Achieving Self-Directed Integrated Cancer Aftercare (ASICA) in melanoma: Protocol for a randomised patient-focused pilot trial of delivering the ASICA intervention as a means to earlier detection of recurrent and second primary melanoma

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Abstract

Background: Melanoma is common, 15,906 people in the UK were diagnosed with melanoma in 2015 and incidence has increased five-fold in 30 years. Melanoma affects old and young people with poor prognosis once metastatic. UK guidelines recommends people treated for cutaneous melanoma receive extended outpatient hospital follow-up to detect recurrence or new primaries. Such follow-up to the growing population of melanoma survivors is burdensome for both individuals and health services. Follow-up is important since approximately 20% of patients with early-stage melanoma experience a recurrence and 4-8% develop a new primary, the risk of both is highest in the first five years. ASICA (Achieving Self-directed Integrated Cancer Aftercare) is a digital intervention to increase Total-Skin-Self-Examination (TSSE) by people treated for melanoma, with usual follow-up.

Methods: We aim to recruit 240 adults with a previous first stage 0-2C primary cutaneous melanoma from secondary care in North-East Scotland and the East of England. Participants will be randomised to receive the ASICA intervention (a tablet based digital intervention to prompt and support TSSE) or control group (treatment as usual). Patient-reported and clinical data will be collected at baseline, including the modified Melanoma Worry Scale (MWS), the Hospital Anxiety and Depression Scale (HADs), the EuroQoL EQ-5D-5L, and questions about TSSE practice, intentions, self-efficacy and planning. Participants will be followed up by postal questionnaire at 3, 6 and 12 months following randomisation along with a 12 month review of clinical data. 12 months following randomisation will be considered the primary timepoint for outcome analyses.

Discussion: If the ASICA intervention improves total-skin-self-examination practice in those affected by melanoma, this may lead to improved psychological well-being and earlier detection of recurrent and new primary melanoma. This could impact both patients and NHS resources. This study will determine if a full scale randomised controlled trial can be undertaken in the UK NHS to provide the high-quality evidence needed determine the effectiveness ASICA is a pilot study evaluating the effectiveness of total skin self-examination practice in those affected by melanoma.

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Keywords: Primary care, Melanoma, Cancer, Randomised Controlled Trial, Survivorship, Self-directed care, e-health, ASICA.

Background

Melanoma is common, 15,906 people in the UK were diagnosed with melanoma in 2015 and incidence has increased five-fold in 30 years.[1] Melanoma disproportionately affects younger people with poor prognosis once metastatic.[2] UK guidelines recommend people treated for cutaneous melanoma receive extended hospital follow-up to detect recurrence or new primaries.[3-5] However, delivering melanoma

follow-up to the growing population of melanoma survivors is burdensome for both individuals and health services.[6] Follow-up is important, nonetheless, since approximately 20% of patients with early-stage melanoma experience a recurrence and 4-8% develop a new primary, the risk of both is highest in the first five years.[7-10] Melanoma recurrence can present locally, regionally or with distant metastases and new primaries can occur anywhere.[11]

It is important to detect new primary and recurrent melanoma as soon as possible. Successful treatment of recurrent melanoma with targeted and immunological treatments is leading to significant improvements in survival even in advanced melanoma.[12] Most recurrences and new primaries are detected by patients between scheduled follow-up visits.[3-5] Thus, guidelines recommend patients conduct monthly TSSE during follow-up. An American randomised trial showed increasing TSSE practice in the short-term results in significantly more skin surgery (i.e. in greater detection and tackling of potential melanoma) in people with increased melanoma risk.[13]

However, currently people treated for melanoma are possibly missing opportunities for early detection of new primary and recurrent melanoma by not practicing regular TSSE, or not conducting it effectively. A Scottish study suggests that people delay raising concerns about early recurrence until their next hospital follow-up appointment.[14] There is also evidence from the UK and elsewhere that TSSE practice is suboptimal and not practised monthly as recommended by UK guidelines.[3,4,5,15,16] Barriers to initiating and maintaining TSSE include lack of initial training, declining motivation and insufficient time.[17] All of these barriers are tackled by the ASICA intervention.

The ASICA (Achieving Self-directed Integrated Cancer Aftercare) digital intervention supports high quality TSSE by people with cutaneous melanoma, and appropriate clinical responses when they raise a concern. It is rigorously developed, digitally supported and theoretically-based, using specified behaviour-change techniques to prompt users to perform regular TSSE. As reported in more detail elsewhere [18], the intervention was designed to incorporate specific ‘behaviour change techniques’ or BCTs (i.e. the active ingredients that make up an intervention and are required to change behaviour). Included BCTs aimed to; develop users’ knowledge and skills about TSSE (e.g. demonstrating the behaviour, rehearsing/practising); enhance/maintain motivation to perform TSSE (e.g. providing information on health consequences of the behaviour, using a credible source for the information); enhance confidence to conduct TSSE successfully (e.g. mastering the skills necessary); and enable self-regulation of action over time (e.g. providing prompts and cues to act, planning when, where, and how to do TSSE). By enabling prompt recognition and treatment of recurrent and new primary melanomas, ASICA may enable earlier treatment and improved outcomes for patients and the NHS. The ASICA intervention was developed within the MRC Complex Intervention Framework[19] and includes BCTs selected to address constructs of the underpinning theories (Information-Motivation-Behaviour, IMB) model plus Control Theory and Implementation Intentions.[20-25] Development was guided by an expert multi-disciplinary group through several stages.[18] A systematic literature review was conducted, followed by interviews with potential recipients and a facilitated co-design event where all key stakeholders participated in the development of a prototype by acting out a full simulation: a tablet-based digital intervention to prompt

and support TSSE, comprising instructional videos and electronic reporting (including photographs) to a clinical nurse specialist in dermatology with subsequent clinical triage.[26]

The prototype was further developed in a preliminary eight month feasibility study to establish its acceptability.[18] Nineteen people treated for melanoma stages 0-2C and receiving structured hospital-based follow-up were recruited from six general practices in North-east Scotland.[18] Users were prompted by email each month to undertake TSSE and electronically feedback findings to the clinical nurse specialist. Qualitative interviews were conducted with the participants after eight months. Most were strongly positive and adhered well to the intervention (n=15/19) and seven reported symptoms. Two underwent surgery as a result of participating; one with recurrent melanoma, the second with a benign compound naevus. Intention and confidence to conduct monthly TSSE increased. Issues to improve usability were identified and implemented. We concluded that ASICA is acceptable, safe and effective and offers potential to improve psychological well-being and enable earlier diagnosis of new primary and recurrent melanoma.[18] However, the non-randomised pre-pilot gave limited information on recruitment, acceptability, compliance and retention at one site. Also, we collected data on anxiety and depression, but not melanoma worry and scores showed high variability at baseline and variability in both magnitude and direction of effect at follow-up raising the possibility of a bi-directional effect on psychological outcomes which requires further exploration. This study aims to demonstrate that ASICA has the potential to benefit people with melanoma and is feasible to deliver in the NHS.

AIMS AND OBJECTIVES

The aim of the study is to compare a self-directed digital intervention (intervention group) with treatment as usual (control group) in patients treated for a first stage 0-2C primary cutaneous melanoma within the preceding 60 months.

The hypothesis to be tested is that the ASICA intervention will increase TSSE practice in those affected by melanoma using it, and compared to controls, without affecting psychological well-being and lead to earlier detection of recurrent and new primary melanoma.

The specific study objectives are to:

Recruit 240 adult patients with a previous first stage 0-2C primary cutaneous melanoma.

Randomise participants between the ASICA intervention and the control group.

Collect baseline patient-reported and clinical data. The baseline participant questionnaire will include the modified Melanoma Worry Scale (MWS) the Hospital Anxiety and Depression Scale (HADs), the EuroQoL EQ-5D-5L, and questions about TSSE practice, intentions, self-efficacy and planning.

Follow-up participants by postal questionnaire at 3, 6 and 12 months following randomisation. Shortened questionnaires (HADS, EuroQoL EQ-5D-5L, and MWS) will be completed at 3 and 6 months and a full questionnaire, as per baseline, at 12 months.

Compare the primary and secondary outcomes between the two arms.

