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Arthroplasty Follow-Up Pathways: A Qualitative Study of Current Practice and Healthcare Professionals' Attitudes and Motivations for Change

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ABSTRACT

Background: There is considerable diversity in arthroplasty follow-up pathways. This qualitative study aimed to understand healthcare professionals' practice and attitude to follow-up, their motivation for change and what evidence they considered before implementing new pathways.

Methods: The main UKSAFE study enroled 38 centres providing revision procedures across the United Kingdom. A purposive sample of professional leads and service managers was identified from site contacts. Individual interviews were conducted by telephone, transcribed verbatim and analysed using a theoretical framework derived from current evidence and the data collected in our previous studies.

Results: We found that there had been a shift away from bringing patients back into the clinic for repeat follow-up assessments, but that this was not universal, and some centres had long-established care pathways that involved long-term follow-up. The way in which those services were provided might be different or have common features, but centres were likely to face common problems including large patient numbers and funding restraints.

Conclusion: The reliability of newer prosthetics and surgical skill has influenced some changes by increasing confidence in a pathway which does not routinely provide long-term follow-up. Service commissioners also have a role to play in how follow-up care pathways are configured, but scrutiny of the ratio of new to follow-up appointments can put pressure on clinical staff to follow-up only patients with identified clinical need. Virtual clinics can provide a service to patients and use scarce resources efficiently, but NHS IT systems that would be needed to support more remote working, for example, telemedicine and plans to collect PROMS data online from patients to assist with monitoring were not advanced.

1 | Introduction

Hip and knee arthroplasty has revolutionised the management of degenerative joint disease but the burden on orthopaedic services does not stop with surgery; follow-up requirements for primary arthroplasty contribute significantly to outpatient attendances annually (Briggs 2012). Our previous work identified considerable diversity across the UK in terms of timing, how follow-up is conducted and which health professionals are involved (Smith 2014). The UKSAFE study aimed to investigate the consequences of disinvestment in hip and knee arthroplasty follow-up by making use of large routinely collected observational datasets and prospective data collection to establish what constitutes the most effective and cost-effective arthroplasty follow-up care pathways (Kingsbury, Smith, Czoski Murray, et al. 2022).

This qualitative interview study was designed as a sub-study of the UKSAFE prospective cohort (Kingsbury, Smith, Shuweihdi et al. 2022) to gain in-depth insight into the changes taking place in follow-up protocols by investigating how follow-up was structured and implemented across various UK sites and to explore the differences in care pathway models.

Primarily, our study aimed to explore the rationale behind whether or not there was a standard care follow-up pathway that extended beyond the initial postoperative period, as well as the evidence considered when implementing new pathways and the motivating factors behind change in practice.

2 | Methods

2.1 | Participant Selection and Recruitment

The main study enroled 38 centres across England that provide revision procedures after hip and knee arthroplasty (Kingsbury, Smith, Shuweihdi et al. 2022). These sites were used to construct a purposive sample using the following criteria: NHS Trust Type (Teaching, Foundation Trust or District General Hospital), geographical area (urban and rural), socio-economic area (low and high SES) and ethnic diversity. Some selection criteria were nested (e.g., hospital type and geographical area) and participants were selected to ensure that a range of viewpoints were considered.

Professional leads and service managers were identified from site contacts and invited via email to take part in a telephone interview. If the selected individuals did not respond to the initial contact, alternative participants were sought where possible. For those who agreed, informed consent was requested along with permission to record the interview. Appointments were made to undertake the interviews although four participants were unavailable at the time arranged for the interview. One follow-up email was sent as a reminder, but no other contact was pursued.

2.2 | Interview Process

The interviewers used a semi-structured topic guide (Supporting Information S1; developed from the available literature by the study team and with clinical and patient representatives) to understand their current follow-up care pathway and to explore any changes that had taken place. The interviews were audio-recorded and transcribed verbatim where permission was given.

C.C.-M., an applied health researcher with a nursing background, carried out the interviews by telephone. One participant withdrew from the study after the interview and their transcript was removed from the data at their request.

Interviewees had sight of the topic guide prior to the interview but often had limited time to offer and interviews varied in length from 15 to 40 min. In some cases, the interview schedule had to be adapted to fit the time available, so there are cases where some information is missing.

One researcher transcribed the recorded interviews (C.C.-M.). Two experienced qualitative researchers (C.C.-M. and K.H.) analysed the data and identified the emerging themes.

