

Supplementary Appendix S1: GP interview topic guide

GP interview Topic Guide

Introduction

Introduce self. Express thanks for participating. The aim of this session is to find out what it was like to take part in the INCLUDE study. It is important that you tell us what it was like... Both good and bad aspects so that we can let the team know what worked well and what could have been better. There are no right or wrong answers.

Anonymity and confidentiality

Confirm written consent for taking part in the interview today and for it to be digitally audio-recorded. Explain – real names will not be used for any published material. Gain signed/verbal Consent (signed consent x2 copies- one for patient, one for us).

Turn recorder on.

Questions in bold. Prompts not in bold.

- 1. Can you tell me why your practice decided to participate in INCLUDE?**
 - a. What were your thoughts (knowledge and understanding) about the intervention before it was delivered?
 - b. What did you hope to get out of being involved?

- 2. What is your understanding of the purpose of the INCLUDE study?**
 - a. What did you think the aims of the study were?
 - b. Is the INCLUDE review different to what you already deliver in practice? If so, how? If not, how is it similar?
 - c. What do you think your role was?
 - d. What did you think the role of the Research Nurse would be?
 - e. What did you think the role of the practice would be?

- 3. During the delivery of the INCLUDE study, did you or anyone in the practice (outside of the research team) have any involvement? Can you describe this?**
 - a. Did any patients come to see you because of their INCLUDE review with the nurse?

- i. If so, what reasons were they been booked in with you for?
 - ii. Did this have any impact upon you? How?
- b. Do you feel that these INCLUDE reviews were necessary/important/beneficial to patients? Why?
 - i. Did these INCLUDE reviews result in any changes to care?

4. Can you tell me about your experiences of the INCLUDE review being implemented within the practice?

- a. Has there been anything which has helped?
 - i. If so can you describe these?
- b. Have there been any problems implementing the INCLUDE review?
 - i. If so, can you describe these? Why do you think these problems occurred?
 - ii. If not, why do you think no problems occurred? (Implement procedures etc.)
 - iii. Are you aware of any challenges at a practice level/ during the INCLUDE review? If so, can you describe these?
 - iv. Were there times when you were aware that the new approach either worked, or didn't work well? Can you describe these?
 - v. What do you feel about the resources required for the new approach?
 - vi. Were everyone's' responsibilities clear?
- c. How have the practice team worked together to deliver the INCLUDE review?
- d. Did you discuss the new approach with colleagues in the practice?

5. Do you feel that the INCLUDE review could be delivered by practice nurses?

- a. If so, why and how?
- b. If not, why?

6. Has being involved in INCLUDE impacted upon your practice in anyway?

- a. If so, can you describe these?
- b. Did the practice need to make any changes to support the INCLUDE study? Can you describe these?
- c. Have you made any changes to the way the practice treats patients with inflammatory rheumatological conditions because of INCLUDE?
 - i. If so, can you describe what changes you have made?
 - ii. If not, why? Would you consider any changes in the future?
- d. Any feedback from PNs, admin/support staff, patients?

7. Overall, do you feel the INCLUDE review is beneficial for you, patients and/ or the practice?

- a. Can you describe your answer?

8. Would your practice consider implementing the INCLUDE review in the future, for patients with inflammatory rheumatic conditions?

- a. If so, why? Can you describe how you would do this? (within the practice or locality). Would it make a difference if you had to use your own practice nurses to deliver the review?
- b. If not, why?
- c. Would anything prevent you from delivering the INCLUDE review in the future long-term? Can you describe these?
- d. Would anything help you to deliver the INCLUDE review in the future? Can you describe these?

9. Do you have any suggestions for how the INCLUDE review could be improved? Could you describe these?

10. Is there something that you might not have thought about before, that occurred to you during this interview?

11. Is there anything you would like to ask me?

Closing Statement:

On behalf of the INCLUDE research team and Keele University I would like to “Thank You” for participating in the INCLUDE study and for taking the time to share with me your experiences of taking part.

Supplementary Appendix S2: Patient interview topic guide

Patient interview Topic Guide

***In interviews where there is a matched audio recording of the INCLUDE review, the method tape-assisted recall (TAR) will be used* Where this is used within the interview will depend on the qualitative team's judgement about content of the INCLUDE review recording.**

Introduction

Introduce self. Express thanks for participating. The aim of this session is to find out what it was like to take part in the INCLUDE study. It is important that you tell us what it was like... Both good and bad aspects so that we can let the team know what worked well and what could have been better. There are no right or wrong answers.

Anonymity and confidentiality

Confirm written consent for taking part in the interview today and for it to be digitally audio-recorded. Explain – real names will not be used for any published material, and the nurse or the GP will not directly be informed of who said what. Gain signed/verbal Consent (signed consent x2 copies- one for patient, one for us).

Turn recorder on.

Questions in bold. Prompts not in bold.

- 1. Can you tell me about why you agreed to participate in the study?**
- 2. What do you think the aim of the study was?**
 - a. Did you understand why you were invited to this review?
- 3. Could you give me a brief overview of your current health problems?**
 - a. How are these affecting you?

(Allow patient to initially describe all health conditions before moving on. Check if they have any other annual reviews eg. for diabetes)

- 4. Could you tell me about your experience of living with [RA/ AS/ PsA/ PMR/ GCA]?**
 - a. How long you have had RA/ AS/ PsA/ PMR/ GCA?
 - b. How has your condition affected you? (Social, family and work impact/ losses)

- c. What support do you receive in managing your condition? Can you describe this further? [explore role of GP, PN, hospital, friends/ family]
- d. How often are you seen? What does each professional do? Who co-ordinates your care? What is your role?
- e. Were you aware of the risk of other conditions? (CVD, osteoporosis, mood)
 - i. Did you have any information on this? Where did you get it from?
 - ii. Have you done anything previously about these conditions?
 - iii. Have you ever spoken to your GP about these conditions?

