A feasibility Study of Prisms And Therapy In Attention Loss after stroke

Short title: **SPATIAL feasibility**

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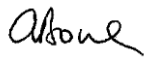

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Contents

1. Synopsis

Title

A feasibility Study of Prisms And Therapy In Attention Loss after Stroke (SPATIAL feasibility).

Background

Unilateral Spatial Neglect (USN), also known as spatial inattention, is a syndrome that can occur after stroke and results in impaired attention to one side (most often the left). Spatial inattention often makes it difficult for patients to fully engage in therapy and may impede recovery.

Prism Adaptation Training (PAT) is a possible therapy for inattention. The patient makes repeated pointing movements for about five minutes while wearing prism glasses which shift the patient's view to one side. After training the brain adapts temporarily and the patient switches from rightward pointing to leftwards thereby appreciating the 'neglected' left side. This adaptation may enable patients to engage in and benefit from recommended therapy if the therapy is delivered immediately after the adaptation.

Aims

The study will determine the feasibility (including acceptability) both of delivering the intervention within the clinical setting and of conducting a trial, and will add to existing evidence on the proof of concept for the value of the intervention in the clinical setting. The project will:

a) test methods of recruiting and following up participants;
b) examine whether PAT enables the patient to engage in therapy;
c) explore whether therapists deliver PAT as intended;
d) assess disability in participants to determine how to measure the potential benefits;
e) assess acceptability of the technique and of trial processes in a small sample of occupational therapists, stroke participants and carers.

If successful, results of the trial will be used to inform the design of a multi-centre phase III randomised controlled trial.

Design

Pragmatic, feasibility multi-centre stratified randomised controlled trial with nested process evaluation and exploration of proof-of-concept, designed with collaborative service user involvement.

Setting

Patient participants will be recruited from identified NHS occupational therapy in-patient stroke services. Intervention will take place in the in-patient setting and continue within the community if appropriate.

Inclusion criteria (patient participants)

- Over 18 years old
- At least 1 week post stroke onset
- Clinical diagnosis of stroke (ischaemic or haemorrhagic)
- Positive screen for spatial inattention and impacting on functional task performance
- Eligible for standard NHS Occupational Therapy
- Can sit with support and perform brief PAT
- Capable of giving informed consent or has a personal or professional consultee

Exclusion criteria (patient participants)

- For end of life care
- Discharge planned before at least one therapy session

Inclusion criteria (carer participant)

- Informal carer for a patient recruited to the study
- 18 years old or over
- Capable of giving informed consent

Inclusion criteria (staff participant)

- A member of OT staff at a study site who has been trained in the study processes and provided intervention to recruited patient participants

Planned sample size

RCT & proof of concept patient participants: anticipate 60 to 80
RCT participating carers: anticipate 40 to 50
Process evaluation staff participants: approximately 12
Process evaluation patient and carers participants: approximately 12

Methodology

We will recruit and randomise patients with spatial inattention to one of two trial arms: an intervention group (occupational therapy including PAT) and a control group (occupational therapy alone), in a 3:1 ratio and stratified by site.

Both groups will receive standardised occupational therapy. Occupational therapy for the intervention arm will include up to 5 minutes of PAT at the start of one OT session a day during which prisms will be fitted and a pointing exercise will be performed. This will continue five days a week for a maximum of three weeks. Two short periods within the first session will be videotaped to evaluate proof-of-concept.

Recruited carers will not be randomised or receive intervention. They will be asked to complete outcome measures and interviews to explore if a future definitive trial should measure impact on carers.

Trial outcome measures

Patient participants: outcome measurement will take place at:

- time 1(T1); 3 weeks after commencement of intervention
- time 2 (T2); 12 weeks after commencement of intervention

Standard assessment will include:

- Standardised tests of spatial inattention (eg Oxford Cognitive Screen Hearts Cancellation, BIT star cancellation, Radner Reading Test, Catherine Bergego Scale/ the Kessler Foundation Neglect Assessment Process at T1 and T2
- Nottingham extended activities of daily living (EADL) at T2
- PRECiS- (Patient Reported Evaluation of Cognitive State) at T2
- EQ5D5L at T2

Carer participants: outcomes will be measured at T2 only

- Carer Experience Scale
- Modified Carer Strain index
- self-reported informal carer costs

Process evaluation

We will invite a sample of occupational therapy staff to take part in qualitative interviews at a time point where they have provided PAT to a minimum of one participant. We will ask all patient participants in the intervention arm who received a minimum of one OT session post-recruitment about their experience of the intervention therapy at T1; and a sample of patient and carer participants will be invited to take part in face to face or phone interviews at T2 to explore their experience of the research process.

Analyses

Feasibility trial analyses will be mostly descriptive to establish the recruitment, fidelity and attrition rates and the variability of the primary participant outcome. In addition, we will undertake exploratory comparisons of participant outcome on an intention-to-treat basis. We will seek outcome data for all participants regardless of treatment adherence unless consent to follow-up is explicitly withdrawn.

The process evaluation qualitative data will be uploaded to NVivo 11 (QSR International) and analysed using thematic analysis.

Study Duration

24 months (end date 30/06/2020)

2. Abbreviations

ASU	Acute Stroke Unit
ADL	Activities of Daily Living
CI	Chief Investigator
CRN	Clinical Research Network
EADL	Nottingham Extended Activities of Daily Living Scale
MRC	Medical Research Council
mRS	modified Rankin scale
NHS	National Health Service
NIHR	National Institute for Health Research
NIHSS	National Institutes of Health Stroke Scale
OCS	Oxford Cognitive Screen
OT	Occupational Therapy
OTs	Occupational Therapists
PAT	Prism Adaptation Training
PCPI	Patient, Carer and Public Involvement
PRECiS	Patient Reported Evaluation of Cognitive State
RCT	Randomised Controlled Trial
RfPB	Research for Patient Benefit
SD	Standard Deviation
SSNAP	Sentinel Stroke National Audit Programme
SRFT	Salford Royal NHS Foundation Trust
T1	Time point 1 (3 weeks after commencement of intervention)
T2	Time point 2 (12 weeks after commencement of intervention)
UoM	University of Manchester
UWE	University of the West of England

3. Background

Stroke is a sudden interruption of the blood supply to the brain caused by a clot or bleed. Half of the UK's 1 million stroke survivors experience disability. Service user surveys and national audits report inadequate support and research prioritisation for the cognitive, sequelae of stroke[1,2].

Unilateral spatial inattention, sometimes known as neglect, is a distressing cognitive problem. It is a syndrome of impaired spatial awareness. It includes difficulty directing attention to one side; affecting awareness of the body or the environment[3]. Presence of inattention in the early weeks is associated with poor long term outcomes[4,5], and hinders ability to participate in therapy that improves independence in activities of daily living (e.g. cooking) and extended activities (e.g. shopping, working)[6,7]. Inattention can result in safety issues (e.g. falls) and decreased likelihood of living independently; reducing psychological well-being[8–10], and increasing burden on informal carers and economic costs.

In the Sentinel Stroke National Audit Programme, 26% of stroke admissions screened positive for inattention[11]. Those screening positive had a mean stay of 24 to 28 days, versus 14 days without. The patients deemed suitable for occupational therapy and physiotherapy used more therapy time yet without clear benefit as they had greater disability on transfer from in-patient care. People with inattention often have co-morbid motor, sensory and cognitive difficulties. SSNAP shows they are older, have premorbid difficulties and more severe stroke. Inattention is most prevalent and severe in the acute inpatient stage when therapy is most readily available. SSNAP shows that fewer people with severe inattention were deemed "applicable for occupational therapy" highlighting access difficulties. Difficulty engaging in therapy may mean that people with inattention miss out on evidence-based early stroke care and are transferred with costly care packages.

The need for effective stroke rehabilitation is paramount. Whilst mortality from stroke has fallen, an ageing population creates complex demands on services[12]. The cost to society and the NHS remain significant. This feasibility study paves the way for a well-designed RCT, with the potential to improve engagement of patients with spatial inattention in NHS stroke rehabilitation services, improving outcomes and lessening burden for informal carers and on the public purse. It fits NICE recommendations for research: "cognitive interventions [to] provide better outcomes for identified subgroups of people with stroke and their families and carers"[13].

A means to enable people to participate in occupational therapy (as recommended in the National Clinical Guideline[14]) would improve stroke care. The 2013 Cochrane neglect review concluded that existing evidence is insufficient[15]. An updated search for the National Clinical Guideline for Stroke (2016) found similarly[14]. Prism adaptation training is one intervention that shows promise but requires robust evaluation within adequately powered RCTs.

A review of over 40 papers on prism adaptation training for spatial inattention presents considerable proof of concept and offers guidance on use of prism adaptation training in the clinic, whilst acknowledging the need for a pragmatic clinical trial[16]. The underlying impairment in spatial inattention is an attentional bias (usually) to the right side causing inattention to the left. During a 5 minute prism adaptation training session (pointing at a visual target wearing rightward prisms) the patient initially misreaches to right of target, over the next few minutes they compensate for this error recalibrating their pointing movements in order to point accurately (adaptation). This adaptation persists after removal of the prisms, and is evidenced by the observation that participants then misreach leftwards. Most importantly this change in spatial representation persists beyond the training session, and extends to improvement of performance on spatial cognition tests[17–20] and behavioural tasks such as reading and wheel-chair navigation[16]. These findings provide some promise regarding the immediate relief of spatial deficits due to the prism adaptation and may have an effect on engagement in occupational therapy.

Recent reviews have determined the prism strength and number of sessions needed to alter spatial attention[16,21]. Prism adaptation training should use prisms that shift the field of view 10° to 15°, delivered in 10 to 20 sessions over at least two weeks. A small trial (n=38) with low risk of bias[22], using prisms that shifted the view 12° in 20 sessions over 2 weeks suggested prism adaptation training improved scores on the Functional Independence Measure compared with a control group wearing neutral glasses. However this effect was not evident on a standardised behavioural measure of spatial inattention--specific activities of daily living.

A UK study in two hospitals investigated prism adaptation training using 6° prisms, delivered by NHS occupational therapists to inpatients with spatial inattention; with high adherence when delivered Monday to Friday for two weeks[23]. Thirty four of 36 randomised patients completed their allocated treatment and 28 were followed up at eight weeks. The adaptation effect following prism training (leftward pointing) was seen in all intervention (prism) patients but none of the control group, who had pointing training with plain glass spectacles. It was measured before treatment each day, and was seen across the intervention period. This was not seen in any of the control group who showed a rightward pointing bias throughout, which is typical of left spatial inattention. Importantly for the proposed SPATIAL trial, the leftward aftereffect was only partially reduced after weekends (no intervention given). This supports other evidence that the effect lasts days rather than minutes. This evidence is therefore more than sufficient to test our hypothesis that brief prism adaptation training at the start of a regular occupational therapy (OT) sessions will prime the attentional system of patients with spatial inattention for the duration of the therapy session.

SPATIAL complements but does not duplicate ongoing feasibility trials/PhD projects (Canada, US, Belgium, UK). These compare (shorter) prism adaptation training to sham or nothing, compare early versus late training or assess it as an adjunct to non-invasive

brain stimulation. SPATIAL explores prism adaptation not as an end in itself but as a means to an end, to enable people to participate in recommended NHS occupational therapy early after stroke.

In summary, the existing literature demonstrates the need for research into rehabilitation of spatial inattention, and how the current proposal will fill an important gap in the evidence base. Prism adaptation training is quick and easy to do, and had high adherence in a pilot study in two NHS services. Assessment of its feasibility over a larger range of stroke services and using the recommended stronger prisms with a prolonged treatment period to ensure adequate dose is needed along with testing acceptability of treatment, recruitment, retention of participants and sample size for a definitive trial.

4. Aims and objectives

The proposed study will determine the feasibility (including acceptability) both of delivering the intervention and of conducting a trial, from the viewpoint of occupational therapists, patients, and carers. This study will also add to existing evidence on the proof of concept that training will enhance engagement with occupational therapy. The ultimate purpose is to enable people with spatial inattention to overcome their difficulty engaging in the occupational therapy recommended by national clinical guidelines so they can maximise their recovery from stroke and independence in activities of daily living and so that NHS therapy time is used more productively and produces better outcomes.

The research question is:
Is it feasible to conduct a randomised controlled trial of prism adaptation training delivered within occupational therapy, up to 5 times a week for up to 3 weeks for people with spatial inattention after stroke in the post-acute setting?

Specific objectives are:

- Feasibility RCT
    1. Determine whether NHS occupational therapists can deliver the intervention (incorporate a maximum of 5 minutes of prism adaptation training, plus set up time, at the start of standard care occupational therapy) in in-patient settings (and Early Supported Discharge stroke services if appropriate)
    2. Determine whether intervention and standard therapy are delivered as intended in terms of treatment fidelity
    3. Determine rate of recruitment to a feasibility randomised controlled trial (RCT) of prism adaptation training as part of standard care versus standard care only, to inform the likelihood and cost of recruiting to an adequately powered future RCT;

4. Determine feasibility of outcome measures being carried out by trained NIHR research network staff, including the standardised behavioural observation of spatial inattention;
5. Determine retention at three months post randomisation to inform the design, size and cost of a future RCT;
6. Explore the ideal setting for trial recruitment and intervention delivery, specifically whether it is necessary to recruit from Early Supported Discharge as well as from in-patient services;
7. Explore the feasibility of recruiting informal carers and the value of the data that can be collected.
8. Examine the feasibility of staff remaining blinded to patients' study arm allocation during outcome assessments.

- Proof of concept
  9. Explore whether patients' engagement in occupational therapy appears improved immediately after prism adaptation training within a single session

- Process Evaluation
  10. Establish the acceptability to therapists of delivering the intervention including the training provided to them
  11. Explore the acceptability of the intervention to people with spatial inattention at the end of the planned three weeks of intervention, regardless of whether participants completed the 3 weeks (Time 1)
  12. Explore the acceptability of the trial processes to people with spatial inattention and their informal carers at the final outcome assessment (Time 2)

5. Research sites

We will recruit participants from approximately six in-patient stroke services, most likely in the North West of England. Sites are likely to be recruited from the following, based on Occupational Therapy staff engagement and availability of required resources:

- Salford Royal Hospital, Salford Royal Foundation Trust
- Fairfield Hospital, Pennine Acute Hospitals NHS Trust
- Stepping Hill Hospital, Stockport NHS Foundation Trust
- Manchester Royal Infirmary, Manchester University Foundation Trust
- Wythenshawe Hospital, Manchester University Foundation Trust
- Trafford General Hospital, Manchester University Foundation Trust
- Tameside Hospital, Tameside and Glossop Integrated Care NHS Foundation Trust
- Royal Albert Edward Infirmary/ Alexandra Court, Wrightington, Wigan and Leigh NHS Foundation Trust
- Royal Bolton Hospital, Bolton Foundation Trust
- Royal Blackburn Hospital/ Pendle Community Hospital, East Lancashire Hospitals NHS Trust

Additionally, we might include some community sites e.g. the follow on community rehabilitation and Early Supported Discharge teams associated with acute sites. Community teams will most likely be involved through providing ongoing treatment but in the feasibility study we would like to find out whether, due to short length of in-patient stay, community sites might also be involved in recruitment.

