

The Edinburgh Cognitive and Behavioural ALS Screen (ECAS)

Administration and Guidance Notes 2013

Fersiwn Gymraeg 2018

Canllawiau i helpu i weinyddu

Dydy'r canllawiau heb ei gyfieithu yn ei cyfanrwydd i'r Gymraeg ond mae'r cwestiynnau ofynnir i'r person a'r atebion yn y Gymraeg wedi adio islaw gyda cefndir melyn fel hyn.

The ECAS is a practical screening tool that incorporates a range of short cognitive tests that have been shown to be sensitive to cognitive impairment in ALS. The ECAS has been designed to differentiate between the different profiles common with ageing including depression, Alzheimer's disease and Fronto-Temporal Dementia. Executive Functions, Memory, Language, Visuo-Spatial skills and Social cognition are specifically assessed whilst a Behavioural and Psychosis brief interview can be carried out with carers or relatives. The ECAS is designed for ALS patients and answers can be given verbally, or by a combination of writing or pointing. It is suitable for patients who are anarthric or patients who have no hand motor function. The total score is 136 points and should take no longer than 15 minutes to administer.

Equipment required

To carry out the ECAS, you will need a clock or a watch with a second hand (though a stopwatch would be preferable). A calculator is recommended for calculations (though these can also be carried out by hand). Answers can be written or spoken, though should be spoken where possible. If answers are to be written, extra sheets of paper and a selection of pens that will suit the person's writing ability will be required.

Language – Naming: Score 0-8

Administration: There are eight pictures displayed. Ask the person to name the objects shown. No time limit is enforced for the task. Incorrect answers are recorded and no prompt for alternative word is provided. A correct score will only be given if the exact name is said or spelled correctly. Self-corrections are allowed; only the final answer is taken for scoring. If the participant answers with the word of ribbon for bow and squeeze box for accordion, prompt once with "Do you know another name for this object?" "Ydych chi'n adnabod enw arall ar gyfer hwn?". If the person answers with a lower frequency name which is correct, such as hatchet for axe, score as correct.

Scoring: One point is given for every correct name given. **Correct answers are (left to right, top to bottom); scorpion, flag, helicopter, fox, axe, squirrel, swan, accordion.** **Atebion cywir (chwith i'r dde): sgorpion, banner, hofrennydd, cadno/llwynog, bwyell, wiwer, alarch, acordion**

Language – Comprehension: Score 0-8

Administration: Using the pictures from the naming task, ask the person to correctly answer the questions. Questions are either read by the person or to the person, depending on preference. Some questions will require the repetition of an earlier item to serve as an answer; participants are not warned about this in advance but this can be clarified if queried. If no answer is provided, answer space is to be left blank. Self-corrections are allowed; only the final answer is taken for scoring.

Scoring: One point is given for every correct answer given. **Correct answers are; helicopter, swan, squirrel, axe, helicopter, axe, scorpion, squirrel. Atebion cywir: 1.hofrennydd, 2.alarch, 3.wiwer, 4.bwyell, 5.hofrennydd, 6.bwyell, 7.scorpion, 8.wiwer.**

Memory – Immediate Recall: Score 0-10

Administration: Say: “I am going to read you a short story. Please listen carefully. When I am finished, say or write as much as you can remember.”

Story should be read at a steady pace of 2 words per second/the story should take around 20 seconds to read out.

When finished reading story aloud, say to participant “Now that’s the end of the story, what can you remember?” **“Dyna ddiwedd y stori, beth allwch chi ei gofio?”**

Time for recall is unlimited, until participants say that they can remember no more. Self-corrections are allowed; only the final answer is taken for scoring.

Scoring: Score 1 point for each (either entire or part of) underlined section recalled.

For example “annual litter collection” recalled as ‘*annual collection*’ ‘*litter collection*’ or ‘*annual rubbish collection*’ would each score 1 point. Number information must be recalled accurately, for example “Forty two people” recalled as ‘*forty something*’ would score 0 points. This immediate recall score will **also** be used later on to calculate the percentage of memory retained over time. No prompts should be given for specific information, only “is that everything you can remember” **“Ai dyna popeth allwch chi ei gofio?”** should be asked to confirm participant is finished recall.

