationships. (c) Constant daily problems—Breakdown or threatened breakdown of relationship within family or friendship; problems regarded as intolerable. If a family have become very withdrawn and socially isolated as a result of injury, then this also represents constant disruption.

Q8 (GOSE Only). Return to Normal Life

Q8a. The list of problems here includes those described as the postconcussion syndrome. The problems are impairments; in order to cause disability, they must impinge on functioning in everyday life. Similar problems are reported in the general population: it is thus important to establish that the problems have developed since injury.

STRUCTURED INTERVIEWS FOR THE GOS AND GOSE

Glasgow Outcome Scale

Patient's name: _____ Date of interview: _____

Date of Birth: _____ Date of injury _____ Gender: M / F

Age at injury: _____ Interval post-injury: _____

Respondent: Patient alone ___ Relative/ friend/ carer alone ___ Patient + relative/ friend/ carer ___

Interviewer: _____

CONSCIOUSNESS

1. Is the head injured person able to obey simple commands, or say any words? ☐ 1 = No (VS) 2 = Yes

Anyone who shows ability to obey even simple commands, or utter any word or communicate specifically in any other way is no longer considered to be in the vegetative state. Eye movements are not reliable evidence of meaningful responsiveness. Corroborate with nursing staff. Confirmation of VS requires full assessment as in the Royal College of Physician Guidelines.

INDEPENDENCE IN THE HOME

2a Is the assistance of another person at home essential every day for some activities of daily living? ☐ 1 = No 2 = Yes (SD)

For a 'No' answer they should be able to look after themselves at home for 24 hours if necessary, though they need not actually look after themselves. Independence includes the ability to plan for and carry out the following activities: getting washed, putting on clean clothes without prompting, preparing food for themselves, dealing with callers, and handling minor domestic crises. The person should be able to carry out activities without needing prompting or reminding, and should be capable of being left alone overnight

2c Was assistance at home essential before the injury? ☐ 1 = No 2 = Yes

INDEPENDENCE OUTSIDE THE HOME

3a Are they able to shop without assistance? ☐ 1 = No (SD) 2 = Yes

This includes being able to plan what to buy, take care of money themselves, and behave appropriately in public. They need not normally shop, but must be able to do so.

3b Were they able to shop without assistance before the injury? ☐ 1 = No 2 = Yes

4a Are they able to travel locally without assistance? ☐ 1 = No (SD) 2 = Yes

They may drive or use public transport to get around. Ability to use a taxi is sufficient, provided the person can phone for it themselves and instruct the driver.

4b Were they able to travel without assistance before the injury? ☐ 1 = No 2 = Yes

WORK

5a Are they currently able to work to their previous capacity? ☐ 1 = No (MD) 2 = Yes (GR)

If they were working before, then their current capacity for work should be at the same level. If they were seeking work before, then the injury should not have adversely affected their chances of obtaining work or the level of work for which they are eligible. If the patient was a student before injury then their capacity for study should not have been adversely affected.

5c Were they either working or seeking employment before the injury (answer 'yes') or were they doing neither (answer 'no')? ☐ 1 = No 2 = Yes

SOCIAL & LEISURE ACTIVITIES

6a Are they able to resume regular social and leisure activities outside home? ☐ 1 = No - Go to 6b 2 = Yes (GR)

They need not have resumed all their previous leisure activities, but should not be prevented by physical or mental impairment. If they have stopped the majority of activities because of loss of interest or motivation then this is also considered a disability.

6b What is the extent of restriction on their social and leisure activities?
a) Participate a bit less: at least half as often as before injury.
b) Participate much less or unable to participate
☐ 1 = a (GR) 2 = b (MD)

6c Did they engage in regular social and leisure activities outside home before the injury? ☐ 1 = No 2 = Yes

FAMILY & FRIENDSHIPS

7a Have there been psychological problems which have resulted in ongoing family disruption or disruption to friendships? ☐ 1 = No (GR) 2 = Yes - Go to 7b

Typical post-traumatic personality changes: quick temper, irritability, anxiety, insensitivity to others, mood swings, depression, and unreasonable or childish behaviour.

7b What has been the extent of disruption or strain?
a) Occasional - less than weekly
b) Frequent or constant - once a week or more
☐ 1 = a (GR) 2 = b (MD)

7c Were there problems with family or friends before the injury? ☐ 1 = No 2 = Yes

If there were some problems before injury, but these have become markedly worse since injury then answer 'No' to 7c.

Epilepsy:
Since the injury has the head injured person had any epileptic fits? No / Yes
Have they been told that they are currently at risk of developing epilepsy? No / Yes

What is the most important factor in outcome?
Effects of head injury ___ Effects of illness or injury to another part of the body ___ A mixture of these ___

Scoring: The patient's overall rating is based on the lowest outcome category indicated on the scale. Refer to Guidelines for further information concerning administration and scoring.

1	Dead	☐
2	Vegetative State (VS)	
3	Severe Disability (SD)	
4	Moderate Disability (MD)	
5	Good Recovery (GR)	

Glasgow Outcome Scale - Extended

Patient's name: _____ Date of interview: _____

Date of Birth: _____ Date of injury _____ Gender: M / F

Age at injury: _____ Interval post-injury: _____

Respondent: Patient alone ___ Relative/ friend/ carer alone ___ Patient + relative/ friend/ carer ___

Interviewer: _____

CONSCIOUSNESS

1. Is the head injured person able to obey simple commands, or say any words? ☐ 1 = No (VS) 2 = Yes

Anyone who shows ability to obey even simple commands, or utter any word or communicate specifically in any other way is no longer considered to be in the vegetative state. Eye movements are not reliable evidence of meaningful responsiveness. Corroborate with nursing staff. Confirmation of VS requires full assessment as in the Royal College of Physician Guidelines.