Sites will open to recruitment in a phased manner, approximately one site per month, from January 2019. We anticipate ending recruitment 12 months after the first site opens; estimated closure date – 31st January 2020. Screening, recruitment and the initial intervention session will take place in the in-patient setting. Where participants are discharged prior to the end of the 3 week intervention period it may be possible for intervention to be continued by community services.

Details of confirmed sites will be available once approvals are in place.

6 Methods- Feasibility RCT

6.1 Design

Pragmatic, feasibility multi-centre stratified randomised controlled trial with nested process evaluation and exploration of proof-of-concept, designed with collaborative service user involvement.

6.1.1 Sample size

Patient participants

We anticipate the sample size to be between 60 and 80 based on an estimated average recruitment rate of 1 to 2 patient participants per site per month with phased opening of sites and a pre-specified maximum recruitment period of 12 months.

Carer participants

We predict that 40-50 carers will take part.

6.2 Criteria- patient participants

Inclusion Criteria- patient participants

- Over 18 years old
- Confirmed stroke (ischaemic or haemorrhagic)
- Positive for spatial inattention at routine screening
- Spatial inattention impacting on functional task performance
- At least 1 week post stroke onset
- Eligible for standard occupational therapy (for at least one session)
- Able to provide informed consent (or availability of personal/ professional consultee)
- Able to sit with support and perform brief research intervention (e.g. has sufficient vision, physical mobility and cognition to be able to participate)

Exclusion criteria- patient participants

- Receiving or expected to receive end of life care
- Discharge anticipated before at least one therapy session

We will begin this feasibility trial with broad inclusion criteria but will monitor and adjust these as recruitment proceeds. For example we will note levels of pre-stroke dependency using the modified Rankin Scale[24,25] (mRS). We will initially include people regardless of their mRS, including those who were assessed as pre-morbidly dependent ie >3 on the mRS (an mRS of 4 is defined as: moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance).

We will only add an mRS of >3 as an exclusion criterion should staff feedback and review of patient participation indicate that the intervention appears unsuitable for this group of patients.

6.3 Criteria- carer participants

Inclusion criteria- carer participants

- Informal carer of a patient in the trial
- Aged 18 or over
- Able to provide informed consent

6.4 Participant identification and screening

Initial identification of patients with spatial inattention

NHS OTs in the recruiting sites will identify potential participants who are 1+ weeks post-stroke and have spatial inattention affecting activities of daily living (ADLs) as part of routine clinical care according to the clinical manual to be developed in conjunction with participating therapists (the Occupational therapy group- see figure 2).

Screening of identified patients with spatial inattention

NHS OTs will inform NHS CRN practitioners/ Trust research staff of patients who have been identified as having spatial inattention. The CRN practitioners/ / Trust research staff will screen patients for other eligibility criteria, recording reasons for ineligibility on a screening log.

6.5 Recruitment and consent

6.5.1 Patient participants

CRN practitioner/ Trust research staff will approach patients identified as meeting the eligibility criteria and provide them with information about the study (see accessible PIS appendix A). The CRN practitioner/ Trust research staff will be responsible for obtaining informed consent or a consultee declaration.

We will provide study materials including information sheets and consent forms in a format and presented in a manner to facilitate maximum engagement of participants

with cognitive, communication or physical impairments. These may be read to the patient if this is preferred/ most accessible for the individual.

In line with the Mental Capacity Act (2005), we will deem that patients have capacity to consent unless a clinician involved in their care determines otherwise. The CRN practitioner/ Trust research staff taking consent will liaise with the referring OT and clinical team in order to ascertain whether they may not have capacity to consent. If there are doubts as to whether a participant has capacity we will use the Assessing Capacity form (appendix B) to assess capacity to consent to the study. For patients who do not have capacity to consent to the study the CRN practitioner/ / Trust research staff will provide information to a personal consultee (consultee information cover sheet, appendix C) and where no personal consultee is available, a professional consultee will be sought. In all cases we will provide the information sheet and the patient or consultee will be given sufficient time to consider the information and discuss with others before making a decision on participation. Should a patient participant lose capacity during the study they would be withdrawn unless a consultee is identified and a consultee declaration completed.

We will record consent with easy access consent forms and consultee declarations (appendix D and E). Where a stroke survivor or consultee is unable to read or write on the consent/ declaration form for any reason the CRN practitioner or another professional who is not directly providing any occupational therapy will record and witness their verbal or non-verbal consent.

The CRN practitioner/Trust research staff/ NHS OTs will record baseline demographic and clinical data before randomisation including: time from stroke; first ever or recurrent stroke; stroke type (infarct or haemorrhage) and subtype; stroke severity on admission (National Institutes of Health Stroke Scale (NIHSS)[26]; pre-stroke modified Rankin Scale (mRS), co-morbidities.

We aim to find out whether it is feasible for CRN practitioners/ / Trust research staff to complete the tasks described above (and randomisation and outcome collection described below). If they cannot we will note the reasons why and the site and a UoM researcher will take on these roles so that we can recruit participants and collect data.

6.5.2 Carer participants

Following recruitment we will ask the patient participants to nominate an informal carer to participate in the study. For patients with consultee consent we will invite the consultee to participate as the carer. The CRN practitioner/ Trust research staff will approach the carer and provide them with a carer participant information sheet (appendix F) as soon as possible after the patient participant has been recruited. We will ask carers who wish to take part to consent face to face or by phone (appendix G and H). We will obtain basic demographic data from consented carers including age, sex, ethnicity, relationship to the stroke survivor, residence in relation to the stroke

survivor and contact details. We will not randomise carer participants nor will they receive any intervention. We will seek outcome data from them at T2.

6.6 Baseline assessment

NHS OTs will complete a baseline assessment with consented patient participants which will include OCS hearts[27] and star cancellation tests[28]. We will also test the feasibility of NHS OTs (or CRN practitioners/ Trust research staff) completing the Catherine Bergego Scale[29]/ the Kessler Foundation Neglect Assessment Process[30–32] at baseline however should the completion of this impact on the timing of the start of therapy then we will discontinue baseline collection of this measure. NHS OTs will also record severity of spatial inattention based on a combination of functional observations, assessment and their clinical judgement. Details for this rating will be provided in the clinical manual. Should these baseline assessments show that the patient is no longer displaying spatial inattention they will not be eligible to take part in the study.

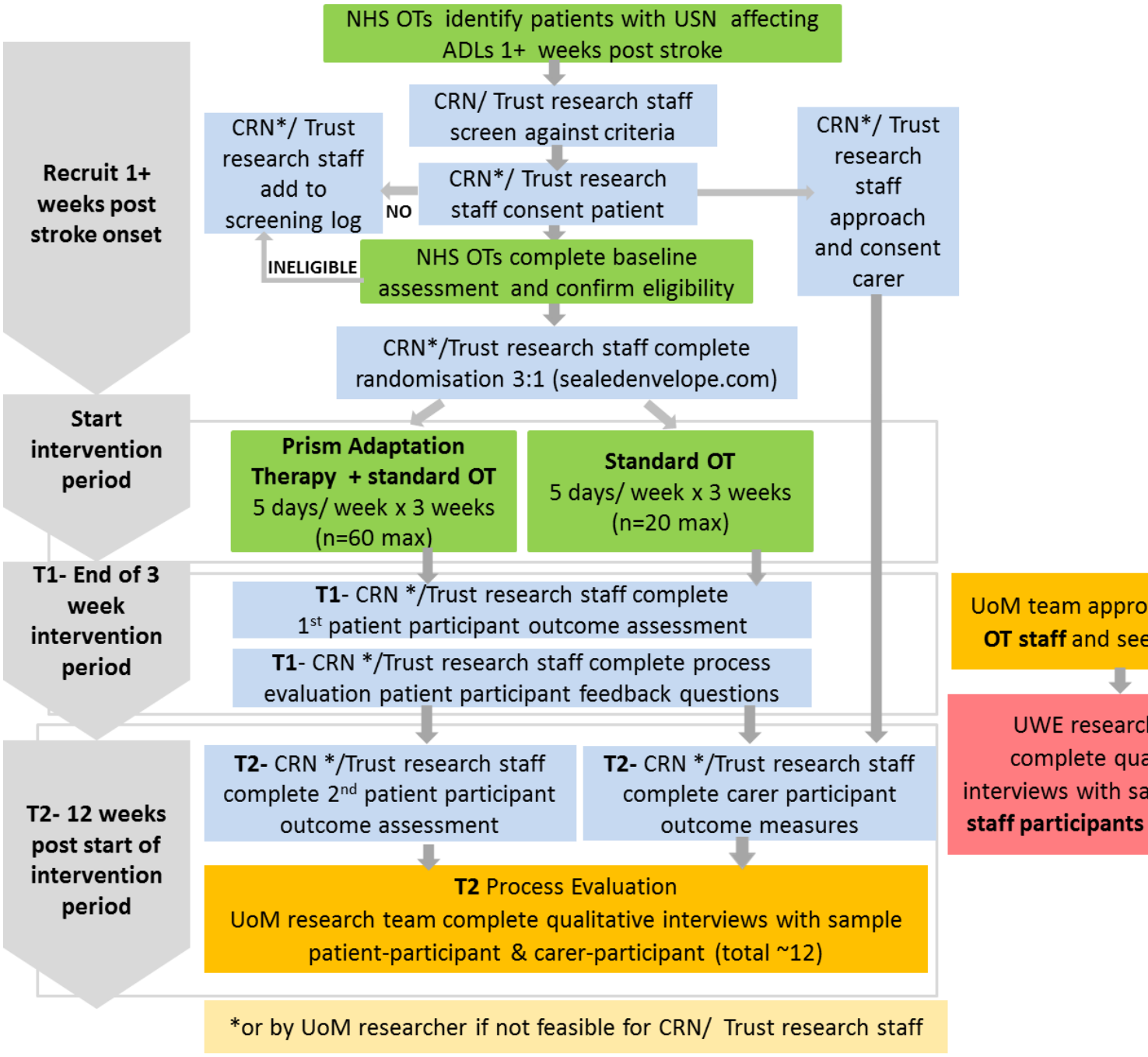
CRN practitioners/ Trust research staff and/ or NHS OTs will obtain and record demographic data and baseline information prior to randomisation.

6.7 Randomisation

The trial statistician will design the randomisation stratified by site. Treatment allocation will be 3:1 (3 PAT as part of occupational therapy: 1 occupational therapy alone) to maximise the number of participants in the intervention arm, while retaining a control. An independent, web-based, third-party professional company (www.sealedenvelope.com) will provide the randomisation service. CRN practitioners/ Trust research staff will perform randomisation as soon as possible after informed consent has been obtained and the baseline assessment is completed. The CRN practitioner/ Trust research staff will record the allocated arm of the trial in the data collection tool for the individual participant and inform the participant and treating OT of the allocation. The study statistician will also be informed directly by sealedenvelope.com of the allocated arm.

Patient participants, treating therapists and consent-seeking/ randomising CRN practitioner/ Trust research staff will remain unblinded to the allocation. Where possible members of the research team and those concerned with follow-up assessment will be blind to group allocation.

Figure 1: Flow chart SPATIAL study process



6.8 Study procedure

Standardised OT including PAT (intervention) will be compared with OT without PAT (control).

Intervention arm

For participants in the intervention arm PAT will be offered at the start of standardised OT for up to 3 weeks, 5 days a week. PAT takes no more than 5 minutes plus set up time (seating the participants and fitting the glasses). To perform PAT the participant will be seated at a table in front of a training box which has open ends.

The participant will be fitted with 12.5° prism glasses (figure 2) and the occupational therapist will hold up targets at the opposite end of the box, and ask the participant to reach to the target (figure 3). The prism glasses shift the view of the world a little to one side, so that initially the participant will miss the target.

Figure 2: 12.5° prism glasses

With repeated pointing to targets (n= maximum of 90, or ≤5 minutes), the participant's perception of space relative to the body is adjusted so that when the glasses are removed the brain is tricked to looking more to the side affected by spatial inattention.

When the prism glasses have been removed the session will continue with standardised OT. The effect of prism adaptation training is strongest in the hours soon after treatment; reducing the spatial inattention for long enough to take part in usual OT that aims to increase independence in activities of daily living. The OT staff will record the time that PAT took place, the number of repetitions of pointing, the length and type of therapy intervention and the member of staff conducting the PAT and the therapy.

We will advise occupational therapy staff that the time spent on PAT should not be in addition to standardised OT but should be part of the session. The intervention arm should not receive more therapy than the control arm.

The glasses are CE marked devices being used within their licensed purpose. Manufacturer: VTE Vision Training Equipment StressPoinTest. The local OTs delivering the intervention will be trained in the use of the glasses, including set-up for each

participant (rightward or leftward shift). Equipment will be issued at the time of site set up, and collected by the study team as soon as possible (ideally within one week) following the end of the study at each site. Equipment cleaning is detailed in an SOP.

Control arm

Participants in the control group will receive standardised OT without PAT. The OT staff will record the timing and type of therapy intervention and the member of staff providing the therapy.

Standardised OT

In advance of the study opening to recruitment, a group of specialist OTs (referred to as the occupational therapy group in Figure 4) working in conjunction with the research team will agree by consensus the types of activities included in "standardised OT". We will personalise standardised OT to the individual participant in line with the National Clinical Guidelines for Stroke[14] which suggest patients should accumulate at least 45 minutes of each appropriate therapy every day, "at a frequency that enables them to meet their rehabilitation goals, and for as long as they are willing and capable of participating and showing measurable benefit from treatment".

The treating OT staff member will record the frequency, amount, and content of each OT session and this will be reviewed by the research team to ensure that treatment is as intended. In some cases the participant may be treated by different occupational therapists, as they move through the care pathway in stroke services (acute, rehabilitation, early supported discharge) and this will be recorded. Where possible OT staff across the pathway will be involved and trained in the study process, including in the provision of PAT to allow treatment to continue for the full 3 weeks, and into the community if necessary.

See figure 1 for flow chart of the full study process.

6.9 Participant Outcomes

6.9.1 Patient participant Outcomes

These will be measured at the end of the three week intervention period (T1) and 12 weeks after commencement of intervention (T2). CRN practitioners/ Trust research staff will be trained to conduct outcome measurements at a location convenient to the participant. The intended primary outcome for a definitive trial is the Nottingham Extended Activities of Daily Living (EADL)[33] at T2. Secondary outcomes will be: standardised tests for spatial inattention (e.g.: OCS hearts test[27], BIT star cancellation[28], Radner reading[34]) at T1 and T2; PRECiS, a patient reported measure of impact developed for and by people with cognitive difficulties[35] and the EQ5D5L[36] at T2; length of stay, destination on transfer from in-patient care, modified Rankin[37] on transfer and adverse events up until T2. See table 1 for measures and data to be collected.

Table 1: Data collection and outcome measures- patient participants

Measure	Method	Person responsible	Timing				
			Screening	Intervention period	Baseline	T1	T2
Screen against eligibility criteria	Screening	NHS OTs then CRN practitioners*	X				
Baseline demographics: time since stroke; first vs recurrent stroke; stroke type and sub-type; co-morbidities; NIHSS on admission; pre-stroke mRS	Extracted from records	CRN practitioners*			X		
Recording of severity of spatial inattention (based on functional observations, assessment and clinical judgement)	Assessment	NHS OT			X		
Standardised assessments (OCS hearts, star cancellation, Radner Reading test)	Assessment	NHS OT (baseline) CRN practitioners* (T1 and T2)			X	X	X
Catherine Bergego Scale/ the Kessler Foundation Neglect Assessment Process	Assessment	CRN practitioners* or NHS OT staff			X (see 6.6)	X	X
EADL	Assessment	CRN practitioners*					X
PRECiS	Assessment	CRN practitioners*					X
EQ5D5L	Assessment	CRN practitioners*					X
Length of stay	Extracted from records	CRN practitioners*					X**
Destination on discharge/ transfer from in-patient stay							X**
Modified Rankin on transfer/ discharge							X
Adverse events	Reported during admission or by patient at outcome assessment	NHS OT staff or CRN practitioners*		X		X	X
Time and length of PAT (intervention arm only), timing, length and content of OT sessions and staff member.	Therapy staff recording	NHS OT staff		X			

** CRN practitioners including Trust research staff/ Trust clinical staff with research responsibilities; ** or at discharge if after T2*

We will also explore the feasibility (cost of time required) for CRN practitioners/ Trust research staff and/or unblinded NHS OTs to complete the Catherine Bergego Scale[29]/ the Kessler Foundation Neglect Assessment Process[30] a standardised behavioural observation of spatial inattention at T1 and T2.

Where possible the person collecting the outcome measures will remain blinded to the participants' treatment allocation. Data will be recorded following each assessment to identify if they have been unintentionally unblinded[38,39].

Should it prove un-feasible for the CRN practitioners/ Trust research staff to complete screening, consenting or outcome measurements these will be completed by a suitably trained member of the UoM research team. A trial log will be maintained detailing who has completed each of these activities at each site and reasons for non-completion.

6.9.2 Carer participant Outcomes

CRN practitioners/ Trust research staff will measure impact on carers with the Carer Experience Scale[40], modified Carer Strain index[41] and self-reported informal carer costs at T2. These may be completed by phone, post or face to face at a venue convenient to the carer.

6.10 Data analysis

In keeping with the aims of this feasibility trial, our analyses will be mostly descriptive to establish the recruitment, fidelity and attrition rates and the variability (SD) of the primary participant outcome. In addition, we will undertake exploratory comparisons of participant outcome on an intention-to-treat basis. We will seek outcome data for all participants regardless of treatment adherence unless consent to follow-up is explicitly withdrawn. We recognise that such analyses are under-powered but also that future funders will be reassured if the wide confidence intervals do not exclude differences likely to lead to conclusions of cost effectiveness. We will adjust analyses for the stratification criteria using standard regression methods.

7. Proof of concept

The proof-of-concept component aims to ascertain whether any effect of PAT on reducing symptoms of spatial inattention enhances engagement in standardised OT. We will only measure engagement in one therapy session, the patient's first post-randomisation. Patients will be asked to perform a brief functional therapy activity (visual search/ scanning) with their treating OT twice within the first session, before and after PAT (or at equivalent time points in the non-PAT arm). Therapists will explain, cue and feedback to participants as in a typical therapy session. This activity is designed to provide a standardised way of assessing engagement. The task will have two similar versions: one for before PAT, and the other for after PAT. The order of presentation to

patients will be counterbalanced by randomisation. We will video-record these short pre- and post-PAT sections of the first OT session for later analysis of engagement ratings made by an occupational therapist member of the research team, blinded to both intervention arm and timing of task.

To minimise the video rater's fatigue these videos may be presented to the blinded therapist in two viewing sessions, where the research team will ensure that the two videos from each patient are not presented together. The blinded therapist will use the videos to rate level of engagement on a single 10 cm visual analogue scale, with any change in this composite engagement score (either an increase or decrease) before and after PAT used as the dependent variable in later analysis. The concept of 'engagement' as a composite of observable patient behaviours and interactional qualities between patient and therapist will, for the purposes of this study, be outlined *a priori* for the benefit of the blinded video rater and for the benefit of later readers. The behaviours and interactions that are considered to be indicative of engagement will be informed by practicing clinicians and may include, but are not limited to amount of focus towards the activity, responsiveness to cues and feedback, willingness to perform the activity, and behavioural observations such as posture and gaze. In order to obtain a measure of intra-rater reliability, a random subset (e.g. 50%) of videos will be appraised on the same visual analogue scale by the same blinded rater during a later viewing session.

If patients decline consent to video recording we will ask if a researcher can sit in and observe them instead.

We will also ask NHS OTs delivering the activity to rate patients' level of engagement after the second half of the engagement session using three options: poorer engagement, similar engagement, or improved engagement. This will allow us to explore the degree of corroboration between therapists' impressions of engagement improvement or deterioration during the therapy session and those impressions of the video rater during video analysis.

7.1 Data processing - proof of concept

The UoM research team will carry out video recording using digital video recorders. The UoM team will check the quality of the video recordings, label and prepare them to be viewed by the blinded OT assessor. The data will be stored and accessed only through password protected computers at UoM. Members of the UWE research team who are required to rate the videos will do so at the UoM only. All computers at UoM are protected by a firewall. There will be no movement of computers between sites. The videos will be destroyed in line with the data management plan and UoM's records retention schedule.

8 Process Evaluation

We will collect additional feasibility data on recruitment and the study process, treatment fidelity, implementation, acceptability and usefulness of therapy through feedback and qualitative interviews with stroke patients and carers who have participated in the RCT and occupational therapy staff involved in the trial.

Study materials including information sheets and consent forms will be provided in a format and presented in a manner to facilitate maximum engagement of participants with visual, cognitive and/ or communication impairments.

Table 2 summarises the process evaluation participants, methodology and timescales.

8.1 Occupational Therapy staff Interviews

UWE staff will conduct in-depth qualitative interviews over the telephone, guided by an interview schedule developed with our service user partners. Interview questions will explore occupational therapists' views on a number of aspects of the study, including acceptability and feasibility of the intervention and training received for it, feasibility of the approach taken to identifying study sample and whether the eligibility criteria were correct. Additionally we will look at the feasibility of the recruitment process for a larger trial; the occupational therapists' experience of implementing the intervention and practicalities of its employment in a wider study. We will explore therapists' perceptions of the study design, in particular whether the first session, which includes a video-taped assessment of proof of concept, had an impact on the remaining therapy session and whether the therapists feel the intervention was worthwhile, to ascertain potential inclination to take part in a larger study.

These interviews are being conducted to address the following objective:

- To establish the acceptability to therapists of delivering the intervention including the training provided to them.

8.1.1 Eligibility criteria- staff

- A member of the NHS occupational therapy team (Occupational Therapist, Occupational Therapy Assistant, rehabilitation assistant)
- Has been trained in the study processes
- The staff member has treated a minimum of 1 patient participant from the intervention arm

8.1.2 Recruitment-staff

We will recruit up to 12 OT staff members to take part in semi structured qualitative interviews, subject to data saturation (appendix I staff interview schedule). This will ideally include 2 staff per site with a minimum of 1 OT staff member per site from the in-patient setting. At sites where community based OT staff have been trained and are

involved in providing the intervention to participants following hospital discharge the second staff member should be community based. Overall we anticipate that most of the interviewees will be in-patient service providers.

We will purposively sample therapists based on factors including research site and work setting (in-patients; community). Eligible occupational therapy staff will be contacted by a member of the UoM research team and provided with a PIS (appendix J – Staff PIS). The UoM research team will ask therapy staff who agree to participate in the study to complete and sign a consent form (appendix K: staff consent written); alternatively UoM researchers will take consent orally over the phone. Where oral consent is taken this should be taken in advance of the telephone interview and on the oral consent form (appendix L- staff oral consent form) where it should be recorded along with the date, name and signature of the person taking consent. We will request and store basic demographic information including sex, ethnicity, work role and setting and grade at the point of consent.

Telephone interviews will take place after the first patient participant in the intervention arm treated by the staff member has reached Time point 1. UWE-based evaluation team members will carry out the interviews at a date and time convenient to the staff participant. We anticipate these interviews taking a maximum of 45 minutes.

8.1.3 Data Processing and Analysis (PE- staff interviews)

UoM's approved transcription services will transcribe verbatim the digitally recorded interviews to allow for thematic analysis within NVivo 11 (QSR International) which will be used to organise, analyse and find insights in the qualitative interview data.

We will start thematic analysis following the first interviews. The research team at UWE will undertake all stages of the analysis. Data will be anonymised, coded and then organised into themes. To minimise the risk of bias, multiple researchers will contribute to the data analysis and theme generation.

We will store and access the data through password protected computers at UWE and share with UoM's approved transcription services through password protected electronic transfer systems. All computers at UWE are protected by a firewall. There will be no movement of computers between sites. Only the anonymised transcripts will be transferred to UoM. The transcripts will be destroyed in line with the data management plan and UWEs records retention schedule.

The UoM research team will retain the staff consent forms and demographic information collected; these will not be transferred to the UWE team.

8.2 Patient Participant Feedback (T1): experiences and acceptability of the intervention

In order to explore the patient experiences and acceptability of the intervention we will collect data from all intervention arm patient participants at the end of the intended 3 week intervention period, regardless of how many treatment sessions they participate in during that period. This will take place following collection of RCT outcome data by CRN practitioners/ Trust research staff. We will ask set questions about acceptability of the initial assessment and intervention, how they felt whilst undertaking the therapy, their views on any possible positive or negative impacts and they will be invited to suggest any changes to the intervention that might help future patients. These data from the first 20 patient participants undergoing PAT will be reviewed to confirm if this should be continued for all further participants.

These data are being collected in order to address the following study objective:

- To explore the acceptability of the intervention to people with spatial inattention at the end of the planned three weeks of intervention regardless of whether participants complete the three weeks (Time 1)

8.2.1 Eligibility criteria- patient participant

- Patient has consented, or consultee has provided assent for patient to take part in the RCT (see 6.2) and has experienced at least one PAT and occupational therapy session

8.2.1 Data Processing and Analysis (PE- patient participant feedback T1)

We will remove identifiable information from written responses to process evaluation set questions and pseudo-anonymise them such that only the research staff at the UoM will have access to the process to identify them. The UoM team will complete brief content analysis of the responses. These pseudo anonymised data will then be transferred electronically to the evaluation team at UWE via password protected electronic transfer systems.

8.3 Patient and Carer participant Interviews (T2): acceptability of the trial process

We will collect patient and informal carer views of the acceptability of the trial process at Time 2 (three months after completion of the intervention) from a sample of patient and carer participants who meet the eligibility criteria. These data may be collected just after the outcome measures are undertaken, which may be in the hospital or patient's/ carer own home or these may be completed at an alternative time if this is preferable to the participant. These interviews will expand on information gathered from all patient participants through questions at time point 1.

Members of the UoM based research team with experience in qualitative interviewing using a topic guide developed with service user partners will carry out the interviews (Appendix M: patient participant; interview schedule Appendix N: interview schedule carer participants). We will conduct patient participant interviews face to face in the hospital or patient's home. Where a second visit is required to complete the interview the option of completing the interview by telephone will be considered where this is acceptable to the patient participant. We will conduct carer participant interviews either face to face or by telephone as preferred. We anticipate these interviews taking a maximum of 40 minutes.

The carer and patient interviews (T2) aim to address the following objective:

- To explore the acceptability of the trial processes to people with spatial inattention and their informal carers at the final outcome assessment (T2) augmented by in-depth qualitative interviews with approximately 12 participants.

8.3.1 Eligibility patient participant and carer interviews

Carer eligibility criteria

- Consented to take part in an interview if selected at the time of recruitment to the study (see 6.3)
- Associated patient participated in at least 1 OT treatment session post randomisation

Patient participant eligibility criteria

- Able to consent to take part in an interview.
- Participated in at least one 1 treatment session

NB: should a patient participant who lacked capacity at the time of recruitment regain capacity to consent they should be re-consented to the study and would be eligible to consider participating in an interview (see 5.3)

8.3.2 Recruitment- patient participant and carer interviews (T2)

We will include up to 12 participants in individual qualitative interviews, subject to data saturation. In most instances the patient and carer interview participants will not be dyadic. We will use purposive sampling of patients and carer participants and may include participants from all sites, sex, severity of stroke, and arm of the trial. The sample will include carers and patient participants with the majority being patient participants (from both arms) with up to four being carer participants.

Table 2: Process evaluation- summary of recruitment and participant involvement

	TYPE OF PARTICIPANT

		OT staff	All intervention arm participants	Sample of patient and carer participants
Study objectives (see section 4)		1, 2, 6,10	11	6, 7, 12
Number of participants		Sample of eligible OT staff; ≤ 12 to data saturation	All intervention arm participants (review after 20)	≤ 12 to data saturation Predominantly patient participants in intervention arm. (Patient participants should be able to self-consent)
Data collection format		Telephone interview	Feedback questions	Face to face or phone interview
Consent	**Timing**	No sooner than T1 for 1st patient participant	At initial recruitment to RCT	At initial recruitment to study; patient with regained capacity and may be consented prior to interview.
	Team	UoM team	CRN staff/Trust research staff	CRN staff/ Trust research staff
Data collection	**Timing**	No sooner than T1 for first patient participants	T1	T2
	Team	UWE team	CRN staff/ Trust research staff	UoM team
Team holding identifiable data		UoM and UWE team	UoM team	UoM team

8.3.3 Data Processing and Analysis (PE interviews, T2)

We will digitally record interviews and transcribe them verbatim to allow for thematic analysis; we will use NVivo 11(QSR International) to organise and manage the coding of the qualitative interview data to allow for the generation of themes. We will start thematic analysis following the first interviews. The research team at UWE will undertake all stages of the analysis. We will anonymise and code data, and then organise into themes. To minimise the treat of bias, multiple researchers will contribute to the data analysis and theme generation.

We will store and access the data at UoM through password protected computers and shared with University approved transcription services through password protected electronic transfer systems. We will pseudo-anonymise transcripts such that only the research staff at the UoM will have access to the process to identify them. We will securely transfer them to the evaluation team at UWE for thematic analysis. We will

store and access the audio files only on UoM computers and destroy them in line with the data management plan and UoM records retention schedule.

9. Patient, Carer and Public Involvement Advisory Group

Ann Bamford, the PCPI co-applicant, has worked with the research team throughout the planning and application stages of the project. She will continue to do so throughout the study and is currently identifying and setting up a dedicated SPATIAL advisory group. The advisory group will work with the research team to provide input and advice on all research activities from study documentation through to the dissemination of results. The group will meet up to 10 times during the course of the study as required.

The PCPI co-applicant will chair the advisory group. She also sits on the trial management group and will feed information in and out of both groups; she also has access to members of the research team should she wish to discuss issues outside of meetings. A confidential process will be established to facilitate the PCPI advisory group feeding directly into the Trial Steering Committee (TSC). Two additional stroke survivors are independent members of the TSC.

PCPI members will be offered an honorarium and expenses in line with INVOLVE best practice.

10. Safety reporting

We will adhere to research ethics safety reporting for non-CTIMPS, specifically that we will report to the REC a serious adverse event (SAE) occurring to a research participant only if the CI believed that the SAE is related to the research. We will report within 15 days of the CI becoming aware and using the official NRES SAE report form. The only anticipated adverse reactions (ARs) to Prism Adaptation Training are: dizziness and possibly nausea and neither are deemed serious.

Due to the nature of the population being studied a range of AEs and SAEs may occur which would be unrelated to the intervention e.g. deaths, further strokes, infections, accidental injury linked to the stroke.

During participants' in-patient stay, and during the 3 week intervention period should the participant be discharged home during this time, we will examine the feasibility of recording adverse events that could plausibly be reduced by the intervention, such as falls and accidental injuries, according to the AE reporting process, by the treating member of OT staff, local principal investigator or CRN practitioners/ Trust research staff and details provided to the UoM research team. At the 3 and 12 week outcome assessments patient participants we will ask patient participants about their general health since the end of their 3 week intervention period.

11. Study monitoring

The trial manager and UoM based research team will remain in regular contact with sites by email, phone and through visits periodically during the course of the study to provide support and training on the study process, the intervention and procedures for recording participants involvement. No formal monitoring visits will take place however a closure visit will be conducted at the end of the study on behalf of the chief investigator.

The research team has formed a Trial Management Group which will meet throughout the duration of the study; initially monthly reducing to quarterly or more frequently as required.

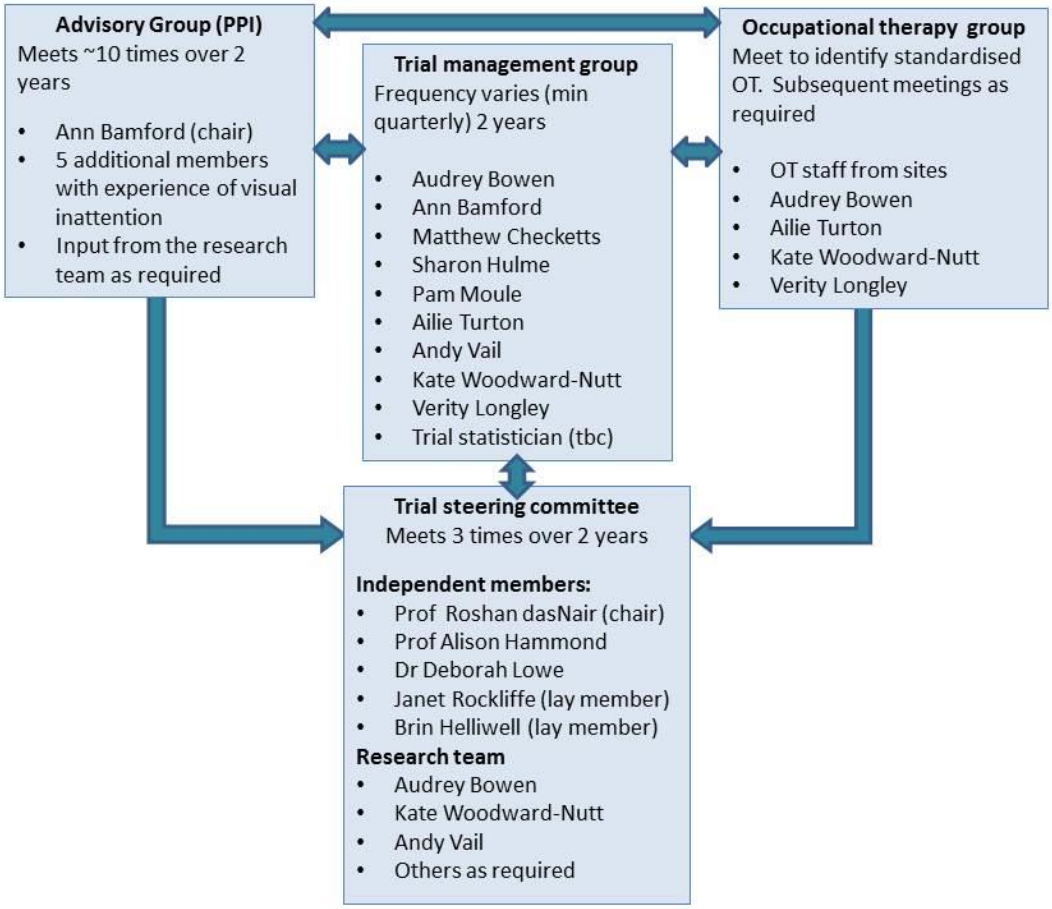
Due to this being a feasibility study there is no requirement for a data monitoring committee however a Trial Steering Committee has been convened which will meet 3 times during the course of the study. The TSC has an independent chair and an additional four independent members. The CI, trial manager and statistician will attend the meetings along with other members of the research team as required. The role of the TSC will include ensuring study progress, adherence to protocol and patient safety. The TSC terms of reference (appendix O) detail the role and scope of the committee.

We will form an occupational therapy advisory group, consisting of NHS occupational therapists. This group will first meet prior to the start of the study and their role will include:

- agreeing on what activities/ interventions form “standardised occupational therapy”
- developing and agreeing on the processes for screening, conducting baseline assessments and outcome measures for inclusion in the clinical manual
- supporting the identification of equipment specification e.g. size, materials, infection control issues
- supporting decisions about changes needed during the feasibility trial
- helping interpret findings and designing a future trial

Figure 4 details of relationships between TSC and other groups established for this study.

Figure 4: Relationships between SPATIAL Committees and groups



12. Ethics

12.1 Declaration of Helsinki

The CI will ensure that this study is conducted in full conformity with the current revision of the Declaration of Helsinki (last amended October 2013).

12.2 Guidelines for Good Clinical Practice

The CI will ensure that this study is conducted in full conformity with Research Governance Framework and Good Clinical Practice. Co-investigators have undergone Proportionate Good Clinical Practice training will be completed by staff as required..

12.3 Approvals

We will submit the protocol to an appropriate Research Ethics Committee and UoM (sponsor) for written approval prior to commencement of recruitment. The Investigator will submit and, where necessary, obtain approval from the above parties for all substantial amendments to the original approved documents.

We will communicate any amendments or changes to protocol to NHS site research teams, to CRN practitioners and treating OT staff by the trial manager and UoM research team and provide revised documentation.

12.4 Participant Confidentiality

The CI will ensure that the participant's anonymity is maintained. We will identify participants by a unique participant study number only on any documentation associated with the study. We will store data in accordance with local data protection guidelines, GDPR and in keeping with the MRC's Personal Information in Medical Research Guidelines.

We will ask participants taking part in interviews not to disclose any personal identifiable information during the course of the recorded interview but if any are disclosed these will be redacted from transcripts.

We will keep all information collected during the course of the study strictly confidential. We will only breach confidentiality if required to meet a duty of care e.g. if the researcher becomes aware that someone is at risk of harm. This is explained in participant and consultee information sheets. Should this occur the Chief Investigator would be made aware and appropriate course of action will be taken, depending on context.

13. Data handling and record keeping

We will complete and store study documentation in accordance to the Medical Research Council's guidelines for Good Clinical Practice in clinical trials, the local project Data Management Plan (ref 30346) and other applicable local guidelines. We will anonymise study documentation as soon as practical and only the CI will retain a link to the study file. This will be kept in a secure location, accessible to the CI and study Sponsor only. We will retain study documentation according to UoM's record retention schedule and archive in accordance with the Sponsor's recommendations.

14. Dissemination

14.1 Outputs

We will submit work-in-progress presentations at national and international conferences. We will invite people who have had a stroke who partnered us in co-developing the study to contribute to presentations and publications.

We will present and discuss the results with the SPATIAL service user group and with stroke patients and carers across the North West. We will submit a final report to NIHR at the end of the study and an accessible summary of the final results to all study participants unless they opt out of receiving this.

If the feasibility trial is successful and the results are positive we will produce a protocol for a definitive trial.

14.2 Publication policy

We will determine authorship of any publications resulting from this study on the basis of the Uniform Requirement for Manuscripts Submitted to Biomedical Journals, which states:

- Authorship credit should be based on (1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; (3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.
- When a large, multicentre group has conducted the work, the group should identify the individuals who accept direct responsibility for the manuscript.
- These individuals should fully meet the criteria for authorship defined above.
- Acquisition of funding, collection of data, or general supervision of the research group, alone, does not justify authorship.
- All persons designated as authors should qualify for authorship, and all those who qualify should be listed.
- Each author should have participated sufficiently in the work to take public responsibility for appropriate proportions of the content.

Mr Matthew Checketts will include parts of this project in his PhD thesis.

The TMG will authorise all presentations and publications relating to the study and the funder will be acknowledged and notified.

15. Compensation arrangements and insurance

The University of Manchester will arrange insurance for research involving human subjects that provides cover for legal liabilities arising from its actions or those of its staff or supervised students, subject to policy terms and conditions.

16. Conflict of interests

The research team have no conflicts of interests to declare.

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18. Appendices

Appendix A	Patient Participant Information Sheet
Appendix B	Assessing capacity form
Appendix C	Consultee information cover sheet
Appendix D	Patient participant Consent Form
Appendix E	Consultee declaration
Appendix F	Carer Participant Information sheet
Appendix G	Carer Consent Form
Appendix H	Carer oral Consent Form
Appendix I	Staff Participant Interview Schedule
Appendix J	Staff Participant Information Sheet
Appendix K	Staff Participant Consent Form
Appendix L	Staff Participant oral Consent Form
Appendix M	Patient Participant Interview Schedule
Appendix N	Carer Participant Interview Schedule
Appendix O	Trial steering committee terms of reference

Appendices A to N have not been included in the protocol; REC approved study documentation will be used.

Appendix O

TRIAL STEERING COMMITTEE (TSC)

A feasibility Study of Prisms And Therapy In Attention Loss after stroke (SPATIAL feasibility).

1. The role of the SPATIAL TSC

The role of the TSC is to provide overall supervision for the project on behalf of the Project Sponsor and Project Funder and to ensure that the project is conducted to the rigorous standards set out in the Department of Health's Research Governance Framework for Health and Social Care and the Guidelines for Good Clinical Practice.

It should be noted that the day-to-day management of the project is the responsibility of the Chief Investigator, and as such the Chief Investigator has set up a separate Trial Management Group (TMG) to assist with this function.

The main features of the TSC are as follows:

- To provide advice, through its Chair, to the Funder (NIHR), the Sponsor (University of Manchester), the Chief Investigator (Audrey Bowen), the Host Institution (Salford Royal Foundation Trust) on all appropriate aspects of the project
- To concentrate on progress of the trial, adherence to the protocol, patient safety and the consideration of new information of relevance to the research question
- The rights, safety and well-being of the participants are the most important considerations and should prevail over the interests of science and society
- To ensure appropriate ethical and other approvals are obtained in line with the project plan
- To agree proposals for substantial protocol amendments and provide advice to the sponsor and funder regarding approvals of such amendments
- To provide advice to the investigators on all aspects of the trial/project.

2 Membership of SPATIALTSC

- The TSC will be composed of:
    - the independent chair (Prof Roshan das Nair- clinical psychologist)
    - the chief investigator (Prof Audrey Bowen)
    - the trial statistician (Prof Andy Vail)
    - 2 independent discipline specific experts (Prof Alison Hammond- Occupational Therapist/ researcher and Dr Deb Lowe- stroke consultant)
    - 2 independent lay members.(Janet Rockliffe and Brin Helliwell)
    - Meetings will also be attended by the trial manager (Kate Woodward-Nutt)
    - Additional members of the study team will attend as required at the discretion of the chair.

- Only independent members will be entitled to vote and the Chair will have a casting vote
- The Chair and members will sign and maintain a log of potential conflicts of interest.
- Members should be made aware that the information included in TSC reports is confidential and must not be disclosed outside of the committee.

3 TSC meetings

- Depending on the materials to be discussed the meeting may be face to face or it may be conducted via telephone or video conference.
- The chair will oversee the meeting and ensure that records are made and retained.
- It is anticipated that there will be 3 meetings during the course of this study with the 1st meeting in September 2018. Subsequent meetings are likely to be held around June 2019 and April 2020
- Minutes of meetings will be sent to all members, the sponsor, and the funder and be retained in the study master file.

4 The Role of the Chair

The Chair's responsibilities include:

- Liaising with the Chief Investigator to set up a schedule of meetings to align with the project plan
- Establishing clear reporting lines to the Funder and Sponsor.
- Being familiar with relevant guidance documents
- Providing an independent, experienced opinion if conflicts arise between the needs of the research team, the funder, the sponsor, the participating organisations and/or any other agencies
- Leading the TSC to provide regular, impartial oversight of the study, especially to identify and pre-empt problems
- Provide final approval of meeting minutes
- Ensuring that changes to the protocol are debated and endorsed by the TSC
- Being available to provide independent advice as required
- Commenting in detail regarding the continuation, extension or termination of the project

5 Sponsor responsibilities

The chief investigator, on behalf of the sponsor, will have the following responsibilities:

- Ensure relevant clinical and other data on the safety of the study interventions are provided to the TSC
- Ensure that the TSC members are informed of trial progress

- In preparation of meetings ensure that the TSC receive a summary of the status of the trial and any clinical or other issues
- Provide representation at all TSC meetings as required
- Arrange fair and reasonable reimbursement to TSC members for their committee responsibilities
- Maintain ultimate responsibility for safe study conduct

6 Trial statistician responsibilities

The chief investigator, on behalf of the sponsor, will provide a trial statistician in support of the TSC process. The responsibilities are as follows:

- Work with the TSC to identify data required for the TSC reports
- Maintain a secure and confidential archive of electronic copies of datasets and related programs provided to the IDMC Statistician.
- Provide consultation regarding the information presented in the TSC Stats Reports, as requested by TSC members.