5. Can you tell me what you expected before you went to the INCLUDE review at the practice and saw the specialist nurse?

- a. Did this differ to how you experienced the INCLUDE review? Can you describe this?
- b. Did you have anything in particular you were hoping to discuss? Can you describe this?
- c. Did you know who you were going to see and what they would do?
- d. Did this INCLUDE review differ from your usual ones? How?

6. How did you find the nurse who you spoke to in the INCLUDE review?

- a. Were they approachable? Why?
- b. Were they understanding? Why?
- c. Did you feel comfortable discussing your health conditions/ concerns with them? Why

7. Do you recall being asked about your lifestyle (diet/ exercise/ alcohol/ smoking) at the INCLUDE review? Can you describe how this felt?

- a. How did you feel about being asked about your lifestyle?
- b. Were you offered any advice about your lifestyle?
 - i. If so, how appropriate did you feel this advice was for you? Why?
 - ii. Were you given any information about lifestyle changes to take away from the INCLUDE review? If so, was this helpful? How?
 - iii. Are there any changes you have made to your lifestyle as a result of this review? Can you describe these?
 - iv. Have you sought any further help following this review to support lifestyle changes? (eg. Smoking cessation support/ exercise or weight loss classes/ dietary advice) If so, can you describe this help?

8. How did you feel about having physical health checks at the INCLUDE review?

- a. Were you offered any advice about your blood pressure or weight?
 - i. If so, can you describe how appropriate you felt this advice was for you? Why?
 - ii. Are there any changes you have made to improve your blood pressure/ weight if required as a result of this review? Can you describe these?

9. Depending on their medical history, some people had their QRisk calculated. QRisk is a measure of your risk of having heart attack or stroke in the future. Do you recall the nurse discussing this with you? (Skip to part c if patient can't recall this)

- a. Did the nurse explain your risk?
- b. Did you understand what your QRisk score meant? How did you feel about this?
- c. Were you given any advice about how you could reduce your risk of a future heart attack or stroke?
- d. Was any follow-up suggested?
- e. Have you made any changes as a result of this review?

10. Do you recall discussing your risk of breaking a bone with the nurse at the INCLUDE review?

- a. **Can you tell me about what you discussed?**
- b. **Depending on their medical history, some people had their FRAX score checked (your risk of thinning of the bones)? If so, did you understand what your FRAX score meant? How did you feel about this?**
- b. Were any investigations or treatments suggested? How did this make you feel?
- c. Were you offered any information about how to keep your bones healthy? Can you describe this?
- d. Have you made any changes as a result of the advice you were given at the review? If so, can you describe these? Why? If not, why?

11. Can you recall being asked about your mood at the INCLUDE review? Can you tell me about what you discussed?

- a. How did this make you feel? How did it feel to talk about your mood?
- b. Did you expect to be asked about your mood?
- c. Did you feel comfortable to talk about your mood?
 - i. If yes, what helped you to feel comfortable to talk about your mood?
 - ii. If no, can you explain why?
- d. How did you feel about discussing mood-related problems in the review?
 - iii. Do you think this INCLUDE review is the place to discuss problems with mood? If so, why? If not, why not?
- e. Can you describe how you felt about discussing your mood with the INCLUDE review nurse? Would you have felt better discussing your mood with someone else?
 - iv. If yes, why was this?
 - v. If no, why?
- f. Did the INCLUDE review nurse talk with you about treatments and/or support available for low mood/anxiety? Can you describe these? (Counselling/ CBT/ medication)
 - vi. Can you describe how appropriate you felt the advice was for you?
 - vii. Would you have liked the nurse to do anything else?
- g. Have you had any previous experiences seeking help for mood-related problems? Can you describe these for me (if feel comfortable)

- 12. Was there anything else you would have wanted to discuss with the nurse? Can you describe these?**
- 13. Were any new problems discovered at the INCLUDE review?**
 - a. Can you describe these?
 - b. How did this make you feel?
- 14. Did you have to see your usual GP or practice nurse after the INCLUDE review?**
- 15. Did you need any further investigations or were started on any new treatment?**
 - a. If so how did you feel about this ('treatment burden')?
- 16. At the INCLUDE review, did you feel involved in discussions / decisions about how you could reduce your risk of heart disease/ risk of fracture/ low moods?**
 - a. If so, can you describe how the nurse involved you in decisions?
 - b. How did this make you feel?
- 17. Do you recall being provided with a summary/ action sheet?**
 - a. If yes, did you find this helpful? How? If not, why? Would you have wanted to have any other information?
 - b. If no, would you have liked to have one? Why?
- 18. Considering your overall experience of the INCLUDE review...**
 - a. What do you think worked well? Why? What was useful?
 - b. What didn't work so well? Why? What wasn't useful?
- 19. Is there anything that you think could be done to improve the INCLUDE review provided by the nurse?**
 - a. Can you describe this?
- 20. How do you feel about this new approach, for people with your condition, which aims to look at a number of potential problems in one review?**
 - a. What does the review add to the care you are currently receiving?

Closing Statement:

On behalf of the INCLUDE research team and Keele University I would like to “Thank You” for participating in the INCLUDE study and for taking the time to share with me your experiences of taking part.

Study Nurse Participant (1st Interview- Training) Topic Guide

Introduction

Introduce self. The aim of this session is to find out what it was like to take part in the INCLUDE study. It is important that you tell us what it was like... Both good and bad aspects so that we can let the team know what worked well and what could have been better. There are no right or wrong answers.

Anonymity and confidentiality

Confirm written consent for taking part in the interview today and for it to be digitally audio-recorded. Explain – real names will not be used for any published material. Gain signed/verbal Consent (signed consent x2 copies- one for patient, one for us).

Turn recorder on.

Main Questions in bold. Prompts not in bold.

