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Study protocol for a randomised controlled trial of consenting behaviours in patients undergoing spinal injections: the Risks In Spinal Consenting for Surgery (RISCS) trial

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Keywords: MEDICAL LAW, MEDICAL ETHICS, SURGERY, Clinical trials < THERAPEUTICS

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Abstract:

Introduction:

There are major differences between legal and medical approaches to informed consent. Medically, consent is obtained prospectively for an intended procedure, to inform the patient of choices, risks and benefits, and to manage expectations. Legally, consent is reviewed retrospectively, usually following unmet expectations and/or the occurrence of complications. Recent legal cases relating to clinical negligence define the establishment of causation and breach of duty related to informed consent. However, there is no prospective evidence to validate the current judicial perspectives on causation and thus clinical negligence. The aim of this randomised controlled trial (RCT) is to investigate whether variations in consenting processes for the same procedure lead to changes in patient behaviour related to consent for that procedure.

Methods and analysis;

The RISCS trial is a single centre, non-inferiority RCT, where 220 patients, aged over 18 years, receiving an elective, day case spinal injection, will be randomised to either a 'legally styled' consent form with 55 risks identified in the world literature, or a 'medically styled' consent form with the 13 serious or most common risks usually quoted by reference to specialist society guidelines. Following explanation of the medical reasons for considering an injection therapy, and consent to the trial, participants will be randomly allocated to one of two groups (1:1). The patients are then given the opportunity to discuss any concerns relating to the procedure and/or risks with a single specialist practitioner. The primary outcome will be rates of consent withdrawal due to the risks explained. Secondary outcomes include State Trait Anxiety Inventory scores, Visual Analogue Scores, EQ-5D and Oswestry Disability Index.

Ethics and dissemination: Results will be presented in peer-reviewed journals and at international conferences. This study is approved by the Health Research Authority: REC 16/SC/0510

Registration details ISRCTN67513618: Pre-results

Strengths and limitations of this study

- This is the first study attempting to prospectively assess patient decision making when randomised to different explanations of the risks in a consent process.
- This study provides a methodology of how to use different consent processes for the same procedure.
- Measuring anxiety scores will provide an assessment of potential negative consequences of either process.
- Spinal injections are a relatively minor procedure, so results may not be generalizable to more major procedures, though conversely participants may be more likely to withdraw consent for a minor than a major procedure, and the risks explained still include potentially serious conditions.

- No participant blinding is possible given the types of intervention; they will know which style of consent form that they have.

Introduction

Patient decision making when consenting for surgery has been extensively tested in court[1]. Patients have been found legally correct, when stating post hoc, that if certain risks had been presented to them preoperatively, that they may not have given consent, at least not at that time, and may have modified their original decision. Explaining risks associated with any procedure is beneficial for ethical, medical and legal reasons. Ethically, it is better for the patient and the surgeon to follow a shared decision making process regarding proceeding to an operation. Medically, a patient should be aware of their potential immediate, early and late health statuses after an intervention. Legally, consent is required to waive liability should recognised and anticipated unavoidable complications arise, or patient expectations not be met. The risks material to a procedure have previously been decided by the treating surgeon and, if needed, their peers, under the Bolam principle of practice[2]. However, this stance has been deemed incorrect by the recent Montgomery judgement[3], which judges any risk that would be thought material in a patient's opinion should be discussed. However, once it has occurred, any complication can be retrospectively considered as a material risk by the patient[3]. The Montgomery judgement also makes comment on the information process, saying it is insufficient to 'bombard' patients with large volumes of information simply to waive risk of litigation. The combination of these factors has changed medical negligence outcomes significantly over recent years, despite there being no clinical evidence to support the legal view that patient decision making will often materially change based on the preoperative risks presented to them. The aim of this randomised controlled trial (RCT) is to investigate whether different consenting processes for the same procedure actually lead to changes in granting consent for that procedure.

Methods and analysis

Study design

This study protocol describes the design of this single centre, non-inferiority, randomised controlled trial. The study protocol conforms with the Standard Protocol Items: Recommendations for Interventional trials (SPIRIT)[4]. The study will be reported to conform with the Consolidated Standards of Reporting Trials (CONSORT)[5] statement for reporting an RCT. Patients will be recruited from the Somerset Spinal Surgery Service of Musgrove Park Hospital, Taunton and Somerset NHS Foundation Trust, Taunton, UK. The study is registered at ISRCTN67513618[6]; enrolment started in May 2017 and is scheduled to finish in March 2018, with the trial completing in April 2019.

Patients

Two hundred and twenty patients fulfilling the eligibility criteria will be included:

Inclusion criteria

- Able to consent independently
- Pre-existing psychiatric conditions including anxiety will not be excluded
- Age over 18 years
- Diagnostic and/or treatment injections to the cervical, thoracic, lumbosacral spine, coccyx and sacroiliac joints
- Facet Joint Blocks/ Nerve Root & Dorsal Root Ganglion injections / Caudal Epidural / Transforaminal Epidural

Exclusion criteria

- Patients listed for inpatient procedure
- Emergency injections
- Patients who are unable to understand English will be excluded because the questionnaires in this study have not been translated and validated into all other languages.
- Patients who lose capacity before they receive their injection

Recruitment procedure

The trial recruitment flow is outlined in Figure 1 and participant timeline in Figure 2.

Patients reviewed in Spinal Surgery Service clinics at Musgrove Park Hospital, who meet the eligibility criteria, will be invited to participate in the trial. Patients will have been referred to clinic by triage physiotherapists, other orthopaedic surgeons, General Practitioners or may be seen as a routine follow up. Patients will be offered a spinal injection as part of their diagnostic and/or therapeutic management. The reason for suggesting treatment with an injection will be explained by the clinician. Patients will then be asked to consider participation in the trial, explaining that currently it is unclear what effect giving information about potential risks during the consenting process has on the decisions made by patients, and what anxiety it may cause. Patients will verbally consent to consider the trial in clinic and be given an information pack (Pack A). Pack A will contain a patient information sheet about the trial and a consent form for the trial alongside a stamped addressed envelope (SAE). This will give patients time to reflect on the aim of the trial, whether they want to participate and whether they want the injection offered to them.

Participants will be instructed to return the trial consent form in the SAE. Upon receipt of this, they will be sent a randomised consent form with its respective risks detailed, State Trait Anxiety Inventory (STAI) state and trait questionnaires and a SAE, all contained in Pack B. These packs will be randomised and placed in a tray so that the secretaries will send these out in a sequential order. Patients will be randomised (1:1 allocation) after agreeing to be included in the trial, to ensure that patients are not declining entry into the trial based on the treatment that they have already been assigned; this will ensure that patients declining to participate in the trial do so purely because of their view of the trial itself, rather than because of the risks mentioned in their allocated consent form. Allocation to groups will be performed using a prepared computer-generated randomisation schedule in random sized blocks of 4 or 6 patients. The envelopes containing the forms will be in a box, ordered as per the randomisation sequence. These will be given out

sequentially, with the surgeons and secretaries administering the trial packs blinded to the randomisation order. There will be a contact number included to allow patients to discuss any concerns, or have certain risks explained in further detail. This explanation will be undertaken by a single clinician, to avoid variations in the explanations of specific risks.

Participants will be asked to read the consent form and detailed risks and complete the questionnaires. If the participant has any questions about the procedure or the trial, they will have the contact details of the Chief Investigator (a consultant spinal surgeon) and will be encouraged to contact them via 24 hour mobile, email or letter. Having reviewed and signed their consent form, participants will then complete their anxiety questionnaire (STAI). There will be a SAE contained in this pack, allowing them to return their consent form and questionnaires.

There will be a follow up telephone call from the spinal secretaries after two weeks if the forms have not been received; patients will be asked to allow for their telephone number (confirmed at their clinical appointment) to be used to communicate with them for the trial if needed. Once received, the consent forms will be filed in the participant's notes, and the questionnaires and trial consent forms will be anonymised and stored securely in the trial log held in the spinal office.

Patients who withdraw from treatment following receipt of the consent form will be contacted by the Chief Investigator to ascertain the reason for withdrawal, specifically improvement in symptoms or concern with the risks of the procedure.

On the day of surgery, consent will be reconfirmed by the treating clinician. This will involve ensuring that the participant still has symptoms, understands the planned procedure and risks, and has signed the procedure consent form. Following this, a STAI-state questionnaire will be assessed alongside physiological measures to identify if there is any change in anxiety with the consent reconfirmation process or related to the admission itself. This will be performed for both intervention and control groups. The time taken for confirmation of consenting will be measured and used as a marker of the extra time taken to explain the additional risks on the intervention consent form.

The participant will then have their spinal injection. There will be no further active participant interactions required for the trial. Secondary outcome measures related to patient recorded outcome measures (PROMs) will be recorded from the British Spinal Registry (BSR)[7] that all patients undergoing procedures in the Somerset Spinal Surgery Service are allocated to.

Intervention

Participants will have either the standard consent form or the intervention form. Both forms will be identical except for the risks that are mentioned. Current practice for injection treatments is for consenting in clinic or on the day of surgery. This will be changed to have consent reconfirmed on the day of surgery, with the consent form having been signed and returned by the patient in advance. This will give patients adequate time to make an informed decision regarding their treatment.

The standard risks that a patient is informed of during the consenting process are: Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke; wrong level/site; nerve injury; cauda equina injury; soft tissue infection. These are based on the complications on the British Association of Spinal Surgeons' registry website, the BSR.

The trial consent form will be encyclopaedic to include all known risks and complications to have ever have occurred from spinal injections following a detailed literature search:
Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke[8 9]; wrong level/site; nerve injury; cauda equina injury[10]; soft tissue infection, haematoma formation, damage to adjacent structures (pneumothorax (if thoracic injection)[11] / bladder and/or bowel injury (if lumbar/caudal epidural)), cerebellar herniation[12], risk of steroids (transient decrease in immunity, high blood sugars[13], stomach ulcers, avascular necrosis, cataracts, increased appetite, menstrual irregularities, nausea, diarrhoea, euphoria, depression, local fat atrophy, increased risk of spinal fracture, increased temperature)[14]; skin discoloration; spinal headache[15]; vascular injury[16]; arachnoiditis[17]; paralysis (paraplegia[18], quadriplegia[19 20]); meningeal irritation; intradural/epidural/subdural abscess[21-23]; septic arthritis of facet joint[24]; disc infection[24]; meningitis[22]; CSF-cutaneous fistula[25]; retinal haemorrhage[26]; prolonged blockade[27]; intravascular injection[28 29]; conus medullaris syndrome[30]; brain thrombophlebitis[31]; spinal cord infarction[32 33]; cortical blindness[34]; seizures[35]; brain oedema; death[12 36].

Data collection

Outcomes

Primary outcome: Withdrawal of consent due to risks

Withdrawal of consent due to the risks stated will be recorded as the primary outcome measure. Withdrawal of consent can occur at any time after inclusion in the trial. If the patient withdraws from treatment due to improvement in their symptoms and thus does not consent, then they will be excluded from the data analysis. If the participant had given written consent and returned their consent form and subsequently decline treatment due to an improvement in symptoms, they will be excluded from the analysis.

