

# What is the feasibility of testing a vertebral fracture screening tool in a real-world primary care setting?

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<b>Registration date</b> 01/03/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 22/01/2025	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Osteoporosis (weak bones) is one of the most common musculoskeletal conditions in older women. Osteoporotic vertebral fractures (broken bones in the back due to osteoporosis) are particularly important because they identify people at high risk of breaking more bones. However, less than a third of people with vertebral fractures are correctly diagnosed and treated. The main reason for this failure is difficulty understanding who should have spinal x-rays. The Vfrac tool is a simple questionnaire developed carefully by research involving women with and without osteoporotic vertebral fractures. Vfrac is for healthcare professionals in GP practices to complete for women aged over 65 years with back pain. The output of Vfrac indicates whether or not they should have a spinal x-ray.

Vfrac has never been tested in a real-world situation to find out if it works and is likely to be cost-effective for the NHS. This real-world testing will be a large study involving many GP practices and will look at whether Vfrac improves the treatment of older people with osteoporosis.

Before they can design this study, the researchers need information to plan:

1. The size and process of the study, based on information including numbers of women who attend their GP with back pain and the average time it takes for X-ray results to get back to the GP
2. IT requirements, based on what different IT systems GP practices use
3. How Vfrac is used, based on which healthcare professionals see older people with back pain in primary care
4. Whether the tool needs to be changed based on understanding patient and healthcare professionals' views and experiences of using Vfrac

### Who can participate?

Women aged over 65 years at the participating general practices

### What does the study involve?

The researchers will:

1. Use a database that collects patient data from GP practices across the UK to calculate the size and design of the large study.

2. Ask six GP practices to be involved in this study, and get half of them to use Vfrac for 12 months. This will help the researchers understand the IT requirements. They will ask patients and healthcare professionals about their views of Vfrac and identify factors that make it easier or more difficult to use.
3. Do a nationwide survey of GP practices to describe which type of healthcare professionals see older people with back pain.

What are the possible benefits and risks of participating?

The main risk relates to the COVID-19 pandemic. Before any face-to-face interview about patients' views and experiences of using Vfrac, a risk assessment will be done to minimise the risk of exposure to COVID-19 by both the patient and researcher. There be no direct benefits of taking part in this study.

Where is the study run from?

University of Bristol (UK)

When is the study starting and how long is it expected to run for?

March 2022 to January 2025

Who is funding the study?

National Institute for Health Research (NIHR) (UK)

Who is the main contact?

Prof. Emma Clark, [emma.clark@bristol.ac.uk](mailto:emma.clark@bristol.ac.uk)

### **Study website**

<https://tinyurl.com/yw2dspx>

## **Contact information**

### **Type(s)**

Public, Scientific, Principal Investigator

### **Contact name**

Prof Emma Clark

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### **Contact details**

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## **Additional identifiers**

**EudraCT/CTIS number**

**IRAS number**

313632

**ClinicalTrials.gov number**

Nil known

**Secondary identifying numbers**

IRAS 313632, NIHR203026

## Study information

### Scientific Title

Vertebral fracture clinical decision tool for older women with back pain (Vfrac) - a feasibility study

### Acronym

Vfrac feasibility

### Study objectives

Researchers have developed the Vfrac clinical tool using the MRC framework for development and evaluation of complex interventions. The intention of Vfrac is to help healthcare practitioners in primary care decide if an older woman with back pain is at high risk of an osteoporotic vertebral fracture and therefore requires a spinal radiograph to confirm the diagnosis. Vfrac produces a binary output of "Low risk - spinal X-ray is not recommended" or "High risk - spinal X-ray is recommended as may have a vertebral fracture". Statistical modelling suggests it is valid (AUC of 0.802, 95%CI 0.764-0.840), and pre-trial health economic modelling suggests a future trial to reduce uncertainties is justified.