- 1. Can you tell me about why you agreed to be involved in the INCLUDE study?**
- 2. What is your understanding of the purpose of the INCLUDE study?**
 - a. What did you think the aims of the study were?
- 3. Can you describe your previous experience as a nurse, and what knowledge/skills you brought to the INCLUDE study?**
- 4. Can you tell me about your understanding of your role in this study?**
 - a. Has the training prepared you for this? How?
 - i. If not, why?
- 5. Can you describe your experience of the INCLUDE training sessions?**
 - a. How do you feel that you contributed to the training?
 - b. What did you expect to be doing in the training sessions?
 - c. Was there enough sessions?
 - d. Was the length of the sessions acceptable?
 - e. Was the ordering/ structure of the sessions appropriate?

- 6. What were your experiences of learning about inflammatory rheumatic conditions and the different co-morbidities linked to inflammatory rheumatic conditions? (Cardiovascular disease & QRisk2, osteoporosis & FRAX, mood & PHQ-2/ GAD-2/ suicide risk assessment)**
 - a. What did you already know? Was there anything you struggled with? Why do you think this is? How could we help you with this?
 - b. Were any parts of your training particularly useful in helping you understand these different conditions?

- 7. What were your experiences of learning about using the screening tools and case-finding questions? (QRisk2/ FRAX/ PHQ-2 and GAD-2)**
 - a. What did you already know? Was there anything you struggled with? Why do you think this is? How could we help you with this?
 - b. Were any parts of your training particularly useful in helping you understand how to use the screening tool?

- 8. Do you feel able to appropriately signpost and advise patients if a new condition/s was to be found during the INCLUDE review?**
 - a. If not, why? What would you like to help you with this?
 - b. If so, has anything particular in the training helped you with this?
 - c. Did you develop an understanding of where patients could be signposted to, following their assessments?

- 9. Did you feel able to draw together the different aspects of the INCLUDE review in order to develop a management plan/ complete the summary card?**
 - a. Did anything in particular help you with this?
 - b. Did you find the management flowcharts helpful?
 - i. If yes, why? If no, why not?
 - ii. Would you have any suggestions for how the management flowcharts could be improved?

- 10. What were your experiences of training to use EMIS?**
 - a. Was there anything you struggled with? Why do you think this is? How could we help you with this?
 - b. Were any parts of your training particularly useful in helping you understand how to use the EMIS?

- 11. What were your experiences of training to use the INCLUDE template?**
 - a. After your training, did you feel able to enter data on the template/ look at investigations/ send tasks or messages?

- 12. What were your experiences of participating in the role play when practicing the INCLUDE review?**
 - a. If useful, why? If not useful, why?
 - b. Would you have any suggestions for how the training using simulated patients could have been improved?

- 13. Can you describe anything that you found particularly useful throughout the training? Why?**

- 14. Is there anything you would like to be improved about the training?**

- a. Could you describe these?
- b. How would you improve these?
- c. Is there anything further you would like to be included in the training?

IF ALREADY STARTED DELIVERING INCLUDE REVIEWS GO THROUGH QUESTIONS 15-18. IF NOT GO TO QUESTION 19.

15. **Can you describe your experiences of delivering the INCLUDE review? (Cardiovascular risk screening and QRisk, osteoporosis screening and use of the FRAX score, anxiety and depression and use of PHQ-9/ GAD-7, Case-finding questions, INCLUDE review template, individualised management plan)**
 - a. Did anything go particularly well? Why?
 - b. Did anything not go so well? Why?
 - c. Was there anything the training did not prepare you for? Could you describe this? Can you describe anything you would like to see introduced to ensure you are prepared for this in the future?
 - d. Can you describe how you found using the INCLUDE review template?
 - i. Could you describe anything it helped you with?
 - ii. Could you describe anything you found challenging? How do you think this can be overcome?
 - e. Can you describe how you found using the management algorithms to support the review?
 - i. Could you describe anything it helped you with?
 - ii. Could you describe anything you found challenging? How do you think this can be overcome?
 - f. Did you have sufficient time to deliver the review?
 - g. Did you feel you had enough support to deliver the review?
 - i. If so, can you describe this further?
 - ii. If not, can you describe the support which you would like to help you deliver the review?
 - iii. Did you feel able to approach the duty doctor if required? (explore frequency of doctor's advice)
16. **Can you describe how you found integrating all the different elements of the review? (INCLUDE review template and management algorithms)**
 - a. Could you describe anything it helped you with?
 - b. Could you describe anything you found challenging? How do you think this can be overcome?
17. **Can you describe how you used the INCLUDE review summary?**
 - a. Did you find this useful when providing guidance? Why?
 - b. Do you think this was helpful for patients? Why?
 - c. Did you experience any challenges in using the review summary? If so, can you explain this/these further? What would you like to see to help overcome this/these challenge/s?

18. Reflecting on the INCLUDE reviews, is there anything you would have liked in your training to better prepare you?

ENDING QUESTIONS

19. Is there something that you might not have thought about before, that occurred to you during this interview?

20. Is there anything you would like to ask me?

Closing Statement:

On behalf of the INCLUDE research team and Keele University I would like to “Thank You” for participating in the INCLUDE study and for taking the time to share with me your experiences of taking part.

Supplementary Appendix S4: Nurse Participant interview topic guide (second interview)

Study Nurse Participant (2nd Interview) Topic Guide

***Throughout this interview, the method tape-assisted recall (TAR) will be used* Where this is used within the interview will depend on the qualitative team's judgement about content of the INCLUDE review recording and the 1st nurse interview.**

Introduction

Introduce self. The aim of this session is to find out what it was like to take part in the INCLUDE study. It is important that you tell us what it was like... Both good and bad aspects so that we can let the team know what worked well and what could have been better. There are no right or wrong answers.

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Turn recorder on.

Main Questions in bold. Prompts not in bold.

- 1. Can you tell me about why you agreed to be involved in the INCLUDE study?**
- 2. What is your understanding of the purpose of the INCLUDE study?**
 - b. What did you think the aims of the study were?
- 3. Can you describe your experience of delivering the INCLUDE review? (Cardiovascular risk screening and use of the QRisk score, osteoporosis screening and use of the FRAX score, case-finding for anxiety and depression and use of PHQ-9/ GAD-7, use of the INCLUDE review template and delivery of an individualised management plan)**
 - a. Did anything go particularly well? Why?
 - b. Did anything not go so well? Why?
 - c. How comfortable did you feel performing each of the components within the INCLUDE review?
 - d. Was there anything the training did not prepare you for? Could you describe this? Can you describe anything you would like to see introduced to ensure you are prepared for this in the future?

- e. Can you describe how you found using the INCLUDE review template?
 - i. Could you describe anything it helped you with?
 - ii. Could you describe anything you found challenging? How do you think this can be overcome?
- f. Can you describe how you found using the management algorithms to support the review?
 - i. Could you describe anything it helped you with?
 - ii. Could you describe anything you found challenging? How do you think this can be overcome?
- g. Did you have sufficient time to deliver the review?
- h. Did you feel you had enough support to deliver the review?
 - i. If so, can you describe this further?
 - ii. If not, can you describe the support which you would like to help you deliver the review?
 - iii. Did you feel able to approach the duty doctor if required? (explore frequency of doctor's advice)
- i. What were your experiences of delivering the INCLUDE review at different GP practices?
 - i. Were there any differences between the practices you worked at? If so, could you describe these? How did this impact on your ability to deliver the INCLUDE review?
- j. How did you find working within GP practice teams?
 - i. Did you feel that you became an integrated part of the GP practice teams where you worked?
 - ii. If so, what made you feel part of the practice team?
 - iii. If not, would you have any suggestions for how things might work better?

4. Can you describe how you found integrating all the different elements of the review? (INCLUDE review template and management algorithms)

- a. Could you describe anything it helped you with?
- b. Could you describe anything you found challenging? How do you think this can be overcome?

5. Can you describe your experiences of using the INCLUDE review summary?

- a. Did you find this useful when providing guidance? Why?
- b. Do you think this was helpful for patients? Why?
- c. Did you experience any challenges in using the review summary? If so, can you explain this/these further? What would you like to see to help overcome this/these challenge/s?

6. Was there anything in particular which helped you to deliver the INCLUDE review? Could you describe these?

- a. Did the training support you in delivering all the different elements of the review? (asking questions, physical examination, assessing CV risk, assessing risk osteoporosis, assessing mood and risk; giving information about lifestyle/behaviour change)
 - i. If so, could you describe how?
 - ii. If not, could you describe why? How do you think we can overcome this?

- iii. Is there anything else you would have liked to see in the training?
- iv. Is there any additional support, apart from the training, you would have liked? Can you describe this?

7. If this study was to receive funding for a full RCT, do you think there is anything which could be improved? Can you explain this?

- a. In there training? Why?
- b. In the INCLUDE review? Why?

8. How acceptable do you think patients found the INCLUDE review?

- a. Were any particular types of patients more responsive/engaged with the review? Any thoughts why?
- b. Did any patients give you any feedback about the review? What did they say?
- c. Overall, do you feel the INCLUDE review is beneficial for patients and/ or the practice?
 - i. in what way?
 - ii. Do you think any patients you saw might make changes – why/why not?

9. Is there something that you might not have thought about before, that occurred to you during this interview? Is there anything you would like to say?

Closing Statement:

On behalf of the INCLUDE research team and Keele University I would like to “Thank You” for participating in the INCLUDE study and for taking the time to share with me your experiences of taking part.

Supplementary Box S1: Theoretical Domains Framework (TDF) analysis matrix

TDF domain	Interpretation	Quotations
<p>Knowledge</p> <p>(An awareness of the existence of something)</p> <ul style="list-style-type: none"> • Knowledge • Procedural knowledge • Knowledge of task environment 	<ul style="list-style-type: none"> • Patients reflected that the review increased their knowledge and awareness of osteoporosis • Some patients show a lack of understanding of osteoporosis and low trauma fractures • Patients continued to confuse osteoporosis and osteoarthritis • Patients demonstrated that despite having risk factors that increase the risk of low trauma fracture (e.g. steroid use) - they focused on inevitability. • Nurses thought that patients understood osteoporosis 	<p>Nurse: Osteoporosis. Do you know what osteoporosis is?</p> <p>Patient: A bit, but nothing.... (CR10)</p> <p>they've already got this inflammatory condition so they are more at risk anyway [mmm] well most of them, to be fair, a lot of them have come and they are already on bisphosphonate or they've recently had a diagnosis (N02POST)</p> <p>Yes, yes, I've probably become more aware of that. I am aware of it now, from the review. (P494)</p> <p>It's something I don't know too much about, and they didn't go into a great deal of detail (P117)</p> <p>Nurse: So, the next assessment we will go through is the assessment of osteoporosis. Do you know what osteoporosis is? (...)</p> <p>Patient. Yeah. They said I'd got that.</p> <p>Nurse: They said you'd got osteoporosis or osteoarthritis?</p> <p>Patient: Osteo (...) It might be osteoarthritis. Yeah. One of them two. (CR91)</p>

		<p>they obviously said its erm, thinning of your bones. It can cause osteoarthritis; I can't remember what else they said. (P10)</p> <p>As we were walking along, I went whoosh, bang and I broke this right wrist (...) because of the way I fell, and I fell very hard and I was surprised I didn't break both wrists cause I went bang. (...) I feel that I didn't break my wrist easily (P494)</p> <p>[the steroids] hadn't affected it, you know, or that much anyway (...) If your bones get thin your bones get thin, don't they, you know. Erm, some people are more susceptible to that sort of thing. I just hope I'm made, built like me mother (P564).</p> <p>A lot of the patients had already had a DEXA so they knew what one was or they'd been on a bisphosphonate or they'd been told about one or they were taking calcium supplements, so I thought the patients were quite clued up around osteoporosis when you explained it as bone thinning and things like that, they seemed to know a little bit about it (N01POST)</p> <p>they've already got this inflammatory condition so they are more at risk anyway [mmm] well most of them, to be fair, a lot of them have come and they are already on bisphosphonate or they've recently had a diagnosis (N02POST)</p>
	<ul style="list-style-type: none"> • Nurses were knowledgeable about osteoporosis • Nurses reflected on when FRAX calculation was indicated depending 	<p>Patient: What symptoms would I have?</p> <p>Nurse: it is not really symptomatic. No. No. Sometimes people do shrink a little bit. Lose a bit of height. (CR516)</p>

	<p>on patient characteristics</p>	<p>You are young and I am guessing you haven't gone through the menopause yet? We do not need to do it. That is good. (CR10)</p> <p>We don't need to do anything for osteoporosis because you don't meet that criteria. You are not in any of those categories. You are only 25 so still quite young. (CR24)</p>
	<ul style="list-style-type: none"> Patients had a desire for more information regarding osteoporosis and its management 	<p>We've talked about, you know, some more information might be useful if somebody needed treating, not just me but other people, you know dietary information or osteoporosis or you know you could have leaflets on that side of things but again there's so much you can go and research anyway if you are inclined to do so. (P51)</p>
	<ul style="list-style-type: none"> GPs find it difficult to keep up to date with knowledge/guidelines in osteoporosis and treatments Perceived lack of exposure to osteoporosis compared to other conditions e.g. heart disease 	<p>the osteoporosis bit is a little bit err hard for us because it keeps changing, GP's, it's quite hard, [ok] (...) we feel very skilled about doing lifestyles and dealing with psychological health, erm Q risk, all of that but it's just measuring the risk of osteoporosis and what to do next it's a bit less clear (...) the guidelines change a bit too and not everybody will be as up to speed with it as some things that they see more often, so going out and searching for that risk and then knowing what to do after, that's why people wouldn't be sure, so there's a challenge there... (GP05)</p> <p>Yes what are the levels for treatment [ok yeah] again I suppose we should but it's not on the tip of our tongue because it's not what we do a lot (GP05)</p>
<p>Skills (An ability or proficiency acquired through practice)</p> <ul style="list-style-type: none"> Skills Skills development Competence Ability Interpersonal skills 	<ul style="list-style-type: none"> GPs do not think that they, or the practice nurses, in the absence of training, would be fully equipped to deliver the necessary information about osteoporosis Skills to deliver advice on lifestyle, heart 	<p>if you are going to use practice nurses then it's about making sure that they've really got clear understanding about things like how to assess fracture risk (...) because previously when it was in QOF I do recall some difficulties about getting that really being done well, lots of queries came back about that. (GP12)</p> <p>Yes those things are quite core to what we do so we are quite comfortable with the rest of it [yeah just the osteoporosis] yeah (GP05).</p>

<ul style="list-style-type: none"> Practice Skills assessment 	<p>disease, psychological health but not on osteoporosis</p>	
	<p>Training improved nurse skills needed to deliver the review</p>	<p>the training, definitely equipped us for what we're doing now, yeah. It was good. (N02PRE)</p> <p>it's allowed me to develop new skills again to use new things like Q Risk, FRAX things that I've not used before so I was quite excited to be given the opportunity really that's why I volunteered for it. (N01PRE)</p> <p>They gave us training on how to deliver FRAX, again we had the simulated patients didn't we in the training, I think that was useful (N02POST)</p> <p>I still felt that with the right training I could do it. (N02PRE)</p>
	<ul style="list-style-type: none"> Nurses not previously familiar with FRAX Mixed nurse perceptions towards their skills to use and interpret FRAX after training GPs noted that nurses would not have the skills to use FRAX Patients suggested that risk factors may have been excluded in the assessment 	<p>The training was designed to cover all the assessments that we do during the consultation so the QRisk, the FRAX, the GAD, the PHQ, I hadn't used any of those, previously (N02PRE)</p> <p>I'd not used FRAXs before (N01PRE)</p> <p>I think the FRAX score was really straightforward actually (...) you just clicked on the link, you transferred the information over, completed some of the boxes that were applicable and then clicked on the link and it provided you with either red,</p>