2.3 | Data Management and Analysis

The data were managed according to the principles of information governance at the University of Leeds. Data were extracted from the interview transcripts to provide information about each service, the pathways adopted in each centre and the reasons for their implementation. A thematic framework was developed iteratively throughout the interviews by K.H. and C.C.-M. An inductive approach was taken with the emerging themes identified and informed by conceptual evidence derived from the literature (Kingsbury, Smith, Shuweihdi et al. 2022).

2.4 | Ethics, Consent and Permissions

Ethical approval was received from the Research Ethics Committee (17/NW/0469). All participants provided written informed consent.

2.5 | Patient and Public Involvement and Engagement

PPIE was embedded throughout the UKSAFE Programme, from concept, through delivery and interpretation of findings, to dissemination. Study material, including participant-facing information and interview guide for the qualitative substudy was developed with the PPIE co-applicant and reviewed at a PPIE focus group with patients who underwent total joint replacement.

3 | Results

A total of 16 participants (3 female and 13 male participants) from 12 sites, representing a broad geographical range and type of NHS Trust, were interviewed. Roles included 2 arthroplasty specialist nurses, a specialist physiotherapist, a manager of orthopaedic services and 12 orthopaedic consultants.

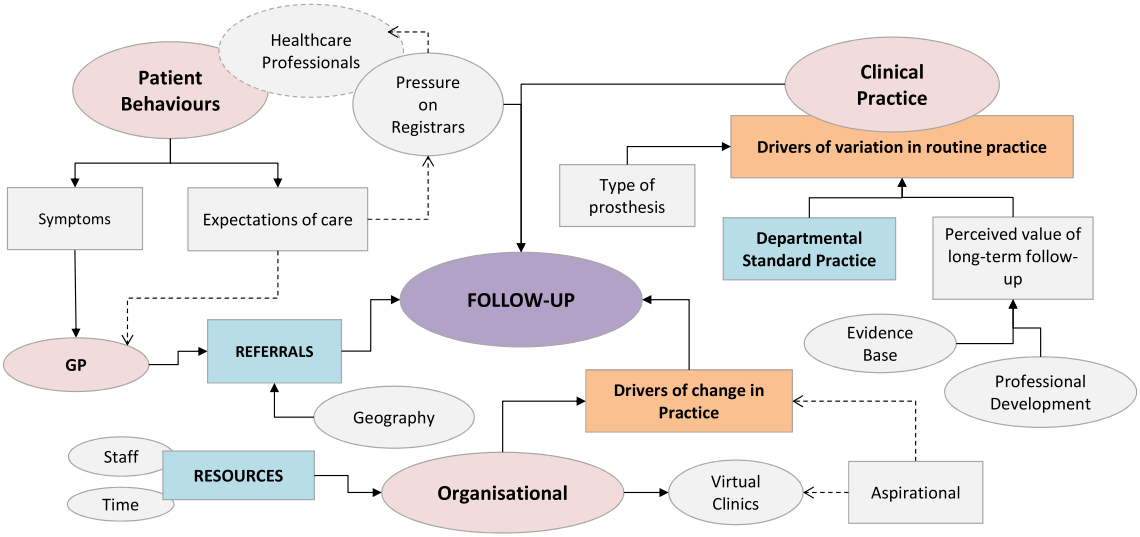

FIGURE 1 | Thematic development. Provision of long-term follow-up: rationale for care pathway; method of delivery of care; staff involved; evidence. Pressure to change: patient numbers in the clinic for follow-up; lack of evidence for longer term follow-up; reliability of newer prosthetics. Patient route back to orthopaedic care post arthroplasty: reliance on the patient to contact their GP. Patient experience and adding value to follow-up: reorganisation for patient benefit; patient long-term safety. Commissioners and funding.

Interview data generated a large amount of detailed information about the pathway in use, geographical location, the acceptability of pathways, resources including staff, how patients accessed further care if needed, budgets and input from commissioners, allowing an in-depth analysis across a cross-section of services currently delivered in England (see Figure 1).

Most respondents described their early postoperative care pathway, up to the 6- to 8-week postoperative period, when patients were brought back for wound checks, functional assessment and radiology. Interviewees described how that role may now be taken by other specialist healthcare professionals and not consultants or specialist trainees. One described how this service was now run as an outreach, in that specially trained nurses visited the patient in their own home for postoperative assessment earlier than 8 weeks, but this was not reported by other services.