Language – Spelling: Score 0-12

Administration: Say “Spell, either by writing or speaking, the following words.” **“Sillafwch y geiriau canlynol, nail ai drwy eu hysgrifennu neu ar lafar,”**

If the person is using assistive technology, ask them to turn off any predictive text facility.

Unlimited time is given for spelling of each word. All words are assessed even if early words in the list are incorrect. Move on to the next word if participant is unable or unwilling to attempt spelling of one word. For some patients it may be easier to write these words than to keep track of spoken spellings, alternatively allow the patient to view as the tester writes the spellings clearly.

Scoring: Score 1 point for each correct spelling. Self-corrections are allowed; only the final answer is taken for scoring. Caution should be taken in interpretation where low premorbid IQ or a history of reading or spelling difficulties is reported. It is recommended interviewer ask patient and/or carer about premorbid reading and writing abilities.

Fluency - Letter S: Score 0-12

Administration: The person can perform this task either by speaking or writing. Say: “I am going to give you a letter of the alphabet and I would like you to say or write as different many words as you can beginning with that letter. **But not names of people or places, or numbers.**” **“Rydw i’n mynd i roi llythyren o’r wyddor i chi, a hoffwn i chi adrodd yn uchel, neu ysgrifennu gymaint o eiriau gwahanol ag y gallwch sy’n cychwyn gyda’r llythyren honno, ond dim enwau pobl neu**

leoedd, neu rifau” If writing, say: “You will have two minutes and the letter is S.” “Mae gennych chi **ddwy** funud. S ydy’r lythyren.” If speaking, say “You will have one minute and the letter is S.” “Mae gennych chi **un** munud. S ydy’r lythyren.”

Next the person copies/repeats these words.

- If writing, say: “Copy these words as fast as possible. I will time you. Ready? Begin.” “Copïwch y geiriau hyn mor gyflym â phosib. Rwy’n mynd i’ch amseru chi. Barod? Dechreuwch.”
- If speaking, say: “Read aloud these words as fast as possible. Before you do this, check that you can read them. I will time you. Ready? Begin.” “Darllenwch y geiriau hyn mor gyflym â phosib. Cyn i chi wneud hyn, gwnewch yn siŵr eich bod chi’n gallu eu darllen nhw. Rwy’n mynd i’ch amseru chi. Barod? Dechreuwch.”

Scoring: All answers provided are recorded however the following rules apply for scoring items as correct.

Words must be varied for example: *sugar, salt, slipper, snow, scream, shoot, scale, scissors....*

Do not include repetitions, nonsense words or proper names in scoring items correct.

Repetitions where a second meaning is provided (e.g. ‘school - the educational institution’ or ‘school - collective name of fish’) are scored as independent items. Likewise, when items are spoken and a different spelling/meaning is indicated (e.g. *slow* and *slae*) items are scored as independently correct. Where a meaning change is indicated (e.g. *savour* and *savoury*) items are scored as independently correct.

Plural words will be accepted, only if they have not already been provided in singular form (e.g. *slipper, slippers* = score 1). Perseverations of words such as *sit, sat, sitting...* where meaning is not changed, are **not accepted as correct** (e.g. *sit, sat, sitting* = score 1).

In order to account for differences in motor speed and speaking time variations, a Verbal Fluency Index (VFI) is calculated using the equation below.

$$\text{VFI} = \frac{(\text{test time} - \text{time taken to repeat words})}{\text{Number of correct words generated}}$$

For example, a participant given 60 seconds to complete the task who generates 5 words and then takes 15 seconds to read these words aloud would have a VFI of 9:

$$\frac{60-15}{5} = \text{VFI of } 9$$

A participant’s VFI is converted to a Fluency score using the conversion table provided in ECAS.

Executive – Reverse Digit Span: Score 0-12

Administration: Numbers should be read out at a pace of 1 number per second. Say: “I am going to say some numbers and I would like you to say them back to me in reverse order. For example, if I say ‘2 3 4’, you should say ‘4 3 2’. Let’s have a practice. If I say ‘7 1 9’, what would you say?” “Rydw i’n mynd i ddweud rhywfaint o rifau, a hoffwn i chi eu hadrodd yn ôl i mi yn y drefn wrthdro. er enghraifft, os ydw i’n dweud ‘2 3 4’, fe ddylech chi ddweud ‘4 3 2’.

Gadewch i ni ymarfer. Os ydw i’n dweud ‘7 1 9’, beth fydddech chi yn ei ddweud?” If participant cannot complete the practice trial, another practice trial is provided at the level of two digits, before moving on to test items. If a participant cannot complete a practice trial at the level of two items, the test is scored as 0 out of 12 and no further test items are attempted. Advance warning that the number sequences will increase in length is provided at the start of each line of a trial. In order to score a trial of a line as correct, participant must accurately recall *all* items in reverse order. No score is given for individual numbers correctly recalled in an incorrectly recalled sequence. If person gets at least one trial of a line correct, move on to the next line. Self-corrections are allowed; only the final answer is taken for scoring. Stop when person gets both trials of a line wrong.

Score: Score is total number of trials achieved correctly (out of 12).

Executive – Alternation: Score 0-12

Administration: Say: “I want you to alternate between numbers and letters, starting with 1-A, then 2-B, 3-C, and so on. Please continue from there, alternating between numbers and letters, in order, without skipping any until I tell you to stop”. Say: “1-A, 2-B, 3-C...” “Rydw i eisiau i chi ddweud rhifau a llythrennau bob yn ail, yn dechrau gydag 1-A, yna 2-B, 3-C, ac yn y blaen. Rhowch rifau a llythrennau bob yn ail, yn eu trefn, heb adael unrhyw rai allan, nes fy mod yn dweud wrthy ch i stopio. Dewiswch i ddefnyddio'r wyddor Gymraeg neu Saesneg. Gadewch i ni ddechrau gyda'n gilydd: 1A, 2B, 3C...” with the patient and then let them continue the sequence alone.

Score: One point is given for every correct trial.

Fluency - Letter T: Score 0-12

Administration: The person can perform this task either by speaking or writing. Say: “I am going to give you a letter of the alphabet and I would like you to say or write as many different words as you can beginning with that letter. **But not names of people or places, or numbers. This time the word must only be four letters long. No more or less than four letters.**” “Rydw i am roi llythyren o'r wyddor i chi, a hoffwn i chi ddweud neu ysgrifennu cynifer o wahanol eiriau ag y gallwch sy'n dechrau gyda'r lythyren honno, ond nid enwau pobl neu leoedd, neu rifau. Y tro hwn, dim ond pedair llythyren ddylai'r gair fod. Dim mwy, na llai, na phedair llythyren Fydd llythyrau dwbl yn cyfri fell un llythyren e.e. mae twll yn air 3 llythyren a felly ddim yn cyfri fel ateb cywir.” Note: Plurals are accepted in order to create four letters – for example, Toes.

- If writing, say: “You will have two minutes and the letter is T.” “Mae gennych chi **ddwy** funud. T ydy'r lythyren.”
- If speaking, say “You will have one minute and the letter is T.” “Mae gennych chi **un** munud. T ydy'r lythyren.”

Next the person copies/repeats these words.

- If writing, say: “Copy these words as fast as possible. I will time you. Ready? Begin.” “Copiwch y geiriau hyn mor gyflym â phosib. Rwy'n mynd i'ch amseru chi. Barod? Dechreuwch.”
- If speaking, say: “Read aloud these words as fast as possible. Before you do this, check that you can read them. I will time you. Ready? Begin.” “Darllenwch y geiriau hyn mor gyflym â phosib. Cyn i chi wneud hyn, gwnewch yn siŵr eich bod chi'n gallu eu darllen nhw. Rwy'n mynd i'ch amseru chi. Barod? Dechreuwch.”

Scoring: See scoring criteria from previous Fluency task to produce VFI, and conversion table provided in ECAS.

Visuospatial – Dot counting: Score 0-4

Administration: Say “I would like you to count how many dots are in each box, but without pointing to them”. “Rydw i eisiau i chi gyfrif faint o ddotiau sydd ymhob bocs, heb bwyntio atyn nhw.” Progress from left to right and top to bottom to move through the squares. All squares should be attempted.

Score: One point for each correct box. **Correct answers are: Top left 10, top right 8, bottom left 7, bottom right 9.**

Visuospatial – Cube counting: Score 0-4

Administration: Ask the person “How many cubes are in each structure, including the ones you may not be able to see?” “Faint o giwbiau sydd ymhob strwythur, yn cynnwys y rhai nad ydych chi'n gallu eu gweld?” Progress from left to right and top to bottom to move through the cube structures. All structures should be attempted.

Score: one point for each correct answer. **Correct answers are top left 5, top right 6, bottom left 10 and bottom right 7.**

Visuospatial – Number location: Score 0-4

Administration: Ask the person “Which number corresponds to the position of the dot?” “Pa rif sy'n cyfateb i safle'r dot?”

Progress from left to right and top to bottom to move through the squares. All squares should be attempted. If the patient does not understand the instructions explain further “Imagine this box (point to the lower box) is placed on top of this box (point to the top box), on which number would the dot fall? “Dychmygwch bod y blwch yma (gan bwyntio at y blwch isaf) wedi ei osod ar ben y blwch yma (gan bwyntio at y blwch uchaf) arb a rif fyddai'r dot yn glanio?”

Score: One point for each correct answer. **Correct answers are top left 6, top right 5, bottom left 2, bottom right 3**

Executive – Sentence completion: Score 0-12

Administration: Say “Listen carefully to these sentences and as soon as I have finished reading them, please tell me, or write, a word that finishes the sentence as quickly as possible.” **For example, ‘She was so tired that she went straight to...bed’.** “Gwrandewch yn ofalus ar y brawddegau hyn, a chyn gynted ag yr wyf wedi gorffen eu darllen, dywedwch, neu ysgrifennwch air sy'n gorffen y frawddeg cyn gynted ag y bo modd. Er enghraifft, ‘Roedd hi mor flinedig fel yr aeth yn syth i'r ... gwely.’” Do not score the first two questions.

Now say: “I'd like you to do that again, but this time the word you give should not make sense whatsoever in the context of the sentence. It must not be related to the word that actually completes the sentence. **For example, ‘John cut his hand with the sharp...orange’.** “Nawr, hoffwn i chi wneud hynny eto, ond y tro hwn, ni ddylai'r gair a roddwch wneud synnwyr o gwbl yng nghyd-destun y frawddeg. Ni ddylai fod yn gysylltiedig â'r gair sydd yn cwblhau'r frawddeg mewn gwirionedd. Er enghraifft, ‘Torrodd John ei law gyda'rhaul’” If person answers with a word which completes the sentence in context then remind them that the requirement is to provide an answer that bears no significance to the context of the sentence. Progress through all questions, even when incorrect answers are provided. If the person does not respond within 20 seconds, move onto the next question.

Score: Give 2 points for completely unconnected word, 1 for related word (e.g. **associated** or opposite meaning) and 0 for exact word. See table below for scoring examples. Note: sentences can be ungrammatical.

	Cwestiwn	2 bwynt	1 pwynt	0 pwynt
1	Fe gnociodd y postmon ar y	Car, Moron,	Ffenest, giat,	Drws
2	Fe ddaeth â'i ymbarel gydag ef rhag ofn ei fod yn	Rwber, cyfrifiadur...	Heulog, Wyntog, Rhewi	Bwrw (glaw)
3	Ar ei thost, rhoddodd Sally fenyn a	Tyowd, Y Ddaear	Wyau, Orenau, Uwd	Mêl, Jam
4	Aeth John i'r barbwr i gael ei wallt wedi ei	Lleud, bwrdd	Olchi, Estynu	Dorri
5	Fe ddeifiodd mewn i'r	Ardd, Bag	Llyn, Bath	Pwll
6	Aethant i gyd i'r caffi lleol am rywbeth i	Ddawnsio, Chwilio	Wneud, Brynu, Chwarae	Yfed, Fwyta

Social Cognition – Part A

Administration: The first page contains six boxes each with four pictures in each corner.

Say: “You are going to see some pictures, one in each corner of a box. You have to choose **which picture you like best**. Either point to or say which picture you like best. Please respond as quickly as possible.” “Rydych yn mynd i weld amrywiaeth o luniau, un llun ym mhob cornel. Mae'n rhaid i chi ddewis **pa lun rydych chi'n ei hoffi orau**. Naill ai pwyntiwch at lun, neu dywedwch pa lun rydych chi'n ei hoffi orau. Atebwch mor gyflym â phosib.”

Score: Answers are recorded but not scored; responses are used as information to support scoring in the next section.

Social Cognition – Part B: Score 0-12

Administration: Say: “You are going to see some pictures, one in each corner of a box. You have to choose which picture **does the face like best**. Either point to or say which **the face likes best**. Please respond as quickly as possible.” “Rydych yn mynd i weld amrywiaeth o luniau, un ym mhob cornel. Mae'n rhaid i chi ddewis **pa lun mae'r wyneb yn ei hoffi orau**. Naill ai pwyntiwch at lun, neu dywedwch pa lun mae'r wyneb yn ei hoffi orau. Atebwch mor gyflym â phosib.” Progress through all questions even when incorrect answers are provided. If the participant does not understand the instructions do not elaborate but repeat the instructions.

Score: Two points for each correct response. Of the items not correctly identified, score 1 point if answer was NOT the item that participant picked as their own favourite in the previous section, score 0 points if the item WAS picked as their own favourite.

Memory – Delayed recall: Score 0-10

Administration: Say: “At the beginning of this interview, I read you a story. Tell me as much as you can remember from that story.” “Ar ddechrau'r cyfweiliad hwn, darllenais stori fer i chi. Dywedwch gymaint ag y gallwch ei gofio wrthyf o'r stori honno.” Time for recall is unlimited, until participants say that they can remember no more. Self-corrections are allowed; only the final answer is taken for marking.

Mark: 1 point for each (either entire or part of) underlined section recalled. The percentage of memory retained is now calculated. Take the total recall for **Delayed Memory and divide it by the Immediate Memory score, before multiplying this number by 100**. For example:

With a Delayed Memory recall of 8 sections, and an Immediate Memory Score of 9/10

The percentage of retained memory is 89%.

Some patients may recall more at delay than immediate and the percentage will be displayed as being over 100%. **Use the conversion table provided in ECAS to derive scoring.**

Memory – Delayed recognition: Score 0-4

Administration: This test should only be done if the person failed to recall one or more items. If all the items were recalled, skip the test and score 4.

Otherwise, say: “Lets see if you can remember anything more about that story. I will ask you some questions, please tell me if they are **true or false**.” “Gadewch i ni weld os allwch chi gofio unrhyw beth mwy am y stori honno. Fe wnaï ofyn cwestiynau i chi. Dywedwch os ydynt yn **gywir** neu'n **anghywir**”

Score: Score 1 point for each correct answer; correct answers are marked in bold in this section. If the person gives a “don’t know” answer ask them to make a guess on True or False and score accordingly. **Use the conversion table provided in ECAS to derive final scoring for recognition section.**

SCORES		
Language	Naming, Comprehension, Spelling	/28
Verbal Fluency	Fluency Letter S, Fluency Letter T	/24
Executive	Reverse Digit Span, Alternation, Sentence Completion, Social Cognition	/48
ALS-SPECIFIC:		/100
Memory	Immediate recall, Delayed recall score, Delayed recognition	/24
Visuospatial	Dot Counting, Cube Counting, Number Location	/12
ALS NON-SPECIFIC:		/36
ECAS TOTAL SCORE		/136

K CUT OFF SCORES FOR ABNORMALITY (Abrahams et al. 2013)	
ECAS TOTAL SCORE	105
ALS-SPECIFIC	77
ALS NON-SPECIFIC	24
Language	26
Verbal Fluency	14
Executive	33
Memory	13
Visuospatial	10

**ALS Carer Behaviour Screen
Guidance and Administration
English Version**

Guidance.

Please ask the carer or relative to complete this screen in private from the patient, ideally in a separate room. There are five components to this screen.

Some people may have noticed a change in all areas, some in a few and others may note there are no changes with the patient. Please ask the carer or relative to give any examples if possible.

Administration – Score 0-10

Please ask the carer about the listed possible behaviours. Symptoms should have occurred **repeatedly** and not just on one instance, and may have occurred prior to the development of any motor signs. Tick 'Yes', 'No' or 'Don't Know'. If 'Yes', please provide a brief written description. Give one mark for every 'Yes' response (maximum = 10).

**ALS – Psychosis Screen
Guidance and Administration
English Version**

Guidance

Please ask the carer or relative to complete this section away from the patient, ideally in another room. Please remind the carer or relative that the questions asked are only relevant since the onset of ALS.

Administration- score 0-3

Please ask the carer about the following possible symptoms. Tick 'Yes', 'No' or 'Don't Know'. If 'Yes', please provide a brief written description. Give one mark for every 'Yes' response (maximum = 3).

Guidance

Please ask the carer or relative the listed questions. If the answer is Yes to any question please note any relevant examples or comments.