	<ul style="list-style-type: none">Nurses did not understand one of the FRAX questions	<p>amber or green [ok] and there's a cross on the chart as to where the patient actually sits (N02POST)</p> <p>FRAX was okay, it's – that's a bit of a difficult one. You get a little bit caught up with whether – whether pre – whether a – relative have had a previous fracture or not and then you're not quite sure how significant it is if they've got any other form of arthritis because the FRAX score asks you if they've got rheu – I think it's FRAX, I might be mixing it up with Q risk now but one of them asks you if they've got rheumatoid arthritis and you think, 'Well, yes they have', but all the other forms of arthritis, when you're doing the same score you can't tick, [right, okay] so you've got – if you've got sort of psoriatic arthritis there's no box to tick [right, okay] so obviously it changes everything. (N01POST)</p> <p>they wouldn't know how to do the osteoporosis score (GP05)</p> <p>if I hadn't had the break, I scored very well (...) But if you put the break in, erm, then I scored, obviously completely different so we decided to leave the break out because I, on my say so really because the way I've broken it (...) if we had included the break, then I would have gone, I don't have to but it would have been recommended I could have had the bone density scan. (P494)</p> <p>There's a question on FRAX that I just overlook over time, there's one strange question (...) I've mentioned it to [N02], who's obviously my co-worker on this, and they're like, 'Yeah, I don't – I'm not quite sure what that is'. (N01POST)</p>
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	<ul style="list-style-type: none"> • Nurses reflected that they had the skills to explain FRAX to the patient • Nurses used percentages to explain risk of fracture to patients • GPs reflected the need to improve nurse skills to communicate risk and benefits 	<p>I think the message with FRAX that you need to be clear on is that, again we are identifying a risk [yeah] you know we are not saying you've got osteoporosis (N02POST)</p> <p>Obviously you can use that [FRAX] as an aid to explaining to the patient what that means. Alright yeah, no problem, very straightforward (N02POST)</p> <p>FRAX I thought was easy enough to explain to the patient (N01POST)</p> <p>So we are 19% for that. Medium. (CR516)</p> <p>Lets calculate. 5.8% risk. I will show you the screen. (CR520)</p> <p>I think probably the only thing that might have helped is about that sort of risk communication (...) so something about what the absolute level of risk is, what the reduced level of risk would be if they had treatment, and something about what the potential for harm is (...) they [patients] certainly didn't come with a clear understanding of what the risks were and to what extent they were modifiable (GP12)</p>
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<p>Social/Professional role and identity</p> <p>(A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting)</p> <ul style="list-style-type: none"> • Professional identity • Professional role • Social identity • Identity • Professional boundaries • Professional confidence • Group identity • Leadership • Organisational commitment 	<ul style="list-style-type: none"> • Reflection on roles and responsibilities: nurse role to case find and refer to GP for further discussion • GPs believed that osteoporosis was the role of secondary care • Secondary care nurses felt osteoporosis management happened in primary care • Outcomes may not require GP review 	<p>well I wouldn't because I'm not a prescriber but I don't want that responsibility. With this, it was a little bit, the signposting for me was always, 'Go and discuss this now with a – you know, with a true medical professional, go and see the GP and erm, let them weigh up the risks for you'. All I'm doing crucially here is case finding. You don't tell them that because they don't know what you mean by case finding so you don't use that term, but realistically it's safe, isn't it [yeah]. All I was saying is, 'Right, I've identified a potential risk and I'd like you to go and discuss it with a GP further' (N01POST)</p> <p>So, it is probably recommended. I am not going to recommend that you take that. I am not here to prescribe that. What I would recommend is that you speak to your GP about that (CR467)</p> <p>osteoporosis risk is a little bit to do with the hospital rheumatologist (...) so that might be better, erm, recommended from secondary care rather than the kind of general practice? (GP05)</p> <p>The general practice probably think a lot's been done in secondary care, secondary care think a lot of things are being done in primary care and the things that are missed or the things that we've covered (N01POST)</p> <p>what extent does primary care have a role with these patients and to what extent is it done in secondary care. I think there was a little bit of uncertainty on the part of the primary care nurses as to exactly what they should be doing with these reviews (GP12)</p>
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<p>Beliefs about capabilities</p> <p>(Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use)</p> <ul style="list-style-type: none"> • Self-confidence • Perceived competence • Self-efficacy • Perceived behavioural control • Beliefs • Self-esteem • Empowerment • Professional confidence 	<ul style="list-style-type: none"> • GPs questioned if practice nurses have the capabilities or competence to deliver the package 	<p>Well they couldn't do the exact one that is being done here because they wouldn't know how to do the osteoporosis score (...) they would have to be up-to-date on osteoporosis which they won't normally know much about. (GP05)</p> <p>if you are going to use practice nurses then it's about making sure that they've really got clear understanding about things like how to assess fracture risk and so on because previously when it was in QOF I do recall some difficulties about getting that really being done well, lots of queries came back about that. (GP12)</p>
	<ul style="list-style-type: none"> • Nurse confidence using FRAX as part of the review 	<p>We both would know how to describe to the patient what the FRAX score would be showing (N01PRE)</p> <p>Err I think there were no problems with FRAX at all straightforward yeah (...) I think it was very user-friendly, very easy to use, very effective, erm, identified... erm you can't go wrong, it's either green, amber or red, there's no score as such [yeah] once they are in that category then you give the relevant advice or action that's required and obviously you've got the algorithm which states what's required, you know it's very, very straightforward (N02POST)</p>

	<ul style="list-style-type: none"> • Lack of confidence described by nursing staff before starting INCLUDE delivery • Increased confidence in risk communication after INCLUDE delivery • Graphics found to be helpful in the explanation of risk. 	<p>I wasn't quite sure how to explain to the patient about their risk (...) Once you've got that into your head, you know, that's fine. (N02PRE)</p> <p>Obviously you can use that [FRAX] as an aid to explaining to the patient what that means. Alright yeah, no problem, very straightforward. I think the message with FRAX that you need to be clear on is that we are not saying you've got osteoporosis, we are identifying that this is a risk (N02 POST)</p> <p>FRAX I thought was easy enough to explain to the patient (N01POST)</p> <p>the little box that comes up with the faces, that was really useful for helping to explain to the patient what that risk means, you know [ok] you know out of 100 people and over the next ten years, it was all good, all positive. (N02POST)</p>
<p>Optimism (the confidence that things will happen for the best or that desired goals will be attained)</p> <ul style="list-style-type: none"> • Optimism • Pessimism • Unrealistic optimism • Identity 	<ul style="list-style-type: none"> • Focus on the condition means that more people at risk are identified • Lack of awareness of the problem – Unrealistic optimism 	<p>If it's prompted lots of detection of osteoporosis that was not known about for example then that would be good in the long term because it will have fewer fractures and more proactive management. (GP13)</p> <p>The general protocol at the [Hospital name 1] is if they do get started on steroids they're already started on bisphosphonates anyway (N02PRE)</p>
<p>Beliefs about consequences (acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation)</p> <ul style="list-style-type: none"> • Beliefs 	<ul style="list-style-type: none"> • Patients did not want the review to prompt further investigations into osteoporosis - perceived consequence that they 	<p>Well I realised there was something wrong with my bones anyhow, osteoporosis and things like this, yeah I thought that might kick in but I didn't want to worry about something else and I was just really just interested in the AS (...) Well I don't like taking pills for one thing (...) I'll like to cut it down to the absolute minimum (P191)</p>

<ul style="list-style-type: none"> • Outcome expectancies • Characteristics of outcome expectancies • Anticipated regret • Consequents 	<p>would be prescribed (unwanted) medication</p>	<p>I thought the way I feel at the moment, I don't want to do that but it is something that I can go back to and request erm, and I suspect I will get sent for it eventually but I've escaped it at the moment. Rightly or wrongly, you know, just didn't want to really start taking something else (P494)</p> <p>Well, I didn't want to talk about it [laughter] but it's brought out that it needs doing (...) I don't want more medication. (P516)</p> <p>Yeah, cause I think they leave it up to you. They did explain it and they did say to me about this, you know but I think they know how I feel. Erm, I mean its enough for me to go for blood tests on a regular basis. Okay, I know I'm here now but, I don't want to be going to hospital, every tittle tattle, if you have to, you have to. But I want me life to carry on. I've got to go for blood tests, do you know what I'm trying to say? (...) I don't want my life ruined because I'm going to hospital, doctors, hospital, doctors and all that, you know I want to be able to. (P528)</p> <p>Ok. I get the feeling that if it is indicated again you are not going to do it [take a bisphosphonate]? (CR516)</p> <p>Nurse: So you just get a scan at Haywood, A DEXA scan it is a very simple thing.</p> <p>Patient: I would like to go actually. (CR500)</p>
<p>Reinforcement</p>	<ul style="list-style-type: none"> • Showing patients the FRAX graph reinforced the need for 	<p>You could show the patient where the cross was and say that this is you based on your individual circumstances so whether or not they smoked, whether or not they drink, their age or what condition they've got, erm so I'd say, you know, patients like</p>

<p>(increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)</p> <ul style="list-style-type: none"> • Rewards (proximal/distal, valued/not valued, probable/improbable) • Incentives • Punishments • Consequents • Reinforcement • Contingencies • Sanctions 	<p>investigation / recommendations</p>	<p>to know that they are on the green, actually, that was very reinforcing, errr yeah and I didn't have any that were in the red to be fair, I had quite a few in the amber but that, you know patients were quite happy to go and have a conversation with their doctor about bone protection [mmm] and whether or not the doctor felt that it was necessary (N02POST)</p>
	<ul style="list-style-type: none"> • Positive feedback reinforcing practice • Negative feedback may disincentivise practice 	<p>the only feedback I got is the one GP that said to me, 'That patient you sent for the DEXA or the bisphosphonate or whatever it was [yeah], you were right, they did need that'. It was nice and quick, they were right, yeah, you know, that was a gap and that. So, you're hoping both practices will turn around and go, 'Great, you've spotted little gaps in care, you know, they were not life or death but actually, in the long term, they were – they were problematic and therefore this beneficial'. You know, it – it - it definitely is beneficial for the patient (N01POST)</p> <p>I did get feedback from a GP that I'd referred to them saying they needed a bisphosphonate and the GP said to me, 'Yeah, you were right, send that round', so that was quite reassuring. (N02POST)</p> <p>'You didn't need to send them to me', [imitating GP response] and I thought I don't want to look a bit of an idiot with that but I don't know what it can do about it really.(N01POST)</p>
<p>Intentions</p> <p>(a conscious decision to perform a behaviour or a resolve to act in a certain way)</p> <ul style="list-style-type: none"> • Stability of intentions • Stages of change model • Transtheoretical model and stages of change 	<ul style="list-style-type: none"> • Purposefully altering question response in order to favourable adjust outcomes 	<p>But if you put the break in, erm, then I scored, obviously completely different so we decided to leave the break out because I, on my say so really because the way I've broken it. (P494)</p>

<p>Goals</p> <p>(mental representations of outcomes or end states that an individual wants to achieve)</p> <ul style="list-style-type: none"> • Goals (distal/proximal) • Goal priority • Goal/target setting • Goals (autonomous/controlled) • Action planning • Implementation intention 	<ul style="list-style-type: none"> • Nurses reflected on the goal of INCLUDE to identify patients who needed treatment for osteoporosis but had been missed. • Reflections from patients that this goal has been achieved 	<p>So, it was about spotting those gaps in care, in primary care, for people with inflammatory arthritis (...) There were still lots of gaps where there was an indication that patients needed DEXA again, there was still lots of patients that should have started a bisphosphonate (N01POST)</p> <p>I think that's what, when we were mentioning it, that's what I brought up about what had happened to the toe erm, and they said, that shouldn't happen (...) So, it's all been triggered really so I wouldn't have gone for any of these appointments to know that's something happening with it, probably till its too late, so that was good. (P143)</p> <p>They asked me if I'd ever had a bone scan. I said, 'No' and I went last er, Thursday (P500)</p> <p>It was a DEXA scan which - I had one four and a half years ago and I haven't had one since (...) I made an appointment to see my own doctor and she was very pleased. She said that, you know... she's very pleased with the survey that you're doing because you're picking up things that they're not (P516)</p>
<p>Memory, attention and decision processes</p> <p>(the ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)</p> <ul style="list-style-type: none"> • Memory 	<ul style="list-style-type: none"> • Patients were unable to recall fracture risk assessments 	<p>I: So do you recall discussing your risk of breaking a bone with the nurse at the INCLUDE review, so they may have said thinning of the bones?</p> <p>P: I don't remember.</p> <p>I: No okay. Do you remember anything like, they might have said FRAX, the FRAX score?</p> <p>P: Not sure. (P166)</p>