We found that there had been a shift away from bringing patients back into the clinic for repeat follow-up assessments, but that this was not universal, and some centres had long-established care pathways that involved long-term follow-up. The way in which those services were provided might be different or have common features, but centres were likely to face common problems including large patient numbers and funding restraints.

3.1 | Provision of Long-Term Follow-Up

There were a number of centres that did not follow up patients beyond the immediate postsurgical period (see Table 1). All the interviewees explained their follow-up at the point of discharge from the ward.

> They're seen 8 weeks, or around 8 weeks post their surgery in a consultant led sort of traditional follow-up clinic. And at that point the vast majority, unless there are any specific problems, they are discharged and they're not routinely followed up any further than that.
>
> (Int 8 Large tertiary)

Another explained that they were a major surgical centre and all follow-up, if any, would be carried out at the home hospital.

> I would say across the patch everybody is discharged by a year. And the great majority are now discharged between 3-6 months. There is no routine follow-up.
>
> (Int 10 Specialist centre)

Interestingly, there was one interviewee who described how the established practice had changed from not seeing any patients after the postoperative visit to bringing back everyone again due to high revision rates. This was not without its problems and was perhaps not sustainable in the longer term because of increased patient numbers in the clinic. The follow-up patients were seen by nurses who had additional training to examine X-rays and collect patient-reported outcome measure (PROMS) scores. Potential problems were referred to the consultant. Three out of five nurses who are able to do this will retire in the near future. There had been little interest in succession planning by the managers possibly because although a reduction in their periprosthetic fracture rates was reported, it was difficult to attribute the cause to the follow-up clinic.

3.2 | Fidelity to Protocols

In some centres, there were no exceptions to the stated follow-up pathway and clinical staff were discouraged from bringing patients back into the clinic routinely, but we also found evidence that consultants who had been in the post for some time

TABLE 1 | Follow-up duration.

Int ID	Type of trust	Joint	6–8 weeks F/up	3–6 or 9 months F/up	1 year	5 years	Up to 10 years	10+ years
1	Tertiary centre	Hips	Yes	N/A	Yes (discharge 70+)	Only if under 70 at time of surgery	Only if under 70 at time of surgery	Only if under 70 at time of surgery
		Knees	Yes		Yes			
2	NHSFT	Hips	Yes	Yes	N/A	Yes (specialist physio)	Yes (specialist physio)	Yes (specialist physio)
		Knees	Yes	Not always		Yes	Yes	Yes
3	DGH	Hips	Yes	No unless problems	N/A	N/A	N/A	N/A
		Knees	Yes					
4	DGH	Hips	Yes	N/A	Yes (discharge 75+)	Yes (clinic nurse)	Yes (clinic nurse)	Yes (clinic nurse)
		Knees	Yes		Yes	Yes	Yes	Yes
5	DGH	Hips	Yes	N/A	Yes (discharge at 80+)	Yes (specialist nurse)	Yes (specialist nurse)	Yes (specialist nurse)
		Knees	Yes		Yes	Yes	Yes	Yes
6	Tertiary centre	Hips	Yes	3 months alternative	Yes (discharge 75+)	N/A	Yes 7 years (specialist nurse)	Yes (specialist nurse)
		Knees	Yes	To 6–8 weeks	Yes		Yes 7 years	Yes
7	DGH	Hips	Yes	N/A	Yes	N/A	N/A	N/A
		Knees	Yes		Yes			
8	Tertiary centre	Hips	Yes	N/A	N/A	N/A	N/A	N/A
		Knees	Yes					
9	DGH	Hips	Yes	N/A	Yes	N/A	N/A	N/A
		Knees	Yes		Yes			
10	Specialist centre	Hips	Yes	Yes	Yes	N/A	N/A	N/A
		Knees	Yes	Yes	Yes			
11	Specialist centre	Hips	Yes	Yes[a]	Yes (specialist physio)	N/A	N/A	N/A
		Knees	Yes	Yes[a]	Yes			
12	DGH	Hips	Yes	Yes[b]	Yes (specialist practitioner)	N/A	N/A	N/A
		Knees	Yes	Yes[b]	Yes			
13	DGH	Hips	Yes	N/A	Yes	N/A[c]	N/A	
		Knees	Yes		Yes			
14	Tertiary centre	Hips	Yes	N/A	Yes (specialist practitioner)	Yes (specialist practitