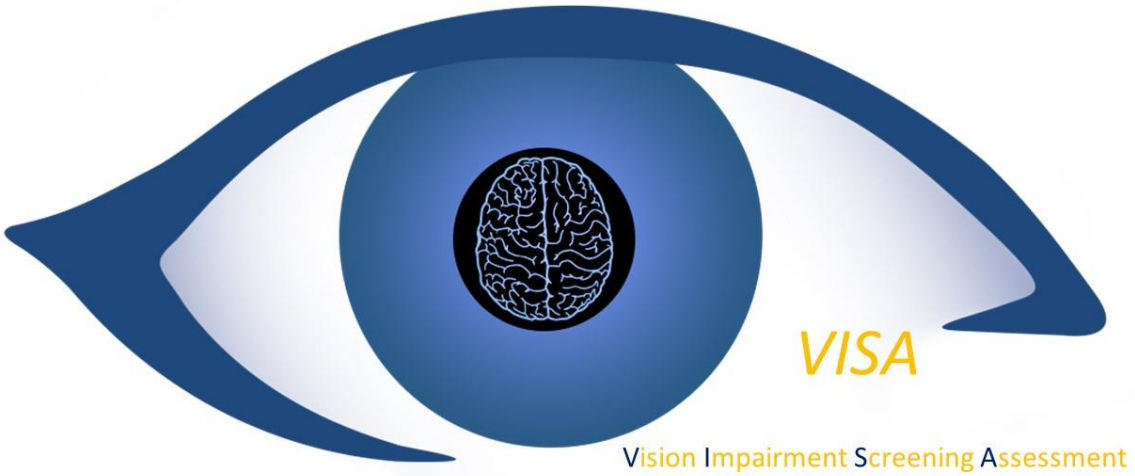


Vision Impairment Screening Assessment

VISA

Instructions for use

The VisIon Screening Assessment (VISA) tool has been developed by the VISION research unit, University of Liverpool.

This follows extensive research through the Vision In Stroke (VIS) study, Impact of Visual Impairment in Stroke (IVIS) programme and PERIMETRY programme, leading to the development, pilot and validation of the screening tool.

Disclaimer

The VISA tool is a screening tool to aid screening for presence of visual impairment, particularly after acquired brain injury. It screens for the more common forms of visual impairment that occur from brain injury, but, as a screening tool, it is not designed to screen for all possible visual impairments whether caused by brain injury or by other eye disease or other causes. Therefore, a negative screen (i.e. no visual impairment detected by the VISA screen) does not rule out the presence of visual impairment. Where there is any suspicion that visual problems may be present, referral should always be made to a qualified eye specialist. It does not provide a definitive diagnosis of the existence, cause or effect of any visual impairment and should not be solely relied upon. It is a recommendation that any person should attend routine eye checks by qualified eye specialists (e.g. optometrists, ophthalmologists, orthoptists) at least every 2 years.

Department of Health Services Research

Waterhouse Building Block B

University of Liverpool

Brownlow Street

Liverpool L69 3GL

United Kingdom

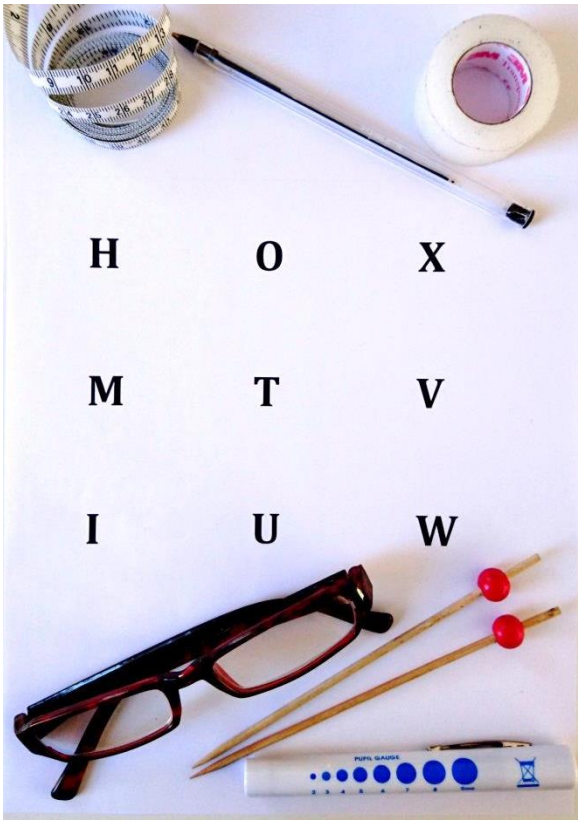
The purpose of the VISA tool is to screen for visual impairment after brain injury.

It is not a diagnostic tool but serves to screen for visual impairment and thus allowing referral for specialist visual assessment where potential visual impairment is identified.

The VISA tool consists of five sections:

1. History
2. Visual acuity
3. Eye alignment and movement
4. Visual field
5. Visual attention

Equipment that is needed includes: pen torch, pen, occlusive tape, 10mm red target, +3.00 power reading glasses, 3 metre string/tape measure to measure distance for visual acuity check, matching card for visual acuity check (printable version available within testing pack for printing and lamination). Reading glasses and red targets are easily sourced and available.



This booklet includes detailed instructions for each section. Key instructions are included in the VISA testing pack, please follow these instructions and record your results on the VISA recording sheet. Please note the gratings in the testing pack require a high quality print.

Instructions

Initially it may not be possible to complete all sections with each person because of fatigue, cognitive issues, communication difficulties, etc. In such circumstances, complete the sections that are possible, such as observations and history. Then, repeat the screen over subsequent visits in the following days when further sections can be attempted/completed. If at any time you have concerns there is a visual impairment please make a referral.

History

Using the visual symptom guide, please ask the person about their past ocular history, what their current visual symptoms (if any) are, and whether their visual symptoms are new or preceded their brain injury.

If the person is unable to provide information due to cognitive or communication difficulties, please ask family members/carers for further information about past history and any changes they may have noted since the brain injury. It is useful to ask family members/carers about their observations even if the person has also been able to provide information.

It is important to document your own observations about whether the eyes look different to each other and your opinion of how well the patient can see.

Visual acuity

Visual acuity is part of central vision and typically indicates how well a person can see in fine detail.

For VISA screening, visual acuity is measured at near (33cms) and distance (3 metres). In circumstances where it is obvious the person can see the letter chart but cannot communicate correctly what the letter name is, it is possible for them to use a matching card and point to the corresponding letter on that card.

If the person is unable to respond to the letter charts, the grating charts should be used.

Tip: it is very important that the visual acuity check is made in good lighting conditions. Dull rooms can reduce the number of letters seen. If you are unsure of which glasses are for reading or for distance, generally the glasses that magnify print the most are reading glasses.

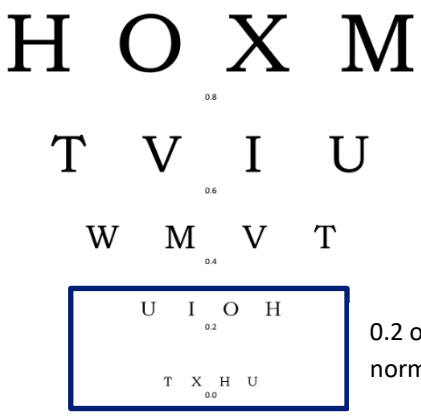
Visual acuity chart at 3 metre distance (use matching card if required)

Ask the person to put on their usual distance glasses.

Hold the vision chart at 3 metres from the persons' eyes.

Cover the left eye with occlusive tape and ask the person to read or match the letters with their right eye.

Repeat for the left eye with the right eye covered.



0.2 or 0.0 indicate a normal level of vision

Reading at near 33cm distance (use matching card if required)

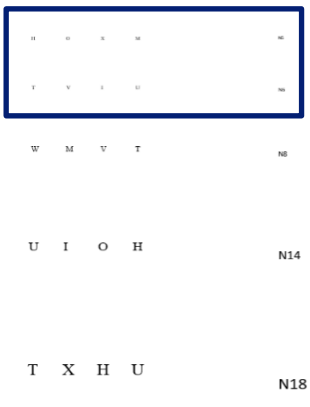
Ask the person to put on their usual reading glasses. If wears varifocal or bifocal glasses to use the bottom of the lens. Use spare +3 reading glasses if the person does not have their reading glasses available. Hold the reading chart at 33cms from the persons' eyes.

Cover the left eye and ask the person to read or match the letters with their right eye.

Repeat for the left eye with the right eye covered.

Ask the person to read the smallest line of text that they can see.

Alternatively ask the person to point to the smallest line of the text they can see.



N5 or N6 indicate a normal level of vision

Grating charts

If the person is not able to read or match letters, use the grating cards as an alternative.

Ask the person to put on their usual distance glasses.

Hold the charts at 50cm from the persons' eyes.

Ask the person to point to where they see the pattern – either up or down.

If the person cannot point, ask them to look at the pattern and observe whether their eyes look at the top or bottom of the page.

Eye alignment and movement

Alignment

Normally, eyes are aligned such that each eye points towards the target they are looking at. This allows single vision. Remove the person's glasses (if worn). Using a pen torch ask the person to look at the light held at arm's length from them.

Observe the position of both eyes and determine if both eyes point to the light or whether one or both eyes point elsewhere. Using the pictures in the *eye alignment and movement* section, compare what you see for the person's eye positions versus the normal position and various abnormal positions indicated in the pictures. The sample pictures show the individual's right eye turning, but it could be the left eye or both eyes that turn.

Straight eyes

Turn inwards

Turn outwards

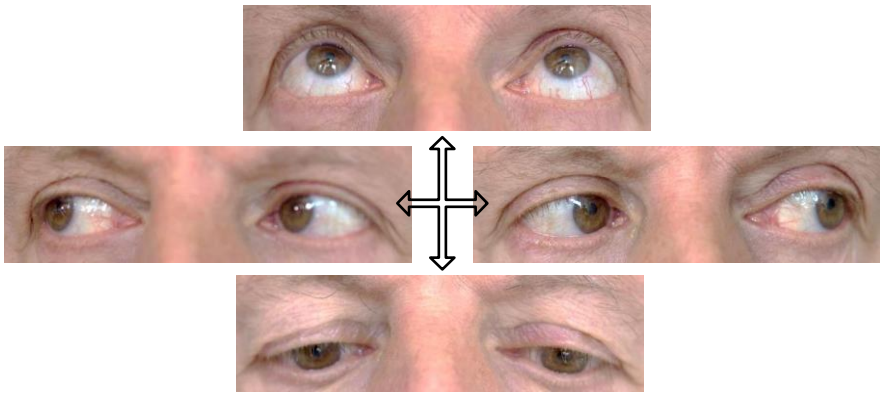
Turn upwards

Turn downwards

Movement

Normally, both eyes move symmetrically and evenly together when looking sideways and up or down. Using a pen torch 1 metre from the individual's eyes, keep the person's head still and ask them to follow the pen torch as you move it slowly to the right side, left side, upwards and downwards.

Observe the movements of each eye and determine whether both eyes move together and fully over to the skin margin, whether one or both eyes fail to move fully, or one eye does not move the same as the other eye.



Then, using a pen, ask the person to watch the pen as you move it slowly from arm's length in towards their nose. Observe whether both eyes follow the target or whether one or both eyes do not follow and/or drift outwards.

Using the pictures in the *Eye alignment and movement* section, compare what you see for the person's eye positions versus the normal positions indicated in the pictures.

Observe whether the eyes are steady when looking straight ahead and when looking to either side or up and downwards. If the eyes 'wobble' this may indicate nystagmus.

Visual Fields

Normally it is possible to look straight ahead and be aware of the peripheral surroundings detected by our peripheral field of vision.

To screen a person's field of vision, the person should be seated straight in front of the examiner at a distance of 1 metre and at eye level. Standard targets to be used for assessment include a 10mm red target.

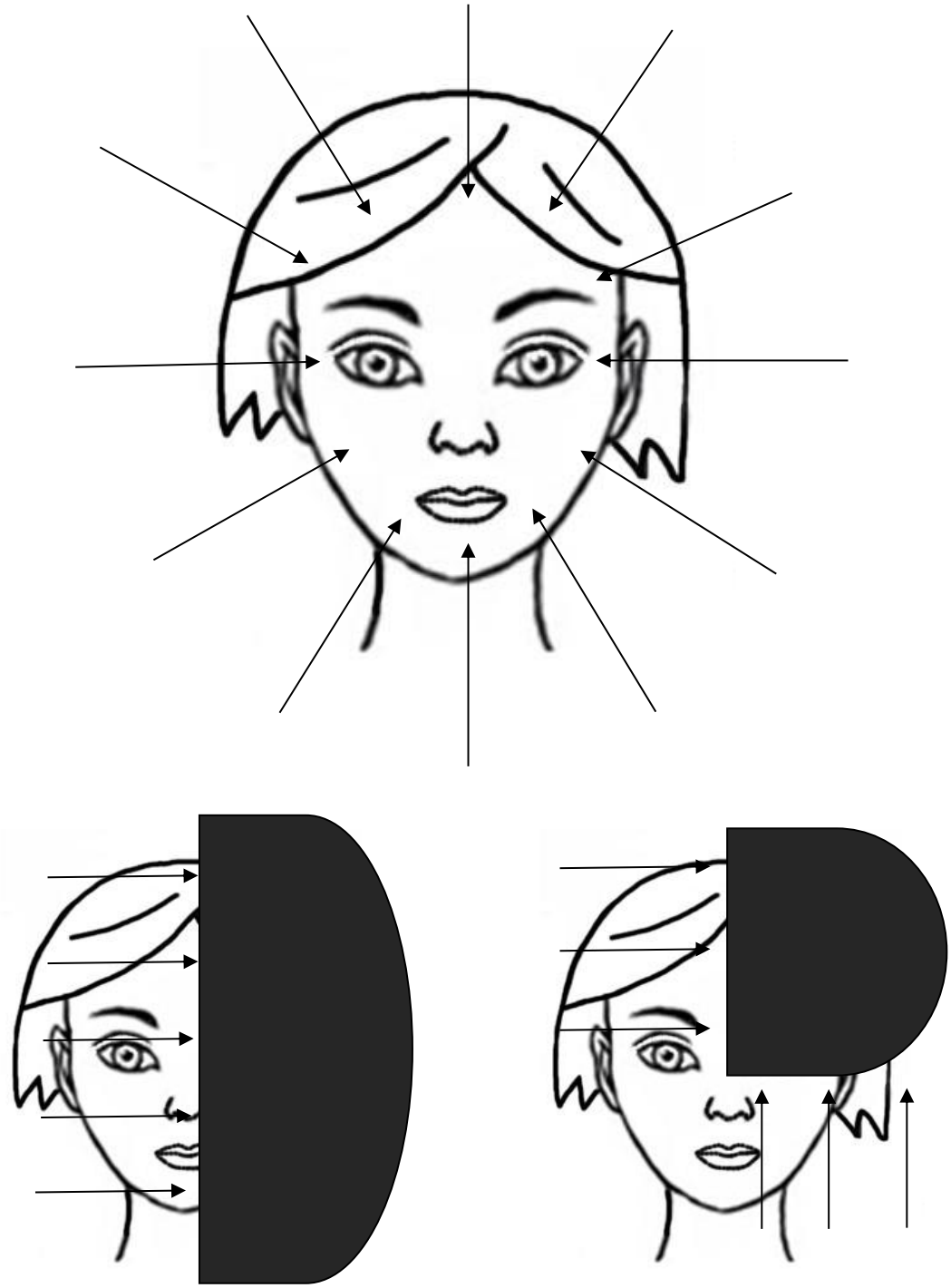
First remove the patient's glasses (if worn). Perform the following assessments with both eyes open. The examiner should hold both arms out when doing the assessment, moving only one arm at a time.

Peripheral boundary

The person is asked to continue looking at the examiner's nose and to say 'yes' or nod their head if unable to communicate when they are aware of a target moving in their outer vision.

Using the red mounted target, slowly move this in from the periphery from the following 'clock' positions Use positions 12 and 6 o'clock as a demonstration. Then in a random order; 3 and 9 o'clock positions followed by 1,2,4,5,7,8,10 and 11 o'clock positions (see illustration overleaf).

If a visual field defect is found, assess additional positions with the red 10mm target to further outline the boundary of the field defect. Additional positions should be perpendicular (at a 90 degree angle) to the assumed defect boundary as in the illustrations below.



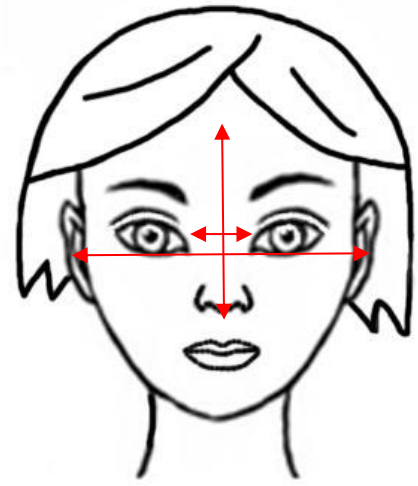
[The arrows indicate the direction from which the target should be moved from the periphery. If a defect is found (black shapes indicate potential hemianopia or quadrant defect) the arrows indicate the perpendicular directions that targets should be moved from the periphery]

Central field

The person continues to look at the examiner's nose and is asked whether they can see all parts of the examiners face or whether part or one side of the face appears more blurred or faded than the rest.

The person should consider whether right versus left eyes, mouth versus forehead, right versus left ears are seen equally well to further qualify their responses.

Next , compare finger counting in each quadrant.
Hold both hands up (with fingers closed), one hand positioned to the outer side of each of the patient's eyes.
Briefly raise one or two fingers from one hand and ask the person to say whether fingers were raised and if so, how many were seen.
Repeat this with both hands held in the lower quadrants below each cheek level.
Next, briefly raise fingers on both hands and ask the person how many are seen in total.

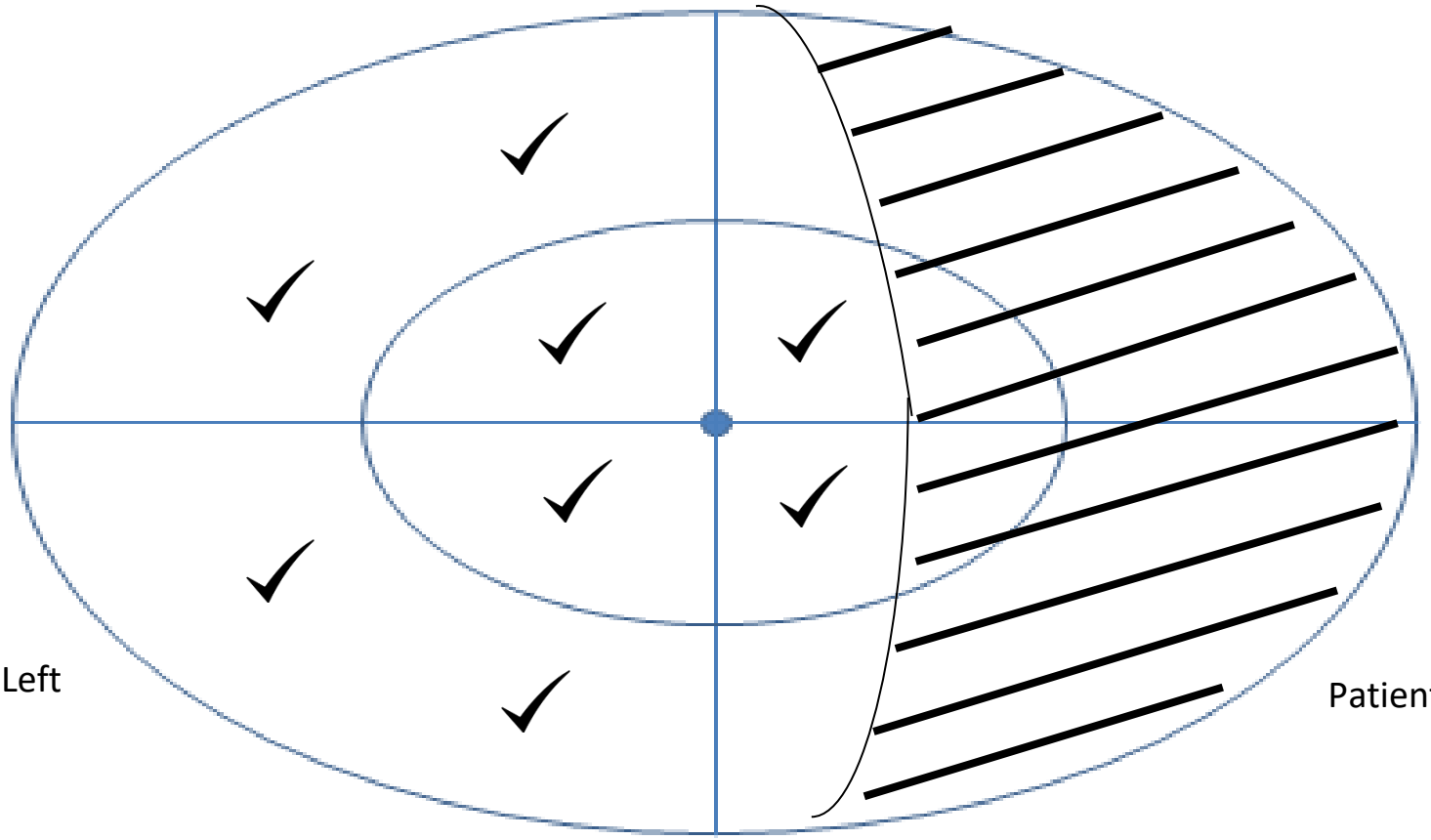


The chart below should be completed on the VISA recording sheet. Hashed lines can be used to indicate areas where there is visual field loss and tick (✓) marks can be used to indicate areas where visual field appears normal (as per the example below).

Both eyes open ☐

Test distance of 1 metre

Referral to be made for formal visual field assessment where there is evidence of a visual field defect.



Patients Left

Patients Right

Visual Inattention

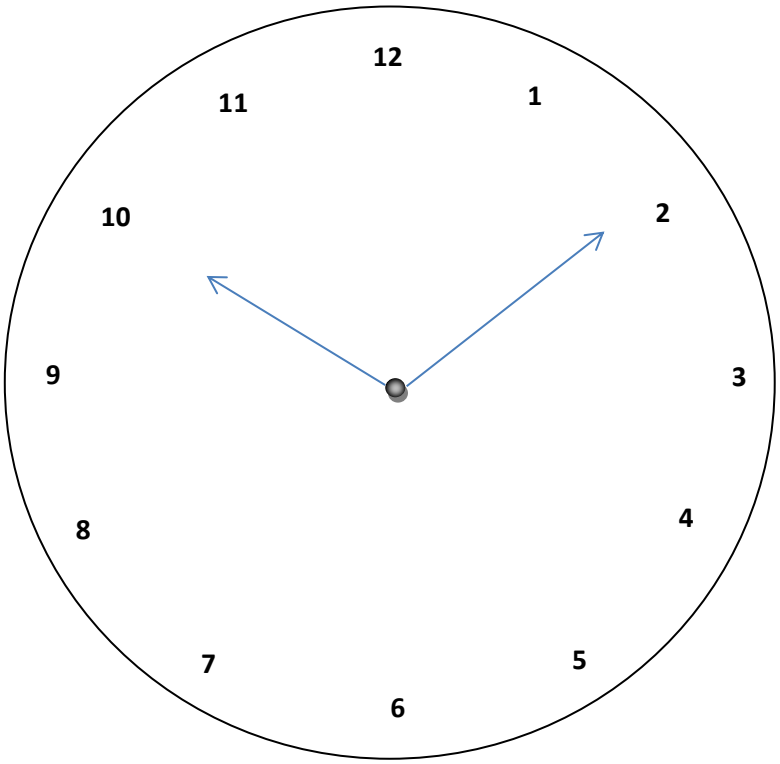
In order to assess a person's spatial visual attention, the VISA screening uses three checks: line bisection, clock drawing and a clock cancellation chart.

Line bisection

On the line in the recording sheet, ask the person to mark a cross where they think the centre of each line is.

Clock task

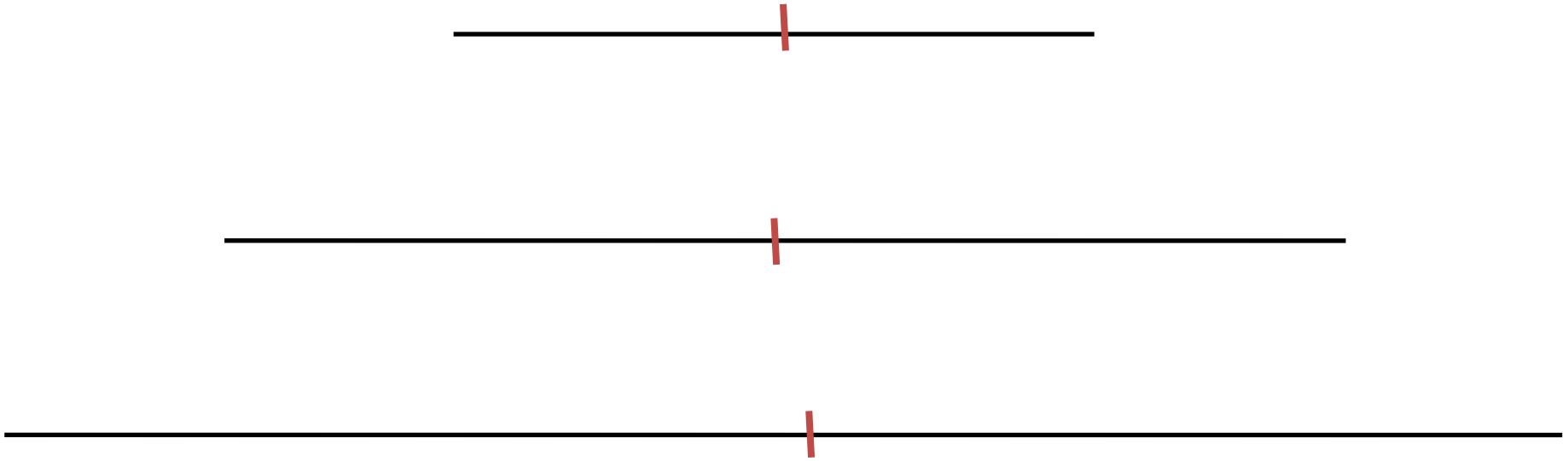
On the circle in the recording sheet, ask the person to complete this clock face from memory.



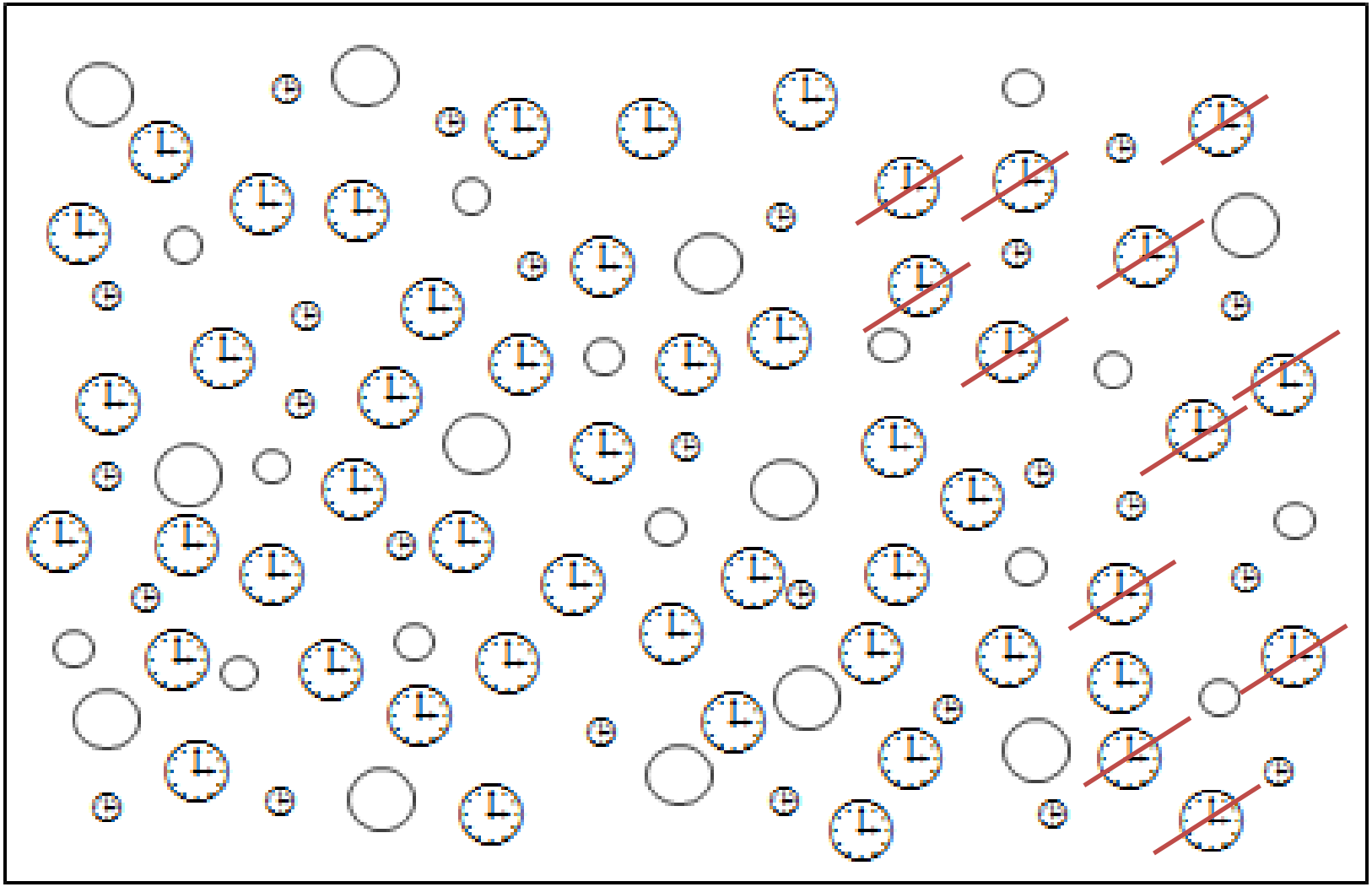
Cancellation chart

On the chart in the recording sheet, ask the person to cross out all the large clocks that they can find. Blank circles and small clocks are to be ignored.

Line bisection – example of marking the centre of each line:



Clock cancellation – example of marking large clock symbols:



Guide to making referrals

The VISA recording sheet acts as a formal record of the screening as well as a referral form for specialist visual assessment.

Provision of specialist visual assessment will vary across different organisations. The recommendation of the VISION research unit is that referral be made to Orthoptists who are based alongside Ophthalmology and/or Optometry services.

History

If glasses are broken or lost, and this is the only concern alongside reduced visual acuity (because of no glasses), first try to locate spare glasses if the person has these and re-screen. Then refer if glasses cannot be located AND visual acuity is reduced.

In circumstances where the person complains of visual symptoms and/or there are family/carer concerns and/or your observations of the person's eyes and their visual behaviour raise concerns, refer when there is also an identified problem with visual acuity, eye alignment and movement, visual fields and/or visual perception. If there is no identified problem, first re-screen the person after a period of 3 days to determine whether symptoms/concerns remain. If these are persistent, refer.

If the person has a pre-existent eye condition and is known to be under the care of the eye department, referral is not required unless new symptoms are reported.

Visual acuity

The letter charts consist of 4 letters per line. The person must achieve a minimum of 3 letters on each line to indicate attainment of that level of visual acuity.

The person should achieve a visual acuity of 0.0 or 0.2 for distance and N5 or N6 for near to indicate normal levels of visual acuity – in each eye. If the person completes the grating acuity, they should achieve the small size gratings to indicate normal levels of visual acuity.

It is important that the person is wearing their appropriate glasses for each visual acuity check. Reading glasses worn for the distance check and/or distance glasses worn for the reading check will give inaccurate results.

If only visual acuity is reduced – 0.4 or worse for distance, N8 or worse for near, large size grating only – and all other screening checks appear normal, first re-screen the person after a period of 3 days to determine whether reduced visual acuity remains. If it persists, refer.

If the person had pre-existent reduced visual acuity and is known to be under the care of the eye department, referral is not required unless visual acuity has deteriorated further after the brain injury.

Eye alignment and movement

If one or both eyes appear to turn – inwards, out, up and/or down – the person should be referred.

If one or both eyes do not move fully to the right side, left, up, down and/or move fully inwards, and/or appears to wobble, the person should be referred.

Visual fields

If any part of the peripheral or central visual field appears to be missing, the person should be referred.

If the person had pre-existent visual field loss and is known to be under the care of the eye department, referral is not required unless visual fields have deteriorated further after the brain injury.

Visual inattention

Referral may be made based on inappropriate completion of at least one of these tasks. Dependent on local organisational services, referral for visual inattention may be made to stroke occupational therapy services where all other aspects of the VISA screen are normal.

On line bisection referral should be made where the mark is placed more than 6mm from the centre of the line.

On the clock drawing task, referral should be made where the clock is incomplete and/or numbers and arrows are deviated to one side.

On the clock cancellation chart, referral should be made where less than 42 of the 50 large clocks are cancelled.

If in doubt

- Re-screen by another colleague.
- Re-screen after 3 days.
- Speak to an Orthoptist.
- Refer.