<ul style="list-style-type: none"> • Attention • Attention control • Decision making • Cognitive overload/tiredness 	<ul style="list-style-type: none"> • Nurses often assessed patient information to make a decision about next steps even when these contradicted recommendations provided by FRAX • GPs may find the decision-making process more complex when not straightforward 	<p>So lets go through and we will see what the assessment says. So, I think because you have got the history of polymyalgia rheumatica and because the DXA scan was three years ago and because you are over the age of 70 one of the actions from today will be just to get that checked with the doctor. (CR90)</p> <p>Ok. It is suggesting you are quite low risk there. I'll show you that. The higher up your cross the more at risk you are of osteoporosis. In green it is saying just consider lifestyle advice and reassure you with that. But, the fact that you have got the giant cell arteritis is telling me otherwise. It is telling me to consider that. I advise you to book an appointment with your GP to consider a bisphosphonate prescription. (CR518)</p> <p>Yeah and also looking at that, relevant to the age of patient too, like this man, for the DXA, he's 90 [right ok] so whether we do DXA scans on 90, I don't know, but they just, I don't think he's still on steroids, I don't think he still needs one, so it's just a little bit of a grey area [right ok yeah] and it's a bit age-related as well (GP05)</p>
<p>Environmental context and resources</p> <p>(any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour)</p> <ul style="list-style-type: none"> • Environmental stressors • Resources/material resources • Organisational culture/climate 	<ul style="list-style-type: none"> • Mixed views about the time to incorporate the review in practice – competing with other priorities • Some frustrations with FRAX ease of use • Not linked directly into existing GP software 	<p>I think because it's time, it's going to be competing with other things, bringing anything else new in (...) it's a 30 minute appointment, yeah it would be possible, definitely. Well it would just compete so at the moment they [practice nurses] are doing the COPD reviews. (GP05)</p> <p>When you click the FRAX one it takes you out to a live webpage and then sometimes – and then you go, 'Oh god, I can't remember what your height and weight were', so then you come out of it again and go back to find out, remember what their height and weight were, and then I couldn't remember how to get back</p>

<ul style="list-style-type: none"> • Salient events/critical incidents • Person x environment interaction • Barriers and facilitators 	<ul style="list-style-type: none"> • Difficult to find actions on GP output • Difficulties printing consultation outcomes • Difficulties accessing previous results 	<p>into it because I couldn't – because there's no tabs in the way that we'd see tabs when we open a webpage (...) FRAX was a bit of nuisance to open up with things like that. (N01POST)</p> <p>What did I say you're weight was? I can't remember now. 71 wasn't it. [TYPING]. I have to enter all of this information into this assessment you see. (CR5)</p> <p>it's quite a lot to read through and it doesn't stand out so much on the template [yeah] what are the action points and that's what you really need standing out (GP05)</p> <p>I could print them FRAX because it's on the screen, just press print. But I couldn't get out of the template and into leaflets and patient information, which I did highlight and I did get one of the senior nurses at [GP practice name 2] to show me how to do it, but it was like shut down your template, come out of that, go into that, type in what it is then print it off then go back into your template, and I'm thinking, this can't be – no, this can't work doing it this way. (N01POST)</p> <p>So, I'd say to patients, 'have you had a – had a DXA scan?', and if they said, 'Oh yeah, I had one two or three years ago', I'd think oh, that okay then, we can – we can – we can do another one. But, if they said, 'Oh I had on least year', I didn't know how to go and look it up. (...) So I was very – I was very often reliant on the patient saying, 'Oh, I've had a DXA scan, they said everything was okay' [yeah], or, 'I've had a DXA scan and that's why I'm on the bisphosphonate' (N01POST).</p>
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		I noticed on your records that you've had a DXA scan in the last couple of years. Is that right? (...) Let me have a look on your records. I am sure I have seen that somewhere. Hip DXA 2015. (CR90)
<p>Social influences</p> <p>(those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours)</p> <ul style="list-style-type: none"> • Social pressure • Social norms • Group conformity • Social comparisons • Group norms • Social support • Power • Intergroup conflict • Alienation • Group identity • Modelling 	<ul style="list-style-type: none"> • INCLUDE review allowed patient to receive same investigations as friends 	Well, I wasn't – well, I was thinking, 'Different friends of mine have – they've had these bone scans, you know [mmm] and I've got this complaint and I've never had one'. So I was pleased about that and it was organised straightaway [yeah] and I had it straightaway, so er, I, I was glad about that. (P500)
<p>Emotion</p> <p>(A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personal significant matter or event)</p> <ul style="list-style-type: none"> • Fear • Anxiety • Affect 	Patients satisfied that the review prompted further investigations re osteoporosis	Well it doesn't make me feel afraid you know it's just a fact of life isn't it that erm quite a lot of women have this, particularly don't they? [okay] and it's just wonderful that you've got all – I mean my mother had it as well and she was in terrible pain with her back and I mean I don't have anything like that touch wood [yeah] so, I think we're just very, very fortunate these days with medical advances (...) it's all very informative as well. I did think it was a shame because erm you know I've got friends who have got rheumatoid arthritis who aren't as lucky as me and I think, 'Gosh' you know if they were in this chair instead of me you know maybe this would help them so much (P112)

<ul style="list-style-type: none"> • Stress • Depression • Positive/negative effect • Burn-out 		<p>So I was pleased about that and it was organised straightaway [yeah] and I had it straightaway, so er, I, I was glad about that. (...) I was just pleased about the bone scan. I was very pleased about that (P500)</p>
	<ul style="list-style-type: none"> • Nurses were careful when explaining FRAX not to cause fear. 	<p>It's just using the right terminology, cause, you don't want to scare a patient by saying, oh you know, you're really at risk of this but if you explain it to them using the sort of vocab that they've given you, and the script, with the grid, it comes across much more informative. (N02PRE)</p>
<p>Key:</p> <p>Interviewer (I), patients (P), GPs (GP), nurses (N), with nurse quotations also specifying the interview timing; interview completed after the INCLUDE training but before starting INCLUDE reviews (PRE) or after completing INCLUDE reviews (POST). Consultation recording (CRs) extracts are also included.</p>		