Collect data from the intervention group via tablet monitoring for process evaluation, to investigate the frequency and patterning of total skin examination and investigate predictors of sustained skin examination over time.

Methods

Study Design

A two-arm, open multi-centre randomised controlled trial (RCT) comparing ASICA, a digital intervention to increase TSSE by people treated for melanoma with usual follow-up. The trial flow diagram is presented in Figure 1. This protocol follows SPIRIT guidelines.[27] Participants will be in the trial for 12 months. The primary outcome will be determined up to 12 months following randomisation.

Study participants

Inclusion criteria

Adults (age 18 and over) who have been treated within the preceding 60 months for a previous stage 0-2C primary cutaneous melanoma and can give informed consent.

Exclusion criteria

Stage 3 and 4 melanoma; a previous local recurrence of melanoma within last 60 months; patients who are unable to consent and/or complete questionnaires (e.g. due to cognitive or language issues); and patients who are blind or visually impaired.

Recruitment

A clinical nurse specialist in dermatology will work with lead clinicians at the two recruiting sites, Aberdeen Royal Infirmary and Addenbrooke's Hospital, Cambridge. Potential participants will be identified from appropriate sources including, but not limited to, Multidisciplinary Team (MDT) meeting lists, locally-held pathology registers and melanoma follow-up clinic registers. Following identification of potential participants, an invitation letter, patient information leaflet (PIL) detailing the trial, consent form, baseline questionnaire and pre-paid return envelope will be sent out directly from the treating hospital. Local contact details will be provided. Potential recruits will be offered the opportunity to meet face-to-face, or have a telephone conversation, with a member of the investigative team to discuss their potential participation. Local procedures at the participating hospitals are different and the timing and mode of approach to patients and the consent process may vary in order to accommodate both the specific circumstances at each site and the needs of the patients.

Informed consent

Potential participants will have the opportunity to discuss all aspects of the proposed research with the local clinical team, family and friends and, if appropriate, with their GP. Patients who decide to participate will send their completed documents (consent form and baseline questionnaire) in the pre-paid envelope provided to the local clinical team. Participants will be asked to consent to being randomised to receive ASICA or to the control group; to permit the research team to review their secondary care-held medical notes at baseline and outcome; to receive the study questionnaires, and for future contact to enable longer-term follow-up of both groups.

Randomisation and allocation

Randomisation will use a minimisation algorithm based on gender and centre to minimise imbalance between intervention and control groups[28]. All participants who enter the trial will be logged with the central study office in Aberdeen and given a unique Study Number. Randomisation will be 1:1 control to intervention and will utilise the existing proven remote automated computer randomisation application at the study administrative centre in the Centre for Healthcare Randomised Trials (CHaRT) in the Health Services Research Unit (HSRU), University of Aberdeen. This randomisation application will be available as an internet-based service. The Principal Investigator (PI), or individual at site with delegated authority, will access the web-based system to randomise participants. Following randomisation, participants will be informed of their allocated treatment group.

The intervention that will be evaluated

Preparation and training. The intervention group will attend a local medical photography suite to have digital skin images taken. The ASICA intervention app and individual skin-maps will be incorporated within a password protected individual tablet computer to ensure confidentiality. The app is Android configured and designed to run on a Samsung Galaxy tablet. The ASICA app comprises 1) An instructional video demonstrating how to conduct a sequential total-skin-self-examination; 2) A digital skin map of the patient's own skin; 3) A digital camera and instructions about how to take photographs of skin lesions; 4) A structured electronic TSSE report form which can be sent to an clinical nurse skin cancer specialist (CNS) which can include photographs of skin lesions that the patient is concerned about. All reports are managed within a secure encrypted server. Participants randomised to the ASICA intervention will be invited to receive their tablet computer at a 60-minute group training session held at the local recruiting centre. At these sessions intervention group participants will be instructed how to use the tablet computer and ASICA app to guide themselves through TSSE and send the findings electronically to the study server. Participants will have the opportunity to familiarise themselves with their tablet for a short time before their first skin TSSE. All aspects of using the tablet, from ensuring the internet is connected, detailed step by step instruction, contact details, screen shots of the app to hints and tips on taking photographs with the tablet are contained in a booklet that will be issued to each participant.