Secondary outcomes:

The State-Trait Anxiety Inventory

The STAI questionnaire[37] has two parts to it, assessing the current state of anxiety and the anxiety trait of the patient. Both parts will be completed by the patient at home, with only the state part needing to be re-assessed at the time of reconfirmation of consent on the day of surgery. The STAI is one of the most widely used subjective measures of anxiety in health research. It contains two 20-item self-report scales designed to measure how much worry, tension or apprehension the subject experiences in his or her present circumstances (state anxiety) and how much anxiety represents a personality characteristic (trait anxiety). Items emphasize the frequency of particular symptoms (ranging from 1 = not at all to 4 = very much so). A minimal important difference of 10 has been used in another study[38]. Form Y will be used in this study as it has a more replicable factor structure and improved psychometric properties[39].

VAS

Visual analogue scores are used routinely as PROMs post operatively and will be recorded in the BSR database. This has been shown to be a reliable, valid and responsive to changes in pain[40] and will be recorded from the BSR at six weeks post operatively.

EQ-5D

The EuroQol (EQ-5D) measures five dimensions on a three-point scale: mobility, self-care, daily activities, pain/discomfort, anxiety/depression; no, some or extreme problems. A utility score can be calculated to reflect the valuation of that health state in a society, in this case using the UK tariff[41]. These scores are routinely recorded in the BSR database. These will be accessed at six weeks post operatively.

Oswestry Disability Index

The Oswestry Disability Index (ODI) is used in spinal procedures to quantify symptomatic changes pre and post interventions and how the back or leg pain affects the patient's everyday life[42]. It has 10 questions each with six possible answers, with each answer receiving a score between 0-5, yielding a score ranging between 0-50 (which is scaled to 100%). These are routinely recorded in the BSR database and will be accessed at six weeks post operatively.

Physiological measures

Baseline physiological measures (heart rate, respiratory rate, blood pressure) will be recorded before and immediately after confirmation of consent on the day of surgery.

Time for confirmation of consent

The time taken for the risks to be explained and questions answered will be recorded on the day of surgery.

Recruitment rate

Approximately 20-30 injections occur as a day case each week at the trial hospital. Based on 10 injections a week (33-50% recruitment rate), 22 weeks will be needed to recruit patients. There will be up to an 18-week waiting time from listing to injection due to NHS waiting lists. This will allow the patient to have time to reflect on their decisions regarding inclusion in the trial and their treatment.

Some patients' symptoms will improve whilst waiting for their injection or may develop more pressing medical issues that take priority. In either case, patients may withdraw from having their injection on medical grounds. This is anticipated to be up to 15% of patients, and the recruitment calculations reflect this.

Follow up

Final follow up from the trial will be at six weeks post injection as part of their routine spinal follow up. There will be remote follow up of PROMS using the British Spinal Registry database. Patients' data will be analysed on an intention to treat analysis, though as choosing not to consent is the primary outcome measure, there will be no cross over between the groups.

Statistical considerations

Given that the background to the intervention is that it is thought to not affect the rates of consent, it can be assessed as a non-inferior treatment. The primary outcome measure is binary.

For a non-inferiority trial, at 5% significance, 90% power, assuming that 99.5% of patients do not withdraw their consent when the risks are explained normally (e.g. 199 patients out of 200 consent), to show that there is a 3% difference in the rates of consent, 95 patients are needed per group (that would be 95 consenting in one group and less than 92 out of 95 in the other to show difference). If there is truly no difference between the standard and experimental treatment, then 190 patients are required to be 90% sure that the upper limit of a one-sided 95% confidence interval will exclude a difference in favour of the standard group of more than 3%. Anticipating 15% drop out due to improvement in symptoms and/or more pressing medical issues, 110 patients will be recruited per group.

Data management

Data management procedures have been approved by the Health Research Authority (REC 16/SC/0510). Data will be collected by surgeons and the spinal research team at the trial hospital. This will be stored securely on trust computers within the spinal office with data entry and coding of the de-identified data conducted by trained staff.

Statistical analysis

Data will be analysed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Independent t-test will be used for analysis within the groups tested and Mann-Whitney tests to compare the intervention and control groups.

Patient public involvement

Patients who have had spinal injections have helped design the methodology regarding the timings and number of forms to complete. The reading level of the checklist form has been measured as Flesch-Kincaid Reading Ease 74.6 (100 being the easiest), with the most complicated form explaining the risks in more detail still being of a general public reading level (Flesch-Kincaid Reading Ease 59.5)[41].

Ethics and dissemination:

This study is approved by the Health Research Authority: REC 16/SC/0510 and will be conducted in agreement with the Helsinki declaration. The questionnaires being have been approved by the Clinical Research Support Department at Musgrove Park Hospital prior to their distribution and will be used under their appropriate license.

Standard practice (the control group) will be improved as the control consent form will be based on the national guidance from the British Association of Spinal Surgeons (BASS). Current legal (though not NHS nor BASS) guidance would state that the intervention consent form has neither ethical implications nor harmful effects to the patient as a consent form with a complete list of the risks, that a patient may deem material, should be being

used. By measuring psychological and physiological stress, if harm is caused by more extensive consent forms, this can be identified. If the rates of consent withdrawal are seen to be statistically significant at an early analysis point (after 50 patients), then the trial would be stopped early. If any patients are found to be significantly anxious on review of the completed questionnaires, they will be offered referral to their GP for onward management of their anxiety.

Patients will be provided with Patient Advice Liaison Service (PALS) contact information should they want to talk to someone independent about the trial (information is on the patient information leaflet).

Patients will have been provided with the contact details of the Chief Investigator so that they can raise any questions regarding the study or their injection. A list of any patients who utilise this service, and those who make any contact with the Somerset Spinal Surgery Service via other means (e.g. telephone to secretaries, email to spinalsurgeryservice@tst.nhs.uk) and the reason for this contact will be recorded; all patient encounters are already contemporaneously logged on the hospital electronic patient record system.

Dissemination

Results will be submitted for publication in an international, peer-reviewed journal regardless of the outcomes. Additionally, findings will be presented at local, regional and international ethical, orthopaedic and spinal conferences.

Potential outcomes

This work is unique in its concept. There is currently no objective and prospective evidence to support the legally enshrined principle that giving more information alters the rates of consent in patients; the RISCS trial addresses this. If rates of consent do decrease with more information, especially regarding rare risks, then the legal principle is upheld, and all consenting practise in the NHS should change to reflect this. This would often involve significant change in practice, mainly relating to the time allocated to consent processes and the amount of information imparted; also, the time given to patients to reflect on this information. Conversely, if there is no change in the rates of consent despite more detailed explanation of risks, then the premise of the Chester vs Afshar Supreme Court judgement will be shown to be fallible, and this study may be used to justify and defend standard consenting practice for minor procedures. Further to this, this study may show that it is harmful to attempt to explain all risks to patients, in that it creates physiological disturbances and psychological stress as shown by the STAI questionnaires. This would further justify that standard sensible explanation of risk and consenting is appropriate. Finally, following the completion of the RISCS trial, the methodology will be used to design a further trial investigating causality using more major procedures (RISCS 2) to investigate whether the principal outcome holds for all procedures.

Authors' contributions:

JF, MK and PT wrote the protocol and designed the study; all authors critically reviewed the manuscript.

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Competing interests statement. There are no competing interests for any of the authors.

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Figure Legend:

Figure 1 – Flowchart of Participant Journey
Figure 2 – RISCS Trial participant encounters

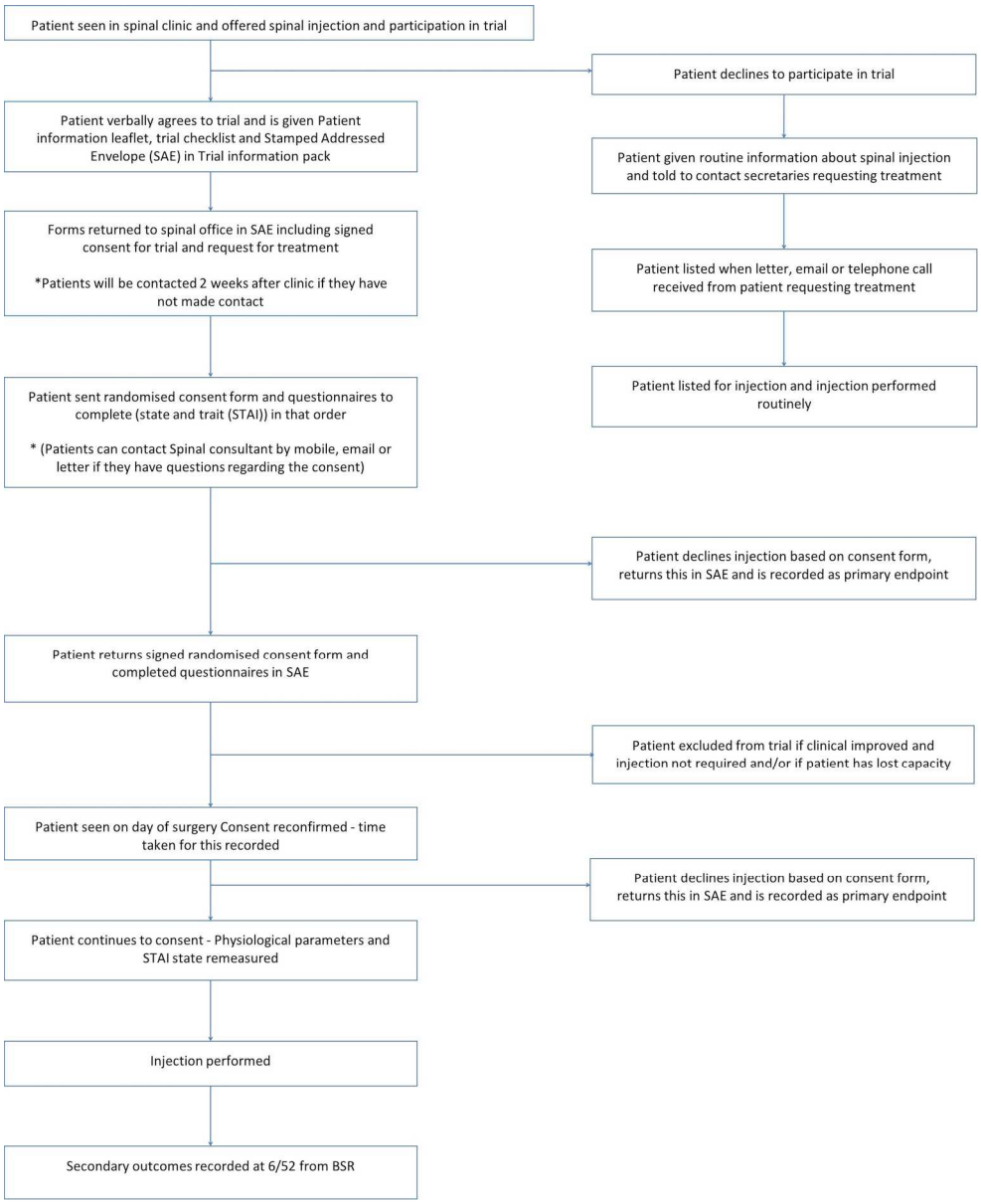

Figure 1 - Flowchart of Participant Journey

219x269mm (300 x 300 DPI)

	Return of injection consent form	Day of injection	Post operative follow up
	- 18 to 6 weeks	0	+6 weeks
Consent withdrawal measured	X*	X	
STAI – Trait	X*		
STAI – State	X*	X*	
Physiological parameters measured		X	
Time taken for consent confirmation		X*	
ODI			X
VAS			X
EQ-5D			X
*Additional encounter compared to standard practice			

Figure 2 - RISCS Trial Participant Encounters

96x67mm (600 x 600 DPI)

Reporting checklist for protocol of a clinical trial.

Based on the SPIRIT guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

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In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:

Chan A-W, Tetzlaff JM, Altman DG, Laupacis A, Gøtzsche PC, Krleža-Jerić K, Hróbjartsson A, Mann H, Dickersin K, Berlin J, Doré C, Parulekar W, Summerskill W, Groves T, Schulz K, Sox H, Rockhold FW, Rennie D, Moher D. SPIRIT 2013 Statement: Defining standard protocol items for clinical trials. Ann Intern Med. 2013;158(3):200-207

		Reporting Item	Page Number
Title	#1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
Trial registration	#2a	Trial identifier and registry name. If not yet registered, name of intended registry	1,3
Trial registration: data set	#2b	All items from the World Health Organization Trial Registration Data Set	n/a
Protocol version	#3	Date and version identifier	n/a
Funding	#4	Sources and types of financial, material, and other support	8
Roles and responsibilities: contributorship	#5a	Names, affiliations, and roles of protocol contributors	9
Roles and responsibilities:	#5b	Name and contact information for the trial sponsor	n/a

sponsor contact information			
Roles and responsibilities: sponsor and funder	#5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	n/a
Roles and responsibilities: committees	#5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	8
Background and rationale	#6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	2
Background and rationale: choice of comparators	#6b	Explanation for choice of comparators	2
Objectives	#7	Specific objectives or hypotheses	2
Trial design	#8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	3
Study setting	#9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	3
Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)	3
Interventions: description	#11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered	5

Interventions: modifications	#11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving / worsening disease)	8
Interventions: adherance	#11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return; laboratory tests)	4
Interventions: concomitant care	#11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	n/a
Outcomes	#12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	5,6
Participant timeline	#13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure)	3,4 & F2
Sample size	#14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations	7
Recruitment	#15	Strategies for achieving adequate participant enrolment to reach target sample size	6,7
Allocation: sequence generation	#16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	4
Allocation concealment	#16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed	4

mechanism		envelopes), describing any steps to conceal the sequence until interventions are assigned	
Allocation: implementation	#16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions	4
Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	n/a
Blinding (masking): emergency unblinding	#17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's allocated intervention during the trial	n/a
Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	4
Data collection plan: retention	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	4,7
Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	7
Statistics: outcomes	#20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol	7
Statistics: additional analyses	#20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	n/a
Statistics: analysis population and missing data	#20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	n/a

Data monitoring: formal committee	#21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	7
Data monitoring: interim analysis	#21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	8
Harms	#22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	8
Auditing	#23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Research ethics approval	#24	Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	8
Protocol amendments	#25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	3,4
Consent or assent: ancillary studies	#26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27	How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	4,7,8
Declaration of interests	#28	Financial and other competing interests for principal investigators for the overall trial and each study site	9
Data access	#29	Statement of who will have access to the final trial dataset,	7,8

		and disclosure of contractual agreements that limit such access for investigators	
Ancillary and post trial care	#30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
Dissemination policy: trial results	#31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	1,8
Dissemination policy: authorship	#31b	Authorship eligibility guidelines and any intended use of professional writers	n/a
Dissemination policy: reproducible research	#31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	n/a
Informed consent materials	#32	Model consent form and other related documentation given to participants and authorised surrogates	n/a
Biological specimens	#33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a

BMJ Open

Study protocol for a randomised controlled trial of consenting processes and their effects on patient decision making when undergoing spinal injections: the Risks In Spinal Consenting for Surgery (RISCS) trial

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Keywords:	MEDICAL LAW, MEDICAL ETHICS, SURGERY, Clinical trials < THERAPEUTICS

Study protocol for a randomised controlled trial of consenting processes and their effects on patient decision making when undergoing spinal injections: the Risks In Spinal Consenting for Surgery (RISCS) trial

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Keywords: MEDICAL LAW, MEDICAL ETHICS, SURGERY, Clinical trials < THERAPEUTICS

Word Count: 3400

Abstract:

Introduction:

There are major differences between legal and medical approaches to informed consent. Medically, consent is obtained prospectively for an intended procedure, to inform the patient of choices, risks and benefits, and to manage expectations. Legally, consent is reviewed retrospectively, usually following unmet expectations and/or the occurrence of complications. Recent legal cases relating to clinical negligence define the establishment of causation and breach of duty related to informed consent. However, there is no prospective evidence to validate the current judicial perspectives on causation and thus clinical negligence. The aim of this randomised controlled trial (RCT) is to investigate whether variations in consenting processes for the same procedure lead to changes in patient decision making related to consent for that procedure.

Methods and analysis:

The RISCS trial is a single centre, non-inferiority RCT, where 220 patients, aged over 18 years, receiving an elective, day case spinal injection, will be randomised to either a 'legally styled' consent form with 55 risks identified in the world literature, or a 'medically styled' consent form with the 13 serious or most common risks usually quoted by reference to specialist society guidelines. Following explanation of the medical reasons for considering an injection therapy, and consent to the trial, participants will be randomly allocated to one of two groups (1:1). The patients are then given the opportunity to discuss any concerns relating to the procedure and/or risks with a single specialist practitioner. The primary outcome will be rates of consent withdrawal due to the risks explained. Secondary outcomes include State Trait Anxiety Inventory scores, Visual Analogue Scores, EQ-5D and Oswestry Disability Index.

Ethics and dissemination: Results will be presented in peer-reviewed journals and at international conferences. This study is approved by the Health Research Authority: REC 16/SC/0510.

Registration details: ISRCTN67513618: Pre-results

Strengths and limitations of this study

- This is the first study attempting to prospectively assess patient decision making when randomised to different explanations of the risks in a consent process.
- This study provides a methodology of how to compare different consent processes for the same procedure.
- Measuring anxiety scores will provide an assessment of potential negative consequences of either process.
- Spinal injections are a relatively minor procedure, so results may not be generalisable to more major procedures, though conversely participants may be more likely to withdraw consent for a minor than a major procedure, and the risks explained still include potentially serious conditions.

- No participant blinding is possible given the types of intervention; they will know which style of consent form that they have.

Introduction

Patient decision making when consenting for surgery has been extensively tested in court[1]. Patients have been found legally correct, when stating post hoc, that they may not have given consent if certain risks had been presented to them preoperatively. Explaining risks associated with any procedure is beneficial for ethical, medical and legal reasons. Ethically, it is better for the patient and the surgeon to follow a shared decision making process regarding proceeding to an operation. Medically, a patient should be aware of their potential immediate, early and late health statuses after an intervention. Legally, consent is required to waive liability should recognised and anticipated unavoidable complications arise, or patient expectations not be met. These aspects are relevant to all consenting procedures worldwide.

The risks material to a procedure have previously been dictated by the treating surgeon and, if needed, their peers, under the Bolam principle of practice[2]. However, this stance has been deemed incorrect by the recent Montgomery judgement[3], which judges any risk that would be thought material in a patient's opinion should be discussed. However, once it has occurred, any complication can be retrospectively considered as a material risk by the patient[3]. The Montgomery judgement also makes comment on the information process, saying it is insufficient to 'bombard' patients with large volumes of information simply to waive risk of litigation. The combination of these factors has changed medical negligence outcomes significantly over recent years. This is despite there being no clinical evidence to support the legal view that patient decision making will often materially change based on the preoperative risks presented to them. This has led to a significant shift in how surgeons approach the consent process. The classical 'medical-styled' consent process aimed to focus the patient on pertinent risks of an operative procedure. We feel the current clinical negligence climate only supports surgeons who adopt a 'legal-styled' approach which presents the patient with an encyclopaedic list of potential operative risks.

The aim of this randomised controlled trial (RCT) is to investigate whether different consenting processes for the same procedure actually lead to changes in granting consent for that procedure.

Methods and analysis

Study design

This study protocol describes the design of this single centre, non-inferiority, randomised controlled trial. The study protocol conforms with the Standard Protocol Items: Recommendations for Interventional trials (SPIRIT)[4]. The study will be reported to conform with the Consolidated Standards of Reporting Trials (CONSORT)[5] statement for reporting an RCT. Patients will be recruited from the Somerset Spinal Surgery Service of Musgrove Park Hospital, Taunton and Somerset NHS Foundation Trust, Taunton, UK. The study is registered

at ISRCTN67513618[6]; enrolment started in May 2017 and is scheduled to finish in March 2018, with the trial completing in April 2019.

Patients

Two hundred and twenty patients fulfilling the eligibility criteria will be included:

Inclusion criteria

- Able to consent independently
- Pre-existing psychiatric conditions including anxiety will not be excluded
- Age over 18 years
- Diagnostic and/or treatment injections to the cervical, thoracic, lumbosacral spine, coccyx and sacroiliac joints
- Facet Joint Blocks/ Nerve Root & Dorsal Root Ganglion injections / Caudal Epidural / Transforaminal Epidural

Exclusion criteria

- Patients listed for inpatient procedure
- Emergency injections
- Patients who are unable to understand English will be excluded because the questionnaires in this study have not been translated and validated into all other languages.
- Patients who lose capacity before they receive their injection

Recruitment procedure

The trial recruitment flow is outlined in Figure 1 and participant timeline in Figure 2.

Patients reviewed in Spinal Surgery Service clinics at Musgrove Park Hospital, who meet the eligibility criteria, will be invited to participate in the trial. Patients will have been referred to clinic by triage physiotherapists, other orthopaedic surgeons, General Practitioners or may be seen as a routine follow up. Patients will be offered a spinal injection as part of their diagnostic and/or therapeutic management. The reason for suggesting treatment with an injection will be explained by the clinician. Patients will then be asked to consider participation in the trial, explaining that currently it is unclear what effect giving information about potential risks during the consenting process has on the decisions made by patients, and what anxiety it may cause. Patients will verbally consent to consider the trial in clinic and be given an information pack (Pack A). Pack A will contain a patient information sheet about the trial and a consent form for the trial alongside a stamped addressed envelope (SAE), with no information regarding the injection itself. This will give patients time to reflect on the aim of the trial, whether they want to participate and whether they want the injection offered to them. The trial consent form also provides the patient an opportunity to decline trial participation but still proceed with the injection or reject the injection entirely.

Participants will be instructed to return the pack A 'trial' consent form in the SAE. Upon receipt of this, they will be sent a randomised consent form with its respective risks detailed, State Trait Anxiety Inventory (STAI) state and trait questionnaires and a SAE, all contained in Pack B. These packs will be randomised and placed in a tray so that the

secretaries will send these out in a sequential order. Patients receive Pack B in a randomised 1:1 allocated fashion. This ensures patients receiving pack B are not subject to sampling bias: i.e. declining entry in to the trial based purely on the consent form they have been randomised to receive. We have utilised a computer-generated randomisation schedule to allocate patients to receive either a medical-styled or legal-styled consent form as part of their Pack B. The envelopes containing the forms will be in a box, ordered as per the randomisation sequence of four to six patients. These will be given out sequentially, with the surgeons and spinal secretaries administering the trial packs blinded to the randomisation order. There will be a contact number included to allow patients to discuss any concerns, or have certain risks explained in further detail. This explanation will be undertaken by a single clinician, to avoid variations in the explanations of specific risks.

Participants will be asked to read the consent form including the detailed risks. They will also complete the State Trait Anxiety Inventory questionnaires as part of pack B. If any participant has any questions about the procedure or the trial, they will have the contact details of the Chief Investigator (a consultant spinal surgeon) and will be encouraged to contact them via 24 hour mobile, email or letter. Having reviewed and signed their consent form, participants will then complete their anxiety questionnaires (STAI). There will be a SAE contained in this pack, allowing them to return their consent form and questionnaires.

There will be a follow up telephone call from the spinal secretaries after two weeks if the forms have not been received; patients will be asked to allow for their telephone number (confirmed at their clinical appointment) to be used to communicate with them for the trial if needed. Once received, the consent forms will be filed in the participant's notes, and the questionnaires and trial consent forms will be anonymised and stored securely in the trial log held in the spinal office.

Patients who withdraw from treatment following receipt of the consent form will be contacted by the Chief Investigator to ascertain the reason for withdrawal, specifically improvement in symptoms or concern with the risks of the procedure.

On the day of surgery, consent will be reconfirmed by the treating clinician. This will involve ensuring that the participant still has symptoms, understands the planned procedure and risks, and has signed the procedure consent form. Following this, a STAI-state questionnaire will be assessed alongside physiological measures to identify if there is any change in anxiety with the consent reconfirmation process or related to the admission itself. This will be performed for both intervention and control groups. The time taken for confirmation of consenting will be measured and used as a marker of the extra time taken to explain the additional risks on the intervention consent form.

The participant will then have their spinal injection. There will be no further active participant interactions required for the trial. Secondary outcome measures related to patient recorded outcome measures (PROMs) will be recorded from the British Spinal Registry (BSR)[7] that all patients undergoing procedures in the Somerset Spinal Surgery Service are allocated to.

Intervention

Participants will have either the standard consent form or the intervention form. Both forms will be identical except for the risks that are mentioned. Current practice for injection treatments is for consenting in clinic or on the day of surgery. This will be changed to have consent reconfirmed on the day of surgery, with the consent form having been

signed and returned by the patient in advance. This will give patients adequate time to make an informed decision regarding their treatment.

The standard risks ('medically styled') that a patient is informed of during the consenting process are:

Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke; wrong level/site; nerve injury; cauda equina injury; soft tissue infection. These are based on the complications on the British Association of Spinal Surgeons' registry website, the BSR.

The intervention consent form ('legally styled') will be encyclopaedic to include all known risks and complications to have ever have occurred from spinal injections following a detailed literature search:

Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke[8 9]; wrong level/site; nerve injury; cauda equina injury[10]; soft tissue infection, haematoma formation, damage to adjacent structures (pneumothorax (if thoracic injection)[11] / bladder and/or bowel injury (if lumbar/caudal epidural)), cerebellar herniation[12], risk of steroids (transient decrease in immunity, high blood sugars[13], stomach ulcers, avascular necrosis, cataracts, increased appetite, menstrual irregularities, nausea, diarrhoea, euphoria, depression, local fat atrophy, increased risk of spinal fracture, increased temperature)[14]; skin discoloration; spinal headache[15]; vascular injury[16]; arachnoiditis[17]; paralysis (paraplegia[18], quadriplegia[19 20]); meningeal irritation; intradural/epidural/subdural abscess[21-23]; septic arthritis of facet joint[24]; disc infection[24]; meningitis[22]; CSF-cutaneous fistula[25]; retinal haemorrhage[26]; prolonged blockade[27]; intravascular injection[28 29]; conus medullaris syndrome[30]; brain thrombophlebitis[31]; spinal cord infarction[32 33]; cortical blindness[34]; seizures[35]; brain oedema; death[12 36].

Data collection

Outcomes

Primary outcome: Withdrawal of consent due to risks

Withdrawal of consent due to the risks stated will be recorded as the primary outcome measure. Withdrawal of consent can occur at any time after inclusion in the trial. If the patient withdraws from treatment due to improvement in their symptoms and thus does not consent, then they will be excluded from the data analysis. If the participant had given written consent and returned their consent form and subsequently decline treatment due to an improvement in symptoms, they will be excluded from the analysis.

Secondary outcomes:

The State-Trait Anxiety Inventory

The STAI questionnaire[37] has two parts to it, assessing the current state of anxiety and the anxiety trait of the patient. Both parts will be completed by the patient at home, with only the state part needing to be re-assessed at the time of reconfirmation of consent on the day of surgery. The STAI is one of the most widely used subjective measures of anxiety in health research. It contains two 20-item self-report scales designed to measure how much worry, tension or apprehension the subject experiences in his or her present circumstances (state anxiety) and how much anxiety represents a personality characteristic

(trait anxiety). Items emphasize the frequency of particular symptoms (ranging from 1 = not at all to 4 = very much so). A minimal important difference of 10 has been used in another study[38]. Form Y will be used in this study as it has a more replicable factor structure and improved psychometric properties[39].

VAS

Visual analogue scores are used routinely as PROMs post operatively and will be recorded in the BSR database. This has been shown to be a reliable, valid and responsive to changes in pain[40] and will be recorded from the BSR at six weeks post operatively.

EQ-5D

The EuroQol (EQ-5D) measures five dimensions on a three-point scale: mobility, self-care, daily activities, pain/discomfort, anxiety/depression; no, some or extreme problems. A utility score can be calculated to reflect the valuation of that health state in a society, in this case using the UK tariff[41]. These scores are routinely recorded in the BSR database. These will be accessed at six weeks post operatively.

Oswestry Disability Index

The Oswestry Disability Index (ODI) is used in spinal procedures to quantify symptomatic changes pre and post interventions and how the back or leg pain affects the patient's everyday life[42]. It has 10 questions each with six possible answers, with each answer receiving a score between 0-5, yielding a score ranging between 0-50 (which is scaled to 100%). These are routinely recorded in the BSR database and will be accessed at six weeks post operatively.

Physiological measures

Baseline physiological measures (heart rate, respiratory rate, blood pressure) will be recorded before and immediately after confirmation of consent on the day of surgery.

Time for confirmation of consent

The time taken for the risks to be explained and questions answered will be recorded on the day of surgery.

Recruitment rate

Approximately 20-30 injections occur as a day case each week at the trial hospital. Based on 10 injections a week (33-50% recruitment rate), 22 weeks will be needed to recruit patients. There will be up to an 18-week waiting time from listing to injection due to NHS waiting lists (Figure 2). This will allow the patient to have time to reflect on their decisions regarding inclusion in the trial and their treatment.

Some patients' symptoms will improve whilst waiting for their injection or may develop more pressing medical issues that take priority. In either case, patients may withdraw from having their injection on medical grounds. This is anticipated to be up to 15% of patients, and the recruitment calculations reflect this.

Follow up

Final follow up from the trial will be at six weeks post injection as part of their routine spinal follow up. There will be remote follow up of PROMS using the British Spinal

Registry database. Patients' data will be analysed on an intention to treat analysis, though as choosing not to consent is the primary outcome measure, there will be no cross over between the groups.

Statistical considerations

Given that the background to the intervention is that it is thought to not affect the rates of consent, it can be assessed as a non-inferior treatment. The primary outcome measure is binary.

For a non-inferiority trial, at 5% significance, 90% power, assuming that 99.5% of patients do not withdraw their consent when the risks are explained normally (e.g. 199 patients out of 200 consent), to show that there is a 3% difference in the rates of consent, 95 patients are needed per group (that would be 95 consenting in one group and less than 92 out of 95 in the other to show difference). If there is truly no difference between the standard and experimental treatment, then 190 patients are required to be 90% sure that the upper limit of a one-sided 95% confidence interval will exclude a difference in favour of the standard group of more than 3%. Anticipating 15% drop out due to improvement in symptoms and/or more pressing medical issues, 110 patients will be recruited per group.

Data management

Data management procedures have been approved by the Health Research Authority (REC 16/SC/0510). Data will be collected by surgeons and the spinal research team at the trial hospital. This will be stored securely on trust computers within the spinal office with data entry and coding of the de-identified data conducted by trained staff. The final data set will be accessible to the chief investigator and stored for five years following the end of the study.

Statistical analysis

Data will be analysed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Independent t-test will be used for analysis within the groups tested and Mann-Whitney tests to compare the intervention and control groups. Data analysis will be performed by statisticians blinded to the intervention.

Patient public involvement

Patients who have had spinal injections have helped design the methodology regarding the timings and number of forms to complete. The reading level of the checklist form has been measured as Flesch-Kincaid Reading Ease 74.6 (100 being the easiest), with the most complicated form explaining the risks in more detail still being of a general public reading level (Flesch-Kincaid Reading Ease 59.5)[41].

Ethics and dissemination:

This study is approved by the Health Research Authority: REC 16/SC/0510 and will be conducted in agreement with the Helsinki declaration. The questionnaires being have been

approved by the Clinical Research Support Department at Musgrove Park Hospital prior to their distribution and will be used under their appropriate license.

Standard practice (the control group) will be improved as the control consent form will be based on the national guidance from the British Association of Spinal Surgeons (BASS). Current legal (though not NHS nor BASS) guidance would state that the intervention consent form has neither ethical implications nor harmful effects to the patient as a consent form with a complete list of the risks, that a patient may deem material, should be being used. By measuring psychological and physiological stress, if harm is caused by more extensive consent forms, this can be identified. If the rates of consent withdrawal are seen to be statistically significant at an early analysis point (after 50 patients), then the trial would be stopped early. If any patients are found to be significantly anxious on review of the completed questionnaires, they will be offered referral to their GP for onward management of their anxiety.

Patients will be provided with Patient Advice Liaison Service (PALS) contact information should they want to talk to someone independent about the trial (information is on the patient information leaflet).

Patients will be provided with the contact details of the Chief Investigator so that they can raise any questions regarding the study or their injection. A list of any patients who utilise this service, and those who make any contact with the Somerset Spinal Surgery Service via other means (e.g. telephone to secretaries, email to spinalsurgeryservice@tst.nhs.uk) and the reason for this contact will be recorded; all patient encounters are already contemporaneously logged on the hospital electronic patient record system.

Dissemination

Results will be submitted for publication in an international, peer-reviewed journal regardless of the outcomes. Additionally, findings will be presented at local, regional and international ethical, orthopaedic and spinal conferences.

Potential outcomes

This work is unique in its concept. There is currently no objective and prospective evidence to support the legally enshrined principle that giving more information alters the rates of consent in patients; the RISCS trial addresses this. If rates of consent do decrease with more information, especially regarding rare risks, then the legal principle is upheld, and all consenting practise in the NHS should change to reflect this. This would often involve significant change in practice, mainly relating to the time allocated to consent processes and the amount of information imparted; also, the time given to patients to reflect on this information. Conversely, if there is no change in the rates of consent despite more detailed explanation of risks, then the premise of the Chester vs Afshar Supreme Court judgement will be shown to be fallible, and this study may be used to justify and defend standard consenting practice for minor procedures. Further to this, this study may show that it is harmful to attempt to explain all risks to patients, in that it creates physiological disturbances and psychological stress as shown by the STAI questionnaires. This would further justify that standard explanation of risk and consenting is appropriate. Whilst directly relevant to UK law, the findings will have transferability to practices worldwide

given the consistency in the aspects that underpin consent processes. Finally, following the completion of the RISCS trial, the methodology will be used to design a further trial investigating causality using more major procedures (RISCS 2) to investigate whether the principal outcome holds for all procedures.

Authors' contributions:

JF, MK and PT wrote the protocol and designed the study; all authors critically reviewed the manuscript.

Funding statement:

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Competing interests statement.

There are no competing interests for any of the authors.

Full references.

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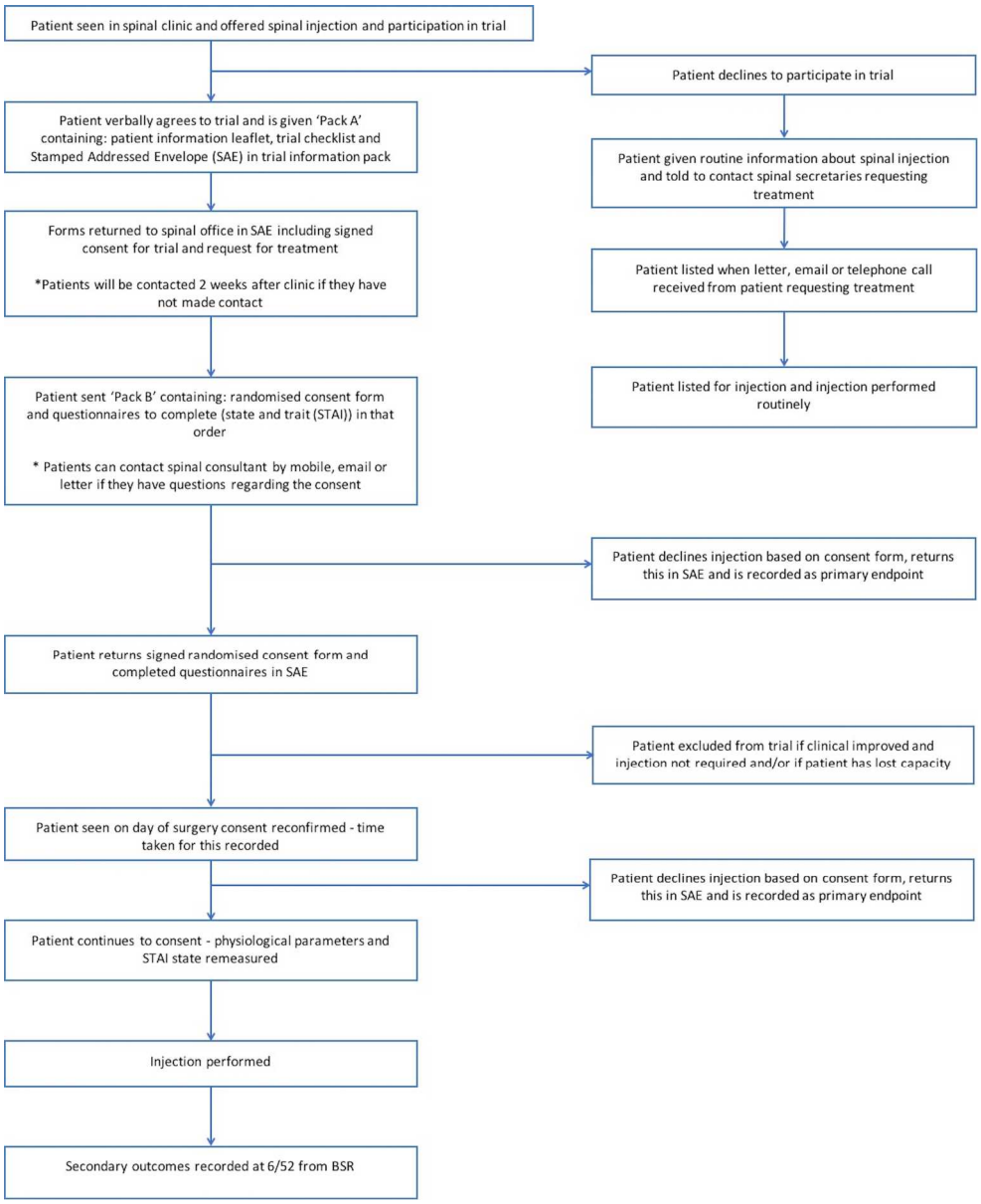
Figure Legend:

Figure 1 – Flowchart of Participant Journey
Figure 2 – RISCS Trial participant encounters



Flowchart of participant journey

457x561mm (300 x 300 DPI)

	Return of injection consent form	Day of injection	Post operative follow up
	- 18 to 6 weeks	0	+6 weeks
Consent withdrawal measured	X*	X	
STAI – Trait	X*		
STAI – State	X*	X*	
Physiological parameters measured		X	
Time taken for consent confirmation		X*	
ODI			X
VAS			X
EQ-5D			X
*Additional encounter compared to standard practice			

Figure 2 - RISCS Trial Participant Encounters

96x67mm (600 x 600 DPI)

Taunton and Somerset NHS
NHS Foundation Trust

RISCS trial – Risks in spinal consenting for surgery

Mr Paul Thorpe
Consultant spinal surgeon
Musgrove Park Hospital
Taunton
Tel: 01823 333444
Trial Mobile:07717 815202

You are invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully, and discuss it with others if you wish. Ask us if there is anything that is not clear, or if you would like more information. Please take time to consider whether or not you wish to take part. Thank you for reading this.

Why have I been invited?

You have been chosen because you are one of 220 people who have been offered a spinal injection.

What is the purpose of this study?

We are carrying out this research because we want to find out how much information patients require and want before they have a spinal injection. Currently the risks mentioned are advised by the medical profession and the British Association of Spine Surgeons. There is an alternate view that the risks mentioned should be advised using recommendations by the legal profession, with a more encyclopaedic number of risks being mentioned.

Do I have to take part?

It is up to you to decide whether or not to take part. If you decide to take part, all that is initially asked is that you complete the trial form and return it in the envelope provided. There is no need to attend hospital.

You will then be sent your consent form and a further questionnaire to complete. Return these in the envelope that will be provided. Your consent will be confirmed on the day of your injection.

We ask that if you do *not* want to be part of this study, but still wish to proceed with an injection, to still return the trial consent form indicating that you are requesting your injection, but not as part of the trial.

What do I have to do if I decide to take part?

We would like you to complete questionnaires. The questionnaires following your surgery will be posted to you and a pre paid envelope will be included with any questionnaire. You can contact the team to ask any questions and have a further explanation as to what the study entails. We then ask that you complete another questionnaire on the day of your injection.

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What are the possible risks or disadvantages of taking part?

If you agree to take part in the study, the disadvantages include the possible anxiety caused by completing the questionnaires and from the consent form itself. You will have the opportunity to discuss any queries, anxieties or issues related to the questionnaires or injections with the study researcher by contacting them using the information at the end of this information sheet.

What are the possible benefits of taking part?

There are likely to be no direct benefits to you in taking part in this research. The information we obtain from the study will help us to improve the way we consent patients for injections and for other procedures. At present, we have little or no research information on how consent processes affect patients' decision making for procedures such as injections.

What if something goes wrong?

This study carries no risk of physical or significant psychological harm, and does not change the treatment you receive in any way. If you feel you have been harmed by taking part in this research project, there are no special compensation arrangements. If you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms will be available to you by contacting PALS or the complaints department at Taunton.

Will my taking part in this study be kept confidential?

All information that is collected about you during the course of the research will be kept strictly confidential. Information will be collected, controlled, stored and analysed by the study researchers at Musgrove Park Hospital. Access to this information will be restricted to members of the research team and the study statistician. Any personal information collected about you will have your name and address removed so that you cannot be recognised from it. You will not be identified in any publications.

What will happen to the results of this research study?

The main results of the study will take 6 months to become available. We will publish relevant results in scientific journals, trust publications such as 'Musgrove Matters', as well as presenting regular reports at various local, national and international level scientific meetings. You will not be identified in any report/publication.

Who is organising and funding this research?

The research is being sponsored by Musgrove Park Hospital. The study is lead by the Chief Investigator, Mr Paul Thorpe, who is a Consultant Spinal Surgeon at Musgrove Park Hospital.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by the South Central – Hampshire Research Ethics Committee (reference number 16/SC/0510). Approval does not guarantee

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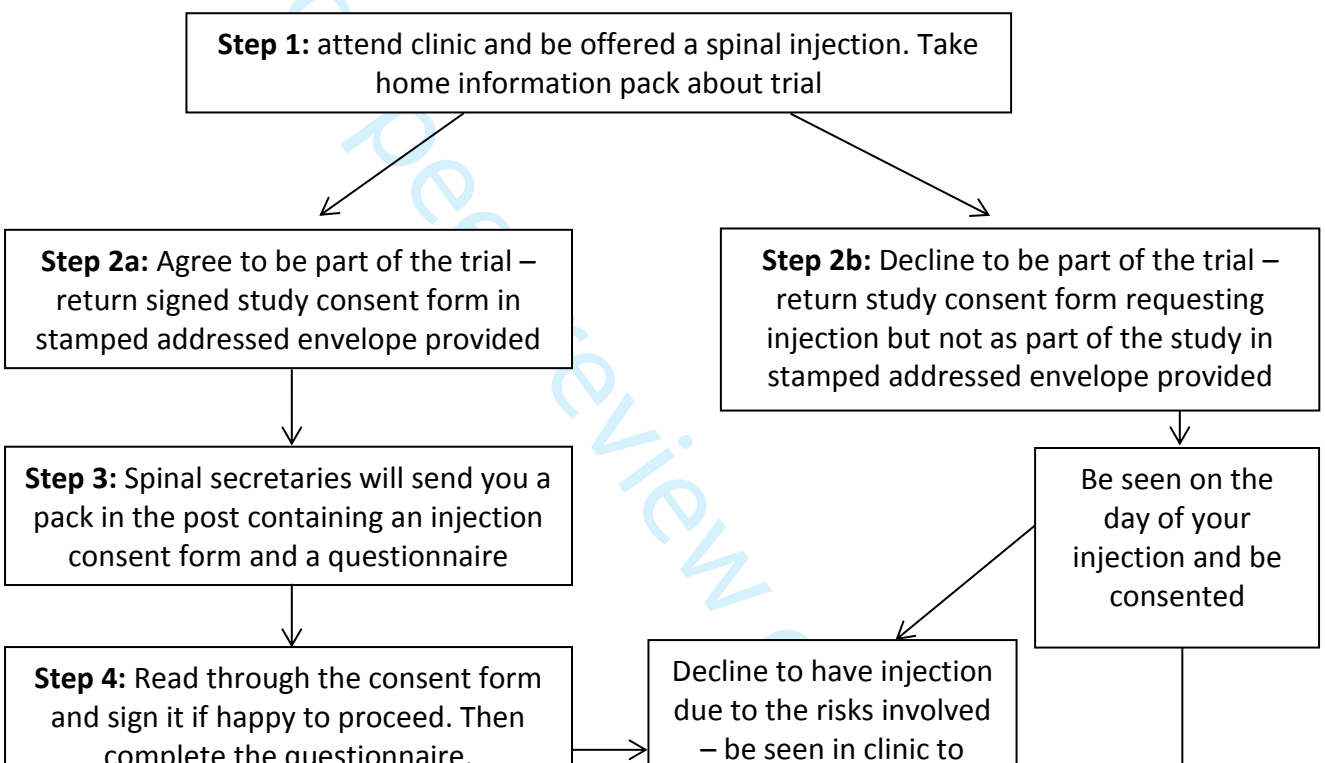
that you will not come to any harm if you take part. However, approval means that the Committee is satisfied that your rights will be respected, that any risks have been reduced to a minimum and balanced against possible benefits, and that you have been given sufficient information on which to make an informed decision to take part or not.

What if I have any concerns?

If you have any concerns or other questions about this study or the way it has been carried out, you should contact the investigator or PALS.

Who do I contact if I want more information?

If you have any further questions concerning this study please contact your consultant or the study contact below.



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Study contact

Mr Paul Thorpe Consultant Spine Surgeon	Email	paul.thorpe@tst.nhs.uk
	Phone	01823 333444 07717 815202 (spinal mobile)
	Address	Mr Paul Thorpe, Spinal Office, Level 1, Queens Building Musgrove Park Hospital Taunton, TA1 5DA
PALS (Patient Advice & Liaison Service) independent advice	Phone	01823 343536
	Email	pals@tst.nhs.uk
	Address	Patient Advice & Liaison Service (PALS) Old Building Musgrove Park Hospital Taunton, TA1 5DA

Taunton and Somerset NHS
NHS Foundation Trust
Mr Paul Thorpe
Consultant spinal surgeon
Musgrove Park Hospital
Taunton
Tel: 01823 333444
Trial Mobile:07717 815202

RISCS trial – Risks in spinal consenting for surgery

Thank you for agreeing to be part of this study.

Please find enclosed some documents relating to the RISCS (Risks in spinal consenting for surgery) research study.

In this pack you will find a consent form and a questionnaire.

We would like you to read the consent form and the explanation sheet regarding the risks. There is an explanation sheet enclosed that briefly explains what each of the risks means. Should you have any questions about these, please contact **Mr Paul Thorpe** using the contact information below.

If you are happy to have your injection, please sign the consent form.

Then please complete the questionnaire. This is called the state-trait anxiety inventory and is a measure of patient's baseline (trait) and current levels (state) of anxiety and worry.

This will be kept confidential. You will be asked to complete the state part again on the day of your injection.

Once you have completed your questionnaire and your consent form, please return them in stamped addressed envelope.

Thank you for your participation.

Study contact

Mr Paul Thorpe – Consultant Spine Surgeon	Email	paul.thorpe@tst.nhs.uk
	Phone	01823 333444 07717 815202 (spinal mobile)
	Address	Mr Paul Thorpe, Spinal Office, Level 1, Queens Building, Musgrove Park Hospital, Taunton, TA1 5DA
PALS (Patient Advice & Liaison Service) independent advice	Phone	01823 343536
	Email	pals@tst.nhs.uk
	Address	Patient Advice & Liaison Service (PALS) Old Building, Musgrove Park Hospital, Taunton, TA1 5DA

Working together for a healthy Somerset

Reporting checklist for protocol of a clinical trial.

Based on the SPIRIT guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:

Chan A-W, Tetzlaff JM, Altman DG, Laupacis A, Gøtzsche PC, Krleža-Jerić K, Hróbjartsson A, Mann H, Dickersin K, Berlin J, Doré C, Parulekar W, Summerskill W, Groves T, Schulz K, Sox H, Rockhold FW, Rennie D, Moher D. SPIRIT 2013 Statement: Defining standard protocol items for clinical trials. Ann Intern Med. 2013;158(3):200-207

		Reporting Item	Page Number
Title	#1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
Trial registration	#2a	Trial identifier and registry name. If not yet registered, name of intended registry	1,3
Trial registration: data set	#2b	All items from the World Health Organization Trial Registration Data Set	n/a
Protocol version	#3	Date and version identifier	n/a
Funding	#4	Sources and types of financial, material, and other support	8
Roles and responsibilities: contributorship	#5a	Names, affiliations, and roles of protocol contributors	1, 9
Roles and responsibilities:	#5b	Name and contact information for the trial sponsor	n/a

sponsor contact information			
Roles and responsibilities: sponsor and funder	#5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	n/a
Roles and responsibilities: committees	#5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	8
Background and rationale	#6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	2
Background and rationale: choice of comparators	#6b	Explanation for choice of comparators	2
Objectives	#7	Specific objectives or hypotheses	2
Trial design	#8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	3
Study setting	#9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	3
Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)	3
Interventions: description	#11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered	5

Interventions: modifications	#11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving / worsening disease)	8
Interventions: adherence	#11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return; laboratory tests)	4
Interventions: concomitant care	#11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	n/a
Outcomes	#12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	5,6
Participant timeline	#13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure)	3,4 & F2
Sample size	#14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations	7
Recruitment	#15	Strategies for achieving adequate participant enrolment to reach target sample size	6,7
Allocation: sequence generation	#16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	4
Allocation concealment	#16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed	4

mechanism		envelopes), describing any steps to conceal the sequence until interventions are assigned	
Allocation: implementation	#16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions	4
Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	8
Blinding (masking): emergency unblinding	#17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's allocated intervention during the trial	n/a
Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	4
Data collection plan: retention	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	4,7
Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	7
Statistics: outcomes	#20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol	7
Statistics: additional analyses	#20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	n/a
Statistics: analysis population and missing data	#20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	n/a

Data monitoring: formal committee	#21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	7
Data monitoring: interim analysis	#21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	8
Harms	#22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	8
Auditing	#23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Research ethics approval	#24	Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	8
Protocol amendments	#25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	3,4
Consent or assent: ancillary studies	#26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27	How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	4,7,8
Declaration of interests	#28	Financial and other competing interests for principal investigators for the overall trial and each study site	9
Data access	#29	Statement of who will have access to the final trial dataset,	8

		and disclosure of contractual agreements that limit such access for investigators	
Ancillary and post trial care	#30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
Dissemination policy: trial results	#31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	1,8
Dissemination policy: authorship	#31b	Authorship eligibility guidelines and any intended use of professional writers	n/a
Dissemination policy: reproducible research	#31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	n/a
Informed consent materials	#32	Model consent form and other related documentation given to participants and authorised surrogates	n/a
Biological specimens	#33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a

BMJ Open

Study protocol for a randomised controlled trial of consenting processes and their effects on patient decision making when undergoing spinal injections: the Risks In Spinal Consenting for Surgery (RISCS) trial

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Primary Subject Heading:	Surgery
Secondary Subject Heading:	Communication, Ethics, Research methods, Surgery
Keywords:	MEDICAL LAW, MEDICAL ETHICS, SURGERY, Clinical trials < THERAPEUTICS

Study protocol for a randomised controlled trial of consenting processes and their effects on patient decision making when undergoing spinal injections: the Risks In Spinal Consenting for Surgery (RISCS) trial

James W A Fletcher[1,2], Mohsin Khan[2,3], Paul Thorpe[4]

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Keywords: MEDICAL LAW, MEDICAL ETHICS, SURGERY, Clinical trials < THERAPEUTICS

Word Count: 3400

Abstract:

Introduction:

There are major differences between legal and medical approaches to informed consent. Medically, consent is obtained prospectively for an intended procedure, to inform the patient of choices, risks and benefits, and to manage expectations. Legally, consent is reviewed retrospectively, usually following unmet expectations and/or the occurrence of complications. Recent legal cases relating to clinical negligence define the establishment of causation and breach of duty related to informed consent. However, there is no prospective evidence to validate the current judicial perspectives on causation and thus clinical negligence. The aim of this randomised controlled trial (RCT) is to investigate whether variations in consenting processes for the same procedure lead to changes in patient decision making related to consent for that procedure.

Methods and analysis:

The RISCS trial is a single centre, non-inferiority RCT, where 220 patients, aged over 18 years, receiving an elective, day case spinal injection, will be randomised to either a 'legally styled' consent form with 55 risks identified in the world literature, or a 'medically styled' consent form with the 13 serious or most common risks usually quoted by reference to specialist society guidelines. Following explanation of the medical reasons for considering an injection therapy, and consent to the trial, participants will be randomly allocated to one of two groups (1:1). The patients are then given the opportunity to discuss any concerns relating to the procedure and/or risks with a single specialist practitioner. The primary outcome will be rates of consent withdrawal due to the risks explained. Secondary outcomes include State Trait Anxiety Inventory scores, Visual Analogue Scores, EQ-5D and Oswestry Disability Index.

Ethics and dissemination: Results will be presented in peer-reviewed journals and at international conferences. This study is approved by the Health Research Authority: REC 16/SC/0510.

Registration details: ISRCTN67513618: Pre-results

Strengths and limitations of this study

- This is the first study attempting to prospectively assess patient decision making when randomised to different explanations of the risks in a consent process.
- This study provides a methodology of how to compare different consent processes for the same procedure.
- Measuring anxiety scores will provide an assessment of potential negative consequences of either process.
- Spinal injections are a relatively minor procedure, so results may not be generalisable to more major procedures, though conversely participants may be more likely to withdraw consent for a minor than a major procedure, and the risks explained still include potentially serious conditions.

- No participant blinding is possible given the types of intervention; they will know which style of consent form that they have.

Introduction

Patient decision making when consenting for surgery has been extensively tested in court[1]. Patients have been found legally correct, when stating post hoc, that they may not have given consent if certain risks had been presented to them pre-operatively. Explaining risks associated with any procedure is beneficial for ethical, medical and legal reasons. Ethically, it is better for the patient and the surgeon to follow a shared decision making process regarding proceeding to an operation. Medically, a patient should be aware of their potential immediate, early and late health statuses after an intervention. Legally, consent is required to waive liability should recognised and anticipated unavoidable complications arise, or patient expectations not be met. These aspects are relevant to all consenting procedures worldwide.

The risks material to a procedure have previously been dictated by the treating surgeon and, if needed, their peers, under the Bolam principle of practice[2]. However, this stance has been deemed incorrect by the recent Montgomery judgement[3], which judges any risk that would be thought material in a patient's opinion should be discussed. However, once it has occurred, any complication can be retrospectively considered as a material risk by the patient[3]. The Montgomery judgement also makes comment on the information process, saying it is insufficient to 'bombard' patients with large volumes of information simply to waive risk of litigation. The combination of these factors has changed medical negligence outcomes significantly over recent years. This is despite there being no clinical evidence to support the legal view that patient decision making will often materially change based on the pre-operative risks presented to them. This has led to a significant shift in how surgeons approach the consent process. The classical 'medical-styled' consent process aimed to focus the patient on pertinent risks of an operative procedure. We feel the current clinical negligence climate only supports surgeons who adopt a 'legal-styled' approach which presents the patient with an encyclopaedic list of potential operative risks.

The aim of this randomised controlled trial (RCT) is to investigate whether different consenting processes for the same procedure actually lead to changes in granting consent for that procedure.

Methods and analysis

Study design

This study protocol describes the design of this single centre, non-inferiority, randomised controlled trial. The study protocol conforms with the Standard Protocol Items: Recommendations for Interventional trials (SPIRIT)[4]. The study will be reported to conform with the Consolidated Standards of Reporting Trials (CONSORT)[5] statement for reporting an RCT. Patients will be recruited from the Somerset Spinal Surgery Service of Musgrove Park Hospital, Taunton and Somerset NHS Foundation Trust, Taunton, UK. The study is registered

at ISRCTN67513618[6]; enrolment started in May 2017 and is scheduled to finish in March 2018, with the trial completing in April 2019.

Patients

Two hundred and twenty patients fulfilling the eligibility criteria will be included:

Inclusion criteria

- Able to consent independently
- Pre-existing psychiatric conditions including anxiety will not be excluded
- Age over 18 years
- Diagnostic and/or treatment injections to the cervical, thoracic, lumbosacral spine, coccyx and sacroiliac joints
- Facet Joint Blocks/ Nerve Root & Dorsal Root Ganglion injections / Caudal Epidural / Transforaminal Epidural

Exclusion criteria

- Patients listed for inpatient procedure
- Emergency injections
- Patients who are unable to understand English will be excluded because the questionnaires in this study have not been translated and validated into all other languages
- Patients who lose capacity before they receive their injection

Recruitment procedure

The trial recruitment flow is outlined in Figure 1 and participant timeline in Figure 2.

Patients reviewed in Spinal Surgery Service clinics at Musgrove Park Hospital, who meet the eligibility criteria, will be invited to participate in the trial. Patients will have been referred to clinic by triage physiotherapists, other orthopaedic surgeons, General Practitioners or may be seen as a routine follow up. Patients will be offered a spinal injection as part of their diagnostic and/or therapeutic management. The reason for suggesting treatment with an injection will be explained by the clinician. Patients will then be asked to consider participation in the trial, explaining that currently it is unclear what effect giving information about potential risks during the consenting process has on the decisions made by patients, and what anxiety, if any, it may cause. Patients will verbally consent to consider the trial in clinic and be given an information pack (Pack A). Pack A will contain a patient information sheet about the trial and a consent form for the trial alongside a stamped addressed envelope (SAE), with no information regarding the injection itself. This will give patients time to reflect on the aim of the trial, whether they want to participate and whether they want the injection offered to them. The trial consent form also provides the patient an opportunity to decline trial participation but still proceed with the injection or reject the injection entirely.

Participants will be instructed to return the pack A 'trial' consent form in the SAE. Upon receipt of this, they will be sent a randomised consent form with its respective risks detailed, State Trait Anxiety Inventory (STAI) state and trait questionnaires and a SAE, all contained in Pack B. These packs will be randomised, placed in a tray and sent out in a

sequential order by the spinal secretaries. Patients receive Pack B in a randomised 1:1 allocated fashion. This ensures patients receiving pack B are not subject to sampling bias: i.e. declining entry in to the trial based purely on the consent form they have been randomised to receive. We have utilised a computer-generated randomisation schedule to allocate patients to receive either a medical-styled or legal-styled consent form as part of their Pack B. The envelopes containing the forms will be in a box, ordered as per the randomisation sequence of four to six patients. The surgeons and spinal secretaries administering the trial packs will be blinded to the randomisation order. There will be a contact number included to allow patients to discuss any concerns, or have certain risks explained in further detail. This explanation will be undertaken by a single clinician, to avoid variations in the explanations of specific risks.

Participants will be asked to read the consent form including the detailed risks. They will also complete the State Trait Anxiety Inventory questionnaires as part of pack B. If any participant has any questions about the procedure or the trial, they will have the contact details of the Chief Investigator (a consultant spinal surgeon) and will be encouraged to contact them via 24 hour mobile, email or letter. Having reviewed and signed their consent form, participants will then complete their anxiety questionnaires (STAI). There will be a SAE contained in this pack, allowing them to return their consent form and questionnaires.

There will be a follow up telephone call from the spinal secretaries after two weeks if the forms have not been received; patients will be asked to allow for their telephone number (confirmed at their clinical appointment) to be used to communicate with them for the trial if needed. Once received, the consent forms will be filed in the participant's notes, and the questionnaires and trial consent forms will be anonymised and stored securely in the trial log held in the spinal office.

Patients who withdraw from treatment following receipt of the consent form will be contacted by the Chief Investigator to ascertain the reason for withdrawal, specifically improvement in symptoms or concern with the risks of the procedure.

On the day of surgery, consent will be reconfirmed by the treating clinician. This will involve ensuring that the participant still has symptoms, understands the planned procedure and risks, and has signed the procedure consent form. Following this, a STAI-state questionnaire will be assessed alongside physiological measures to identify if there is any change in anxiety with the consent reconfirmation process or related to the admission itself. This will be performed for both intervention and control groups. The time taken for confirmation of consenting will be measured and used as a marker of the extra time taken to explain the additional risks on the intervention consent form.

The participant will then have their spinal injection. There will be no further active participant interactions required for the trial. Secondary outcome measures related to patient recorded outcome measures (PROMs) will be recorded from the British Spinal Registry (BSR)[7] that all patients undergoing procedures in the Somerset Spinal Surgery Service are allocated to.

Intervention

Participants will have either the standard consent form or the intervention form. Both forms will be identical except for the risks that are mentioned. Current practice for injection treatments is for consenting in clinic or on the day of surgery. This will be changed to have consent reconfirmed on the day of surgery, with the consent form having been

signed and returned by the patient in advance. This will give patients adequate time to make an informed decision regarding their treatment.

The standard risks ('medically styled') that a patient is informed of during the consenting process are:

Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke; wrong level/site; nerve injury; cauda equina injury; soft tissue infection. These are based on the complications on the British Association of Spinal Surgeons' registry website, the BSR.

The intervention consent form ('legally styled') will be encyclopaedic to include all known risks and complications to have ever have occurred from spinal injections following a detailed literature search:

Drug reactions (transient flushing, rash/itching); sensory/motor block, failure to improve symptoms; pain; dural tear; allergic reaction; bleeding; stroke[8 9]; wrong level/site; nerve injury; cauda equina injury[10]; soft tissue infection, haematoma formation, damage to adjacent structures (pneumothorax (if thoracic injection)[11] / bladder and/or bowel injury (if lumbar/caudal epidural)), cerebellar herniation[12], risk of steroids (transient decrease in immunity, high blood sugars[13], stomach ulcers, avascular necrosis, cataracts, increased appetite, menstrual irregularities, nausea, diarrhoea, euphoria, depression, local fat atrophy, increased risk of spinal fracture, increased temperature)[14]; skin discoloration; spinal headache[15]; vascular injury[16]; arachnoiditis[17]; paralysis (paraplegia[18], quadriplegia[19 20]); meningeal irritation; intradural/epidural/subdural abscess[21-23]; septic arthritis of facet joint[24]; disc infection[24]; meningitis[22]; CSF-cutaneous fistula[25]; retinal haemorrhage[26]; prolonged blockade[27]; intravascular injection[28 29]; conus medullaris syndrome[30]; brain thrombophlebitis[31]; spinal cord infarction[32 33]; cortical blindness[34]; seizures[35]; brain oedema; death[12 36].

Data collection

Outcomes

Primary outcome: Withdrawal of consent due to risks

Withdrawal of consent due to the risks stated will be recorded as the primary outcome measure. Withdrawal of consent can occur at any time after inclusion in the trial. If the patient withdraws from treatment due to improvement in their symptoms and thus does not consent, then they will be excluded from the data analysis. If the participant had given written consent and returned their consent form and subsequently decline treatment due to an improvement in symptoms, they will be excluded from the analysis.

Secondary outcomes:

The State-Trait Anxiety Inventory

The STAI questionnaire[37] has two parts to it, assessing the current state of anxiety and the anxiety trait of the patient. Both parts will be completed by the patient at home, with only the state part needing to be re-assessed at the time of reconfirmation of consent on the day of surgery. The STAI is one of the most widely used subjective measures of anxiety in health research. It contains two 20-item self-report scales designed to measure how much worry, tension or apprehension the subject experiences in his or her present circumstances (state anxiety) and how much anxiety represents a personality characteristic

(trait anxiety). Items emphasize the frequency of particular symptoms (ranging from 1 = not at all to 4 = very much so). A minimal important difference of 10 has been used in another study[38]. Form Y will be used in this study as it has a more replicable factor structure and improved psychometric properties[39].

VAS

Visual analogue scores are used routinely as PROMs post-operatively and will be recorded in the BSR database. This has been shown to be a reliable, valid and responsive to changes in pain[40] and will be recorded from the BSR at six weeks post operatively.

EQ-5D

The EuroQol (EQ-5D) measures five dimensions on a three-point scale: mobility, self-care, daily activities, pain/discomfort, anxiety/depression; no, some or extreme problems. A utility score can be calculated to reflect the valuation of that health state in a society, in this case using the UK tariff[41]. These scores are routinely recorded in the BSR database. These will be accessed at six weeks post-operatively.

Oswestry Disability Index

The Oswestry Disability Index (ODI) is used in spinal procedures to quantify symptomatic changes pre and post interventions and how the back or leg pain affects the patient's everyday life[42]. It has 10 questions each with six possible answers, with each answer receiving a score between 0-5, yielding a score ranging between 0-50 (which is scaled to 100%). These are routinely recorded in the BSR database and will be accessed at six weeks post-operatively.

Physiological measures

Baseline physiological measures (heart rate, respiratory rate, blood pressure) will be recorded before and immediately after confirmation of consent on the day of surgery.

Time for confirmation of consent

The time taken for the risks to be explained and questions answered will be recorded on the day of surgery.

Recruitment rate

Approximately 20-30 injections occur as a day case each week at the trial hospital. Based on 10 injections a week (33-50% recruitment rate), 22 weeks will be needed to recruit patients. There will be up to an 18-week waiting time from listing to injection due to NHS waiting lists (Figure 2). This will allow the patient to have time to reflect on their decisions regarding inclusion in the trial and their treatment.

Some patients' symptoms will improve whilst waiting for their injection or may develop more pressing medical issues that take priority. In either case, patients may withdraw from having their injection on medical grounds. This is anticipated to be up to 15% of patients, and the recruitment calculations reflect this.

Follow up

Final follow up from the trial will be at six weeks post injection as part of their routine spinal follow up. There will be remote follow up of PROMS using the British Spinal

Registry database. Patients' data will be analysed on an intention to treat analysis, though as choosing not to consent is the primary outcome measure, there will be no cross over between the groups.

Statistical considerations

Given that the background to the intervention is that it is thought to not affect the rates of consent, it can be assessed as a non-inferior treatment. The primary outcome measure is binary.

For a non-inferiority trial, at 5% significance, 90% power, assuming that 99.5% of patients do not withdraw their consent when the risks are explained normally (e.g. 199 patients out of 200 consent), to show that there is a 3% difference in the rates of consent, 95 patients are needed per group (that would be 95 consenting in one group and less than 92 out of 95 in the other to show difference). If there is truly no difference between the standard and experimental treatment, then 190 patients are required to be 90% sure that the upper limit of a one-sided 95% confidence interval will exclude a difference in favour of the standard group of more than 3%. Anticipating 15% drop out due to improvement in symptoms and/or more pressing medical issues, 110 patients will be recruited per group.

Data management

Data management procedures have been approved by the Health Research Authority (REC 16/SC/0510). Data will be collected by surgeons and the spinal research team at the trial hospital. This will be stored securely on trust computers within the spinal office with data entry and coding of the de-identified data conducted by trained staff. The final data set will be accessible to the chief investigator and stored for five years following the end of the study.