INDEPENDENCE IN THE HOME

2a Is the assistance of another person at home essential every day for some activities of daily living? ☐ 1 = No 2 = Yes If "No" go to question 3a.

For a 'No' answer they should be able to look after themselves at home for 24 hours if necessary, though they need not actually look after themselves. Independence includes the ability to plan for and carry out the following activities: getting washed, putting on clean clothes without prompting, preparing food for themselves, dealing with callers, and handling minor domestic crises. The person should be able to carry out activities without needing prompting or reminding, and should be capable of being left alone overnight.

2b Do they need frequent help or someone to be around at home most of the time? ☐ 1 = No (Upper SD) 2 = Yes (Lower SD)

For a 'No' answer they should be able to look after themselves at home for up to 8 hours during the day if necessary, though they need not actually look after themselves.

2c Was assistance at home essential before the injury? ☐ 1 = No 2 = Yes

INDEPENDENCE OUTSIDE THE HOME

3a Are they able to shop without assistance? ☐ 1 = No (Upper SD) 2 = Yes

This includes being able to plan what to buy, take care of money themselves, and behave appropriately in public. They need not normally shop, but must be able to do so.

3b Were they able to shop without assistance before the injury? ☐ 1 = No 2 = Yes

4a Are they able to travel locally without assistance? ☐ 1 = No (Upper SD) 2 = Yes

They may drive or use public transport to get around. Ability to use a taxi is sufficient, provided the person can phone for it themselves and instruct the driver.

4b Were they able to travel without assistance before the injury? ☐ 1 = No 2 = Yes

WORK

5a Are they currently able to work to their previous capacity? ☐ 1 = No 2 = Yes

If they were working before, then their current capacity for work should be at the same level. If they were seeking work before, then the injury should not have adversely affected their chances of obtaining work or the level of work for which they are eligible. If the patient was a student before injury then their capacity for study should not have been adversely affected.

5b How restricted are they?
a) Reduced work capacity.
b) Able to work only in a sheltered workshop or non-competitive job, or currently unable to work.
☐ 1 = a (Upper MD) 2 = b (Lower MD)

5c Were they either working or seeking employment before the injury (answer 'yes') or were they doing neither (answer 'no')? ☐ 1 = No 2 = Yes

SOCIAL & LEISURE ACTIVITIES

6a Are they able to resume regular social and leisure activities outside home? ☐ 1 = No 2 = Yes

They need not have resumed all their previous leisure activities, but should not be prevented by physical or mental impairment. If they have stopped the majority of activities because of loss of interest or motivation then this is also considered a disability.

6b What is the extent of restriction on their social and leisure activities?
a) Participate a bit less: at least half as often as before injury.
b) Participate much less: less than half as often.
c) Unable to participate: rarely, if ever, take part.
☐ 1 = a (Lower GR) 2 = b (Upper MD) 3 = c (Lower MD)

6c Did they engage in regular social and leisure activities outside home before the injury? ☐ 1 = No 2 = Yes

FAMILY & FRIENDSHIPS

7a Have there been psychological problems which have resulted in ongoing family disruption or disruption to friendships? ☐ 1 = No 2 = Yes

Typical post-traumatic personality changes: quick temper, irritability, anxiety, insensitivity to others, mood swings, depression, and unreasonable or childish behaviour.

7b What has been the extent of disruption or strain?
a) Occasional - less than weekly
b) Frequent - once a week or more, but tolerable.
c) Constant - daily and intolerable.
☐ 1 = a (Lower GR) 2 = b (Upper MD) 3 = c (Lower MD)

7c Were there problems with family or friends before the injury? ☐ 1 = No 2 = Yes

If there were some problems before injury, but these have become markedly worse since injury then answer 'No' to Q7c.

RETURN TO NORMAL LIFE

8a Are there any other current problems relating to the injury which affect daily life? ☐ 1 = No (Upper GR) 2 = Yes (Lower GR)

Other typical problems reported after head injury: headaches, dizziness, tiredness, sensitivity to noise or light, slowness, memory failures, and concentration problems.

8b Were similar problems present before the injury? ☐ 1 = No 2 = Yes

If there were some problems before injury, but these have become markedly worse since injury then answer 'No' to Q8b.

Epilepsy:
Since the injury has the head injured person had any epileptic fits? No / Yes
Have they been told that they are currently at risk of developing epilepsy? No / Yes

What is the most important factor in outcome?
Effects of head injury ___ Effects of illness or injury to another part of the body ___ A mixture of these ___

Scoring: The patient's overall rating is based on the lowest outcome category indicated on the scale. Refer to Guidelines for further information concerning administration and scoring

1	Dead
2	Vegetative State (VS)
3	Lower Severe Disability (Lower SD)
4	Upper Severe Disability (Upper SD)
5	Lower Moderate Disability (Lower MD)
6	Upper Moderate Disability (Upper MD)
7	Lower Good Recovery (Lower GR)
8	Upper Good Recovery (Upper GR)