Prompting to use ASICA. The intervention group will be supported by a clinical nurse specialist in dermatology based in Aberdeen and each month they will be prompted (using the participant's favoured

method of contact (phone, email, text or mail) to conduct a TSSE.

Performing and reporting TSSE using ASICA. Participants will be asked to follow the TSSE procedure outlined in the integral animated ASICA demonstration and respond using the electronic report form. Where the participant finds a concerning skin lesion (either new or associated with their primary site) they will take photographs of the lesion using the camera on their tablet computer. Such photographs will be uploaded and attached to the digital report sent to the clinical nurse specialist.

Response by clinical nurse specialist. The digital reports will be sent to the clinical nurse specialist who will check and log them. The clinical nurse specialist will log all data on TSSE activity (check TSSE conducted, body areas (1-8) checked, concerns noted) and data will be exported into the database for process analysis.

Action where the report causes concern. Where a patient has registered a concern within their digital report about something they have found during TSSE, the clinical nurse specialist will observe this from the report and contact the patient within 72 working hours for further discussion. They will discuss concerns by telephone in the first instance. Clinical images will be reviewed and further images sent if required. Our pilot study suggests many concerns will be successfully resolved at this early stage.

Further clinical action. Where discussion and review of clinical images has not fully resolved concerns by the patient and/or clinical nurse specialist, the clinical nurse specialist will discuss the case and review any clinical images with the site's lead dermatologist, and an urgent clinic appointment will be arranged.

All participants (intervention and control) will continue to attend their usual structured melanoma follow-up as determined by local guidelines throughout the trial. Usual structured melanoma follow-up consists of regular (three or six-monthly) review appointments with a specialist skin doctor or nurse conducted at the secondary care hospital outpatient department. The schedule of appointments is determined by the clinical features of participants' primary melanoma.

Follow-up procedures

Intervention and control group participants will receive postal questionnaires at 3, 6 and 12 months following randomisation. Reminders will be sent after three weeks to non-responders. The medical notes of all participants will be reviewed at 12 months and any relevant pathology data will be collected.

Subsequent arrangements

The local Research Nurse and/or PI will:

1. i) file a copy of the consent form in the hospital notes along with information about the study.
2. ii) enter study data regarding the participant into the bespoke study database hosted by the CHaRT in the Health Services Research Unit, University of Aberdeen.

iii) maintain study documentation at main research office. A copy of the signed consent form will be returned to the Trial Office in Aberdeen.

1. iv) provide any relevant follow-up clinical data.

Participants will be asked for their preferred mode of contact to be prompted to conduct a monthly TSSE, by phone, post or email. This mode of communication will be used to prompt them to conduct a TSSE each month as appropriate. In case of non-return of questionnaires, attempts will be made by site staff or staff at the Trial Office to trace the participant directly using these means or indirectly by contacting the GP.

Change of status/withdrawal procedures

Participants will remain in the trial unless they choose to withdraw consent or if they are unable to continue for a clinical reason. All changes in status with the exception of complete withdrawal of consent will mean the participant is still followed up for all trial outcomes wherever possible. All data collected up to the point of complete withdrawal will be retained (with permission) and used in the analysis. The study team will attempt to collect the tablet computer issued to the withdrawing participant.

Outcome measures

Primary outcome

The co-primary outcome measures are the impact of receiving ASICA on Melanoma Worry Scale (MWS), anxiety and depression (HADS) and quality of life (EQ-5D-5L) 12 months following randomisation.

Secondary outcomes

Adherence to TSSE recommendations in the year following introduction of ASICA

Detection of second primary and recurrent melanoma

Intention and self-efficacy and clearer plans to perform TSSE in the next 12 months. Intention, self-efficacy and plans will be measured using the baseline and outcome questionnaire measures.

Pattern of NHS resource use.

DATA COLLECTION AND PROCESSING

Follow-up will continue for 12 months from the date of randomisation. Outcomes will be assessed by participant-completed questionnaires at baseline, and 3, 6 and 12 months after randomisation. The research nurse and/or clinician will complete a CRF at baseline and at 12 months after randomisation. The components and timing of follow-up measures are shown in Figure 2 (Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT) Figure [27])

Baseline

A participant visit will not be required to collect baseline data which will be obtained from all participants' hospital-held medical records and by postal questionnaire. An electronic case report form (CRF) will record the participant's details (age, gender, ethnicity, habitation status, occupation, GP practice, date of melanoma diagnosis, clinical details about melanoma, important comorbidities). Participants will complete a questionnaire collecting quality of life (EQ-5D-5L[29]), anxiety and depression (HADS[30]), worry about melanoma (Melanoma Worry Scale) [31]), self-report of health service use, self-report of TSSE practice (frequency and coverage), and ratings of intention, self-efficacy and planning over future TSSE.[32]

Follow up

Participants will be asked to complete a questionnaire, similar to the baseline questionnaire, to assess outcome measures at 12 months with a shortened questionnaire at 3 and 6 months following randomisation. These questionnaires will be administered by post or email as preferred by the participant.

A CRF will enable the clinical nurse specialist to collect relevant baseline and outcome data from secondary care-held case-notes (including pathology data).

Additional data from intervention group

Adherence to TSSE will be measured using reports of TSSE from the intervention group which will provide information on the frequency and pattern over time of TSSE, maintenance throughout the 12 months, the time taken, and the areas of the body covered. These data will be analysed to assess usage and predictors of usage of ASICA that might be useful in designing improvements to the procedures.

The research nurses will enter locally collected data in the trial centres. Serious adverse events and adverse events will be notified immediately to the PI and recorded by the Trial Office in Aberdeen. Staff in the trial office will work closely with the local Research Nurses to ensure the data are as complete and accurate as possible. Study questionnaires to participants will be sent from and returned to the trial Office in Aberdeen. Extensive range and consistency checks will further enhance the quality of the data.

SAMPLE SIZE

As this is a pilot trial a formal power calculation is not needed. However, we have made a pragmatic choice to conduct a relatively large (n=240) pilot study for several reasons. The non-randomised pilot [18] of 19 patients gave limited information on recruitment, acceptability, compliance and retention at one site. We collected HADS (but not MWS) at baseline and at six-month follow-up. Scores showed high variability at baseline and variability in both magnitude and direction of effect at follow-up. The feasibility study has therefore raised the possibility of a bi-directional effect on psychological outcomes, with a possible gender interaction which now needs further exploration in a sample of sufficient size to

have representation across the spectrums of anxiety and cancer worry scales in both sexes and we believe this will be captured amongst 240 individuals. We need to ensure that ASICA does not adversely affect psychological outcomes and can be well-adhered to by most participants, thereby confirming that ASICA could work within the NHS, before proceeding to a definitive trial powered on harder clinical outcomes (e.g. rates of recurrence and new melanoma, both quantified in the current study). Pragmatically therefore, we believe a sample size of 240 will provide a sufficiently diverse group of participants to provide this information. Although our trial is not powered to detect significant differences between groups in clinical outcomes it will provide valuable information on trial processes as well as psychological and clinical outcomes to inform a definitive trial.

STATISTICAL ANALYSIS

The Medical Statistics Team at the University of Aberdeen will be responsible for the statistical aspects of the trial. Data from patient case-notes, on ASICA use and participant questionnaires will be entered into a dedicated secure website. In accordance with CONSORT guidelines, primary analysis will be intention to treat with a per protocol sensitivity analysis. No interim analysis is planned. Baseline comparability between the intervention and control group in demographic characteristics, MWS, HADS and EuroQuol EQ-5D-5L, self-reported TSSE practice, intention, self-efficacy and plans, and clinical data will be evaluated by examining summary statistics (mean (SD) or median (IQR) for continuous variables dependent on distribution and number (%) for categorical variables). A repeated measures mixed model will estimate confidence intervals of between-group differences in the primary and secondary outcomes before and after adjustment for potential confounders (including centre, age, gender, deprivation, baseline performance). The confidence intervals generated from the model will subsequently inform a power calculation for a definitive trial. 12 months following randomisation will be considered the primary timepoint for outcome analyses. The one year detection rate of new primary melanomas, melanomas in-situ, dysplastic melanocytic lesions and recurrent melanomas will be tabulated by randomisation group. Service use and cost data will be summarised by group and compared using a mixed model approach before and after adjustment for pre-specified confounders. Multilevel modelling will examine the relationship between ASICA usage data, including TSSE trajectories, and outcomes within and between intervention group participants; predictors of usage (including demographic, questionnaire and early TSSE) will be examined in between participant analyses. Effect sizes of the primary outcomes will be calculated and practical issues affecting the conduct of a definitive RCT summarised. A comprehensive statistical analysis plan will be agreed by the Trial Steering Committee (TSC) prior to any analysis.

ECONOMIC EVALUATION

A health economist, will advise the study statistician on assigning the appropriate unit costs to items of service use such that a preliminary assessment of costs can be conducted. The totality of the data will enable costs, practical issues and effect sizes to be identified for a future definitive RCT of the ASICA intervention. Data collection from the trial will focus on estimating the costs of the intervention and the use of primary or secondary NHS care by study participants. Participant costs will comprise self-

purchased healthcare (e.g. prescription and over the counter medication related to the skin). Information will be collected using the participant completed baseline, 3, 6 and 12-month questionnaires. Participants will be asked for information about use of private healthcare. Health service costs incurred as a consequence of the intervention will be recorded. Information on non-protocol visits which occur to any primary or secondary care provider will be recorded using the baseline, 3, 6 and 12 month questionnaires and also from the and secondary care-held medical record review.

PATIENT AND PUBLIC INVOLVEMENT

A facilitated co-design event attended by multiple stakeholders and conducted in 2015 involved 5 healthy volunteers helped to develop the research questions and outcomes for the trial. This was combined with a short feasibility study where 19 people treated for melanoma used the prototype for 8 months.[18] Patients' priorities, experience, and preferences expressed during these exercises helped to form the research questions and outcome measures for the study. This exercise also helped determine the burden of the intervention for trial participants with prototype users confirming the feasibility of the intervention. During this trial two patient participants will form part of the Trial Steering Committee who have been consulted throughout design and recruitment and will continue to meet, receive and discuss reports for the duration of the study. A digest of trial results will be offered to all study participants on completion of the study.

RESEARCH GOVERNANCE, DATA PROTECTION AND SPONSORSHIP

The trial will be run under the auspices of CHaRT based at HSRU, University of Aberdeen. This will support compliance with Research Governance, and provide centralised trial administration, database support and economic and statistical analyses. CHaRT is a registered Clinical Trials Unit with particular expertise in running multicentre RCTs of complex and surgical interventions. The Chief Investigator (CI) will, with the support of CHaRT, ensure that adequate systems are in place for monitoring the quality of the trial and appropriate expedited and routine reports, to a level appropriate to the risk assessment of the trial.

Data collected during the course of the research will be kept strictly confidential and accessed only by members of the trial team. Participant's details will be stored on a secure database under the data protection guidelines and regular checks and monitoring are in place to ensure compliance. Data will be archived to a secure data storage facility. The senior IT manager (in collaboration with the CI) will manage access rights to the data set. Participants will be allocated an individual specific trial number and their details will be anonymised on the secure database. We anticipate that anonymised trial data may be shared with other researchers to enable international prospective meta-analyses.

Dissemination

The findings from the ASICA trial will be disseminated via publication in appropriate scientific journals, presentation at peer-reviewed scientific conferences, and to stakeholders including patients, clinicians, the

public and policymakers at appropriate local, national and international meetings.

Data-handling, record keeping and archiving

Essential data shall be retained for a period of at least 5 years following close of trial. Electronic data will be archived by CHaRT. The archiving procedures for hard copy documentation held at local sites will be performed as documented in the sponsor site agreement. Data will be archived in the Health Sciences Building archive as per sponsor's standard operating procures.

Satellite studies

It is recognised that the value of the trial may be enhanced by smaller ancillary studies of specific aspects of the data, for example differential recruitment from rural and urban areas, and predictors of different levels of TSSE adherence. Plans for these will be discussed in advance with the Project Management Group. Sponsor and REC approval will be sought for any new proposal, if appropriate.

Discussion

This study will determine the effectiveness of the ASICA intervention in evaluating the effectiveness of total skin self-examination practice in those affected by melanoma. This could impact both patients' health care and NHS resources.

Abbreviations

AE: Adverse Event; BCT: Behaviour Change Technique; CHaRT: Centre for Healthcare Randomised Trials; CI: Chief Investigator; CONSORT: Consolidated Standards of Reporting Trials; CRF: Case Report Form; CTU: Clinical Trial Unit; EQ-5D: EuroQol Group's 5 dimension health status questionnaire; GCP: Good Clinical Practice; GP: General Practitioner; HRQoL: Health Related Quality of Life; HSRU: Health Services Research Unit; NHS: National Health Service; NHSG: National Health Service Grampian; NRES: National Research Ethics Service; PI: Principal Investigator; PIL: Patient Information Leaflet; PMG: Project Management Group; PQ: Participant Questionnaire; RCT: Randomised Controlled Trial; R&D: Research and Development; REC: Research Ethics Committee; SAE: Serious Adverse Event; SAP: Statistical Analysis Plan; SD: Standard Deviation; SOP: Standard Operating Procedure; TMF: Trial Master File; TSC: Trial Steering Committee; TSSE: Total Skin Self-Examination; UKCRC: United Kingdom Clinical Research Collaboration; UoA: University of Aberdeen.

Declarations

Acknowledgements

The authors gratefully acknowledge Joanna Kaniewska, Anne Duncan and Lynda Constable (trial management) for their contributions to the protocol and management of the study.

DECLARATIONS

A completed SPIRIT Checklist [27] is included as Additional File 1.

Trial Status

Currently recruiting. Participant recruitment began in January 2018 and is expected to finish recruiting in Feb/March 2019. The first participant was randomised on 24 January 2018. Currently approved protocol: Version 2, 1 December 2018

Ethics approval and consent to participate

This project received full approval from the North of Scotland Research Ethics Committee on 28th April 2017 ((17/NS/0040). Recruitment will not begin at centres until both ethical and local R&D approvals are obtained. Written informed consent will be obtained from all study participants. The trial will be conducted according to the principles of good clinical practice provided by Research Governance Guidelines. We believe this study does not pose any specific risks to individual participants, nor does it raise any extraordinary ethical issues

Consent for publication

Not applicable.

Availability of data and materials

The datasets during and/or analysed during the current study will be available from the corresponding author on reasonable request.

Competing interests

No authors have any competing interests to declare.

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Competing interests

No authors have any competing interests to declare.

Author contributions

PM conceived the study with intellectual input from JM, JA, MJ, SH and WB. ST and AJL contributed advice on Intervention design, study design, power calculations and statistical analysis. ST and AM provided advise on trial design. AN provided advice on health economic aspects. FW, KR, CP, AD, ID, BB, NB and FM provided advice on clinical aspects. PM wrote the protocol with comments from all authors. All authors read and approved the final protocol. We also wish to acknowledge the contribution of two people affected by melanoma who are members of the trial steering committee and the 19 people affected by melanoma who participated in our prototype development.

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Figures

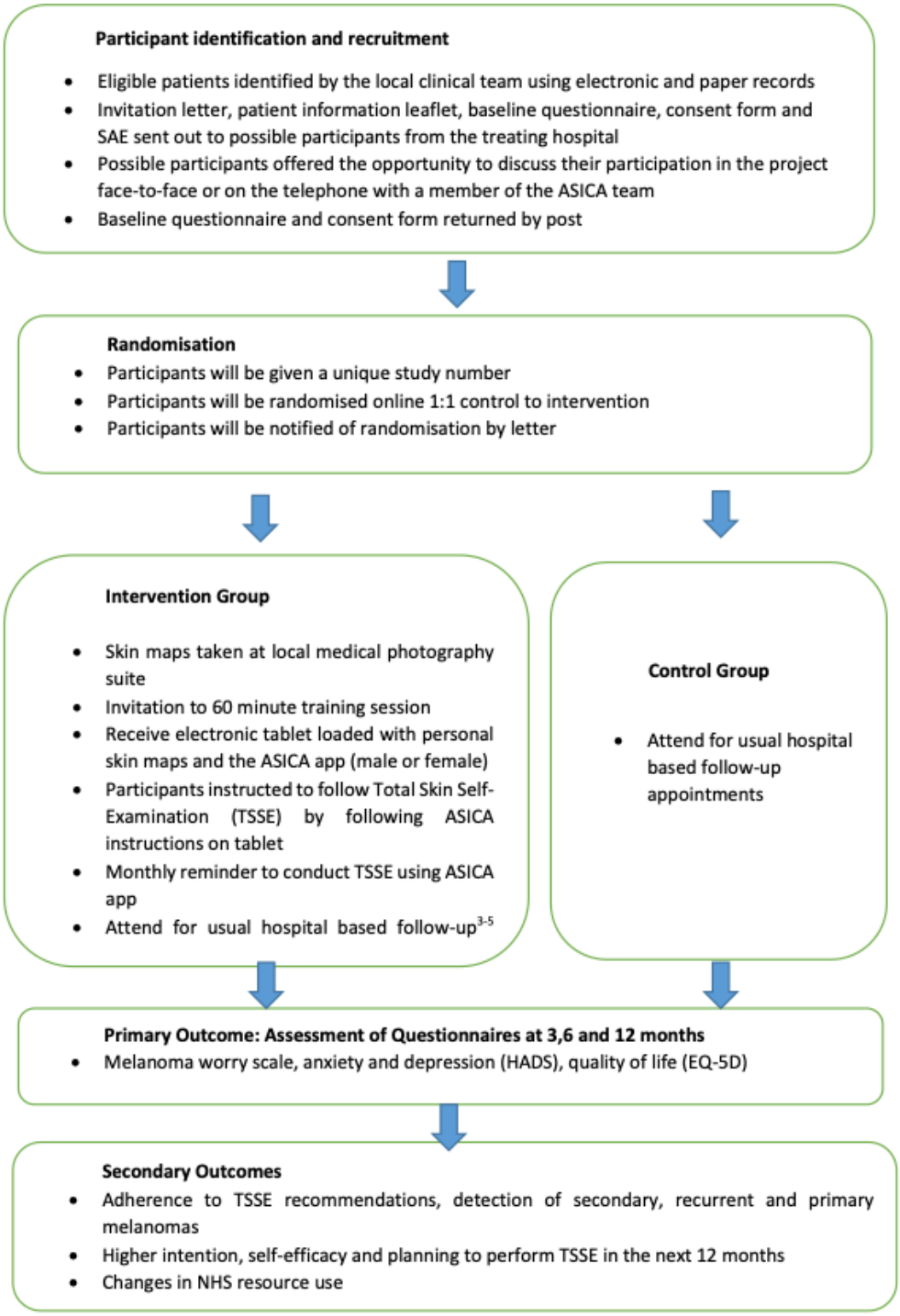

Figure 1

Flow diagram of study design and schedule.

	STUDY PERIOD					
	Recruitment	Intervention (Monthly prompt for skin check)	Post-allocation			Close-out
TIMEPOINT**	$-t_1$	0-12 mths	*3mth*	*6mth*	*12mth*	*12mth*
ENROLMENT:						
Eligibility screen	X[a]					
Informed consent	X[a]					
Randomisation	X[a]					
Allocation	X[a]					
INTERVENTIONS:						
ASICA Intervention		X				
Control group (usual care)						
ASSESSMENTS:						
Demographics	X[a]					
Medical history	X[a]				X[a,b]	
Skin-related health service use	X[a,b]		X[b]	X[b]	X[a,b]	
quality of life (EQ-5D)	X[b]		X[b]	X[b]	X[b]	
Anxiety and depression (HADS)	X[b]		X[b]	X[b]	X[b]	
Melanoma worry scale (MWS)	X[b]		X[b]	X[b]	X[b,c]	
Self-report of TSSE practice	X[b]		X[b]	X[b]	X[b]	
Self-report TSSE intention	X[b]		X[b]	X[b]	X[b]	
Self-report TSSE self-efficacy	X[b]		X[b]	X[b]	X[b]	
Self-report TSSE future plans	X[b]		X[b]	X[b]	X[b]	

a: Clinical CRF, b: Self-reported participant questionnaire, c: data also from ASICA server for intervention group

Figure 2

Schedule for assessments/data collection (Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT)[27].

Supplementary Files

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