Statistical analysis

Data will be analysed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Independent t-test will be used for analysis within the groups tested and Mann-Whitney tests to compare the intervention and control groups. Data analysis will be performed by statisticians blinded to the intervention.

Patient public involvement

Patients who have had spinal injections have helped design the methodology regarding the timings and number of forms to complete. The reading level of the checklist form has been measured as Flesch-Kincaid Reading Ease 74.6 (100 being the easiest), with the most complicated form explaining the risks in more detail still being of a general public reading level (Flesch-Kincaid Reading Ease 59.5)[41].

Ethics and dissemination:

This study is approved by the Health Research Authority: REC 16/SC/0510 and will be conducted in agreement with the Helsinki declaration. The questionnaires being have been

approved by the Clinical Research Support Department at Musgrove Park Hospital prior to their distribution and will be used under their appropriate license.

Standard practice (the control group) will be improved as the control consent form will be based on the national guidance from the British Association of Spinal Surgeons (BASS). Current legal (though not NHS nor BASS) guidance would state that the intervention consent form has neither ethical implications nor harmful effects to the patient as a consent form with a complete list of the risks, that a patient may deem material, should be being used. By measuring psychological and physiological stress, if harm is caused by more extensive consent forms, this can be identified. If the rates of consent withdrawal are seen to be statistically significant at an early analysis point (after 50 patients), then the trial would be stopped early. If any patients are found to be significantly anxious on review of the completed questionnaires, they will be offered referral to their GP for onward management of their anxiety.

Patients will be provided with Patient Advice Liaison Service (PALS) contact information should they want to talk to someone independent about the trial (information is on the patient information leaflet).

Patients will be provided with the contact details of the Chief Investigator so that they can raise any questions regarding the study or their injection. A list of any patients who utilise this service, and those who make any contact with the Somerset Spinal Surgery Service via other means (e.g. telephone to secretaries, email to spinalsurgeryservice@tst.nhs.uk) and the reason for this contact will be recorded; all patient encounters are already contemporaneously logged on the hospital electronic patient record system.

Dissemination

Results will be submitted for publication in an international, peer-reviewed journal regardless of the outcomes. Additionally, findings will be presented at local, regional and international ethical, orthopaedic and spinal conferences.

Potential outcomes

This work is unique in its concept. There is currently no objective and prospective evidence to support the legally enshrined principle that giving more information alters the rates of consent in patients; the RISCS trial addresses this. If rates of consent do decrease with more information, especially regarding rare risks, then the legal principle is upheld, and all consenting practise in the NHS should change to reflect this. This would often involve significant change in practice, mainly relating to the time allocated to consent processes and the amount of information imparted; also, the time given to patients to reflect on this information. Conversely, if there is no change in the rates of consent despite more detailed explanation of risks, then the premise of the Chester vs Afshar Supreme Court judgement will be shown to be fallible, and this study may be used to justify and defend standard consenting practice for minor procedures. Further to this, this study may show that it is harmful to attempt to explain all risks to patients, in that it creates physiological disturbances and psychological stress as shown by the STAI questionnaires. This would further justify that standard explanation of risk and consenting is appropriate. Whilst directly relevant to UK law, the findings will have transferability to practices worldwide

given the consistency in the aspects that underpin consent processes. Finally, following the completion of the RISCS trial, the methodology will be used to design a further trial investigating causality using more major procedures (RISCS 2) to investigate whether the principal outcome holds for all procedures.

Authors' contributions:

JF, MK and PT wrote the protocol and designed the study; all authors critically reviewed the manuscript.

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Competing interests statement.

There are no competing interests for any of the authors.

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Figure Legend:

Figure 1 – Flowchart of Participant Journey
Figure 2 – RISCS Trial Participant Encounters

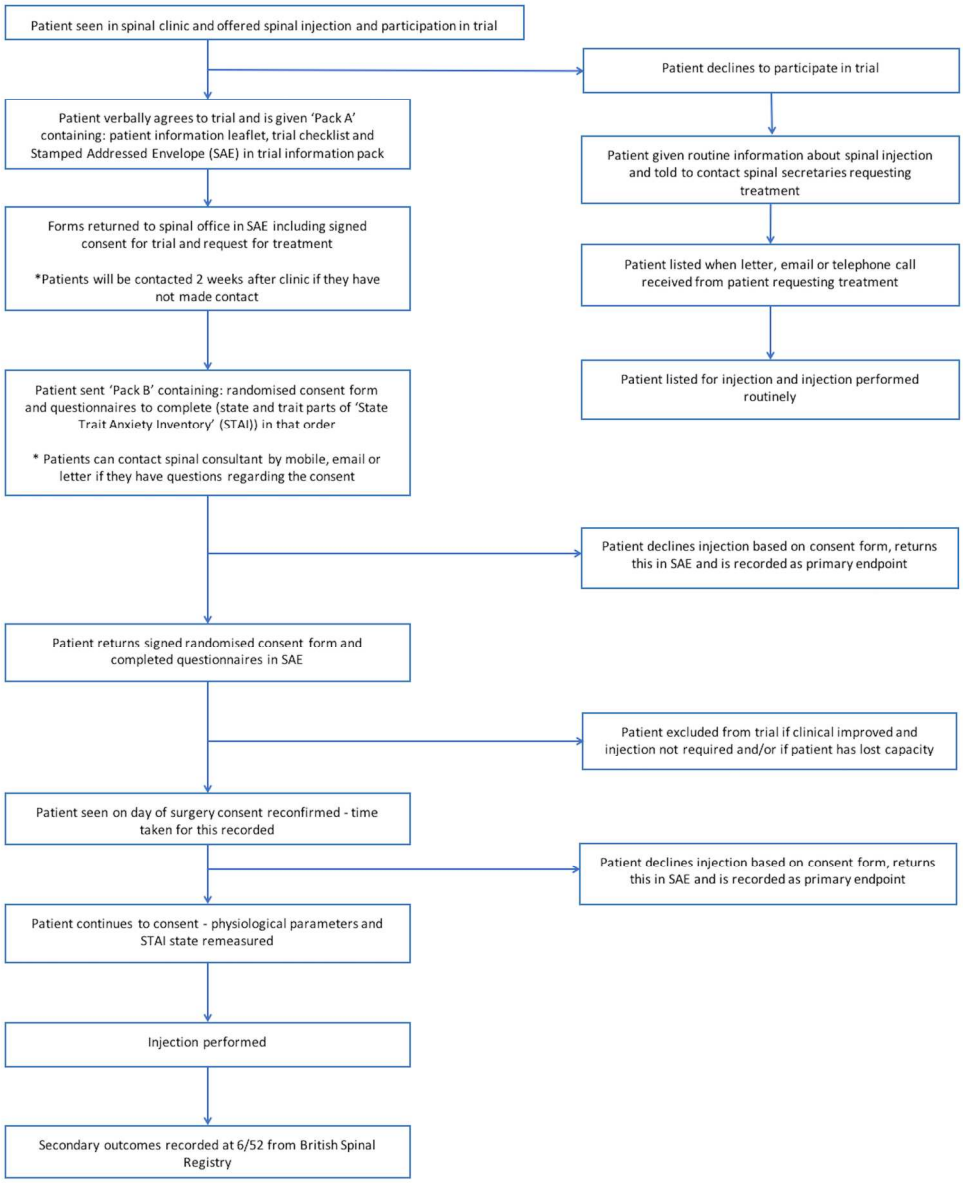

Figure 1 - Flowchart of Participant Journey

249x304mm (300 x 300 DPI)

	Return of injection consent form	Day of injection	Post operative follow up
	-18 to -6 weeks	0	+6 weeks
Consent withdrawal measured	X*	X	
STAI – Trait	X*		
STAI – State	X*	X*	
Physiological parameters measured		X	
Time taken for consent confirmation		X*	
ODI			X
VAS			X
EQ-5D			X

*Additional encounter compared to standard practice

STAI – State Trait Anxiety Inventory; ODI – Oswestry Disability Index; VAS – Visual Analogue Score; EQ-5D - EuroQOL five dimensions questionnaire

Figure 2 - RISCS Trial Participant Encounters

199x119mm (300 x 300 DPI)

Reporting checklist for protocol of a clinical trial.

Based on the SPIRIT guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:

Chan A-W, Tetzlaff JM, Altman DG, Laupacis A, Gøtzsche PC, Krleža-Jerić K, Hróbjartsson A, Mann H, Dickersin K, Berlin J, Doré C, Parulekar W, Summerskill W, Groves T, Schulz K, Sox H, Rockhold FW, Rennie D, Moher D. SPIRIT 2013 Statement: Defining standard protocol items for clinical trials. Ann Intern Med. 2013;158(3):200-207

		Reporting Item	Page Number
Title	#1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	1
Trial registration	#2a	Trial identifier and registry name. If not yet registered, name of intended registry	1,3
Trial registration: data set	#2b	All items from the World Health Organization Trial Registration Data Set	n/a
Protocol version	#3	Date and version identifier	n/a
Funding	#4	Sources and types of financial, material, and other support	8
Roles and responsibilities: contributorship	#5a	Names, affiliations, and roles of protocol contributors	1, 9
Roles and responsibilities:	#5b	Name and contact information for the trial sponsor	n/a

sponsor contact information			
Roles and responsibilities: sponsor and funder	#5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	n/a
Roles and responsibilities: committees	#5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	8
Background and rationale	#6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	2
Background and rationale: choice of comparators	#6b	Explanation for choice of comparators	2
Objectives	#7	Specific objectives or hypotheses	2
Trial design	#8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	3
Study setting	#9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	3
Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)	3
Interventions: description	#11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered	5

Interventions: modifications	#11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving / worsening disease)	8
Interventions: adherence	#11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return; laboratory tests)	4
Interventions: concomitant care	#11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	n/a
Outcomes	#12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	5,6
Participant timeline	#13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure)	3,4 & F2
Sample size	#14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations	7
Recruitment	#15	Strategies for achieving adequate participant enrolment to reach target sample size	6,7
Allocation: sequence generation	#16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	4
Allocation concealment	#16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed	4

mechanism		envelopes), describing any steps to conceal the sequence until interventions are assigned	
Allocation: implementation	#16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions	4
Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	8
Blinding (masking): emergency unblinding	#17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's allocated intervention during the trial	n/a
Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	4
Data collection plan: retention	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	4,7
Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	7
Statistics: outcomes	#20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol	7
Statistics: additional analyses	#20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	n/a
Statistics: analysis population and missing data	#20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	n/a

Data monitoring: formal committee	#21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	7
Data monitoring: interim analysis	#21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	8
Harms	#22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	8
Auditing	#23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Research ethics approval	#24	Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	8
Protocol amendments	#25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	3,4
Consent or assent: ancillary studies	#26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27	How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	4,7,8
Declaration of interests	#28	Financial and other competing interests for principal investigators for the overall trial and each study site	9
Data access	#29	Statement of who will have access to the final trial dataset,	8

		and disclosure of contractual agreements that limit such access for investigators	
Ancillary and post trial care	#30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
Dissemination policy: trial results	#31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	1,8
Dissemination policy: authorship	#31b	Authorship eligibility guidelines and any intended use of professional writers	n/a
Dissemination policy: reproducible research	#31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	n/a
Informed consent materials	#32	Model consent form and other related documentation given to participants and authorised surrogates	n/a
Biological specimens	#33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a