Before they plan the future trial the researchers need more information to ensure the trial is adequately powered, that Vfrac is acceptable to patients and healthcare professionals, and that the length of follow-up is appropriate. They also need to understand what usual care is for older people with back pain, as this will be the comparator in any future trial.

This feasibility study aims to

1. Optimise the use of the Vfrac decision tool within a real-world clinical situation in primary care by (a) assessing the acceptability of Vfrac, and (b) identifying factors that impact on its implementation, including barriers and facilitators to delivery. Findings will be used to develop a series of recommendations to modify Vfrac and improve delivery in the future randomised controlled trial (RCT).
2. Quantify required trial parameters including (a) final design of the intervention and (b) length of time needed for trial follow up by assessment of UK-wide variability in length of time between initial consultation for back pain and eventual management implementation.
3. Identify processes required to collect accurate and comprehensive data on resource use as a result of Vfrac utilisation through a pilot study.
4. Contribute to the final decision as to whether a future definitive evaluation of Vfrac is warranted.
5. Describe 'usual care' through analysis of control general practices in the pilot study, and through a national survey

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

Approved 28/06/2022, Yorkshire & The Humber- Bradford Leeds Research Ethics Committee (NHSBT Newcastle Blood Donor Centre, Holland Drive, Newcastle upon Tyne, NE2 4NQ, UK; +44 (0)2071048083; bradfordleeds.rec@hra.nhs.uk), ref: 22/YH/0135

## **Study design**

Pilot interventional non-randomized study with nested qualitative evaluation

## **Primary study design**

Interventional

## **Secondary study design**

Non randomised study

## **Study setting(s)**

GP practice

## **Study type(s)**

Diagnostic

## **Participant information sheet**

Not available in web format - please use contact details to request a participant information sheet

## **Health condition(s) or problem(s) studied**

Osteoporotic vertebral fractures

## **Interventions**

Work Package 1 (WP1): Pilot Vfrac implementation within primary care

Six general practices will be recruited purposively to include large/small practices, practices within different PCNs/clusters and practices that use different IT systems (EMISWeb/SystemOne for example). General practices will be identified and approached by the Bristol Primary Care CRN. Baseline data will be collected from all recruited practices. A clinical update on osteoporosis will be offered to all. Three practices will then be assigned to the implementation arm and three to the control. Those in the implementation arm will be trained in the use of Vfrac and will have it made accessible from their IT systems (through the provision of a URL via pop-ups on typing relevant words such as back pain). Use of the Vfrac tool will be encouraged within their clinical pathways for the management of older women who consult with back pain. The use of the tool in a manner that fits each practice's service delivery model will be facilitated by the research team in discussion with the clinical team. The control practices will use standard clinical processes for older women consulting with back pain. Regular data will then be collected on consultations by older women with back pain from all six general practices every 3 months for 12 months.

Work Package 2 (WP2): Nested qualitative assessment of acceptability

16-24 older women who consulted with back pain and had Vfrac used during their clinical consultation within one of the three intervention practices will be recruited to take part in this work package. They will be identified by the unique code generated and embedded within their

GP records at the time the result of Vfrac was recorded. They will be approached by the direct clinical care team in their general practice with an information pack about the study. The information pack will contain an introductory letter, a participant information booklet, a consent form and a pre-paid envelope for return to the research team. Those who reply by returning the completed Consent Form will be recruited. In addition, 16-24 healthcare professionals working within the intervention practices will also be recruited. The plan is to undertake approximately four focus group interviews with patients, and four focus groups with healthcare professionals, each focus group with an estimated 4-6 participants. The final sample size will be determined by data saturation. Focus groups will aim to understand and assess the perceived acceptability of Vfrac and identify factors that impact on implementation. To do this the researchers will address two key actions of intervention development: (1) understand and assess the acceptability of Vfrac to healthcare professionals (providers) and patients (recipients), and (2) identify factors that impact on implementation, including barriers and facilitators to delivery. These may include patient-related factors and provider-related factors such as working practices, or service constraints such as time and resources.

Work Package 3 (WP3): Additional data collection to inform parameters for the trial through analysis of data from the CPRD (WP3A) and a national survey (WP3B) of CCGs, primary care managers and GPs.

Work package 4 (WP4): Decision as to whether a future definitive evaluation is warranted  
Stop/Go criteria for any future trial are:

1. Accuracy of Vfrac tool – already completed and results are favourable (not part of this study)
2. Modelled cost-effectiveness - already completed and results are favourable (not part of this study)
3. Realistic proportion of older women with back pain identified with vertebral fractures by Vfrac - already completed and results are favourable (not part of this study)
4. Realistic required sample size based feasibility study (WP1) and on analyses of national data (WP3)
5. Realistic required length of follow-up for the future trial based on results of WP1 plus additional analyses of national data (WP3)
6. Evidence that the Vfrac tool is acceptable to healthcare professionals and patients based on results of WP2

## **Intervention Type**

Other

## **Primary outcome measure**

WP1: Intervention and control practices

1. Descriptives of each practice, computer system, name of PCN/cluster, other demographic characteristics, number of registered patients, number of women aged  $\geq 50$  and  $\geq 65$  years, as reported by the Practice Manager at baseline
2. The type of healthcare professional carrying out initial consultation for back pain, the number and date of consultations by older women with back pain, resource use after initial consultation for back pain, new diagnoses since initial consultation for back pain, measured using a questionnaire at 3, 6, 9, 12, 15 and 18 months

WP1: Intervention practices only (in addition to the above)

The proportion of consultations for back pain where Vfrac was used, other consultations where Vfrac was used, results of the Vfrac tool completed in primary care, measured using a questionnaire at 3, 6, 9, 12, 15 and 18 months

WP2: nested qualitative assessment of acceptability

1. Understanding of acceptability to healthcare professionals and patients based on Topic Guide using the Theoretical Framework of Acceptability collected during focus groups at baseline
2. Identification of factors that impact on implementation, including barriers and facilitators to delivery based on a Topic Guide using Implementation Science, collected during focus groups at baseline

WP3: Additional data collection to inform parameters for the trial, all measured at baseline:

WP3A: Data from Clinical Practice Research Datalink (CPRD) will be used to quantify:

1. The range and relative frequencies of healthcare professionals who run the initial consultation for back pain across the UK
2. Levels of and variability in bisphosphonate prescribing and consultation rates for back pain by patient-level characteristics/general practices/regions
3. Variability in the length of time between initial consultation and eventual management implementation
4. Variation in size of general practices

WP3B: The researchers will utilise the primary care CRNs, NHS Digital and social media to cascade a survey to CCGs, primary care managers and healthcare professionals (mainly GPs) to:

1. Identify variation in the number of practices within each PCN
2. Sense-check the data obtained from CPRD around variation in initial contact healthcare practitioner
3. Identify the range of IT systems are in use around the UK (such as EMIS or SystemOne)

### **Secondary outcome measures**

There are no secondary outcome measures

### **Overall study start date**

01/03/2022

### **Completion date**

31/01/2025

## **Eligibility**

### **Key inclusion criteria**

WP1: Recruitment of general practices only - no individual patients

1. General practices willing to take part in research within the Bristol area

WP2: nested qualitative assessment of acceptability - recruitment of patients and healthcare professionals

Inclusion criteria for patients:

1. Female aged >65 years
2. Had Vfrac used during a consultation for back pain
3. Patient is willing and able to give informed consent for participation in this nested evaluation

Inclusion criteria for healthcare professionals:

1. Used Vfrac during a consultation for back pain OR were involved in the implementation of Vfrac within IT systems or clinical pathways within one of the three intervention practices
2. Healthcare professional is willing and able to give informed consent for participation in this nested evaluation

**Participant type(s)**

Mixed

**Age group**

Adult

**Lower age limit**

65 Years

**Sex**

Female

**Target number of participants**

WP1: 6 general practices; WP2: 16-24 patients and 16-24 healthcare professionals

**Key exclusion criteria**

WP1: Recruitment of general practices only - no individual patients

Does not meet the inclusion criteria

WP2: nested qualitative assessment of acceptability - recruitment of patients and healthcare professionals

Exclusion criteria for patients:

1. Has not had Vfrac used during a consultation for back pain
2. Patients who do not have the capacity to provide informed consent. Capacity to consent will be assessed by the researcher, in consultation with clinical members of the study team (EC). This is in accordance with the Mental Capacity Act 2005 (<https://www.hra.nhs.uk/planning-and-improving-research/policies-standards-legislation/mental-capacity-act/>).
3. Participants who are unwilling to provide informed consent

Exclusion criteria for healthcare professionals:

1. Participants who are unwilling to provide informed consent

**Date of first enrolment**

01/06/2022

**Date of final enrolment**

31/05/2024

**Locations****Countries of recruitment**

England

United Kingdom

**Study participating centre**

Bristol, North Somerset, South Gloucestershire CCG (or successor organisation)

360 Bristol (three six zero)

Marlborough Street

Bristol  
United Kingdom  
BS1 3NX

## Sponsor information

### Organisation

University of Bristol

### Sponsor details

Research Governance Team  
Research and Enterprise Development  
Augustine's Courtyard  
Orchard Lane  
Bristol  
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BS1 5DD  
+44 (0)1173940177  
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### Sponsor type

University/education

### Website

<http://bristol.ac.uk/>

### ROR

<https://ror.org/0524sp257>

## Funder(s)

### Funder type

Government

### Funder Name

Research for Patient Benefit Programme

### Alternative Name(s)

NIHR Research for Patient Benefit Programme, RfPB

### Funding Body Type

Government organisation



**Funding Body Subtype**  
National government

**Location**  
United Kingdom

## Results and Publications

### Publication and dissemination plan

On completion of the study, a report will be prepared for the funder. The researchers will post a short plain English summary on the study website. The results will be published in peer-reviewed journals and presented at scientific meetings. The NIHR and the University of Bristol open access policies for the publication of peer-reviewed papers will be followed. The PI and co-applicants will be involved in reviewing drafts of the manuscripts, abstracts, press releases and any other publications arising from the study. The authors will acknowledge that the study was funded by a National Institute for Health Research grant under the Research for Patient Benefit Scheme (NIHR203026). Authorship will be determined in accordance with the ICMJE guidelines and other contributors will be acknowledged.

**Intention to publish date**  
31/01/2026

### Individual participant data (IPD) sharing plan

Prof Emma Clark is the data custodian for this study. Direct access will be granted to authorised representatives from the Sponsor and host institution for monitoring and/or audit of the study to ensure compliance with regulations. It is the researchers' intention to share the underpinning research data to maximise reuse. Patients will be asked for permission to share anonymised data beyond the immediate project team. The data will be deposited at the University of Bristol Research Data Repository (as restricted data). A metadata record will be published openly by the repository and this record will clearly state how data can be accessed. The actual data is only made available to authenticated researchers upon application. The criteria the researchers check applicants against is: the applicant has provided a verifiable institutional affiliation; the applicant has provided verifiable institutional contact details; the applicant has nominated an appropriate institutional signatory; the applicant has ethical approval in place (this may not be required, depending on the nature of the requested dataset). The request is referred to the University of Bristol Data Access Committee (DAC) for approval before data can be released. Again, the applicant's host institution must agree to a Data Access Agreement.

**IPD sharing plan summary**  
Stored in non-publicly available repository, Available on request

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol file</a>	version 1.0	25/05/2022	17/11/2022	No	No
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Protocol article</a>		07/02/2024	07/02/2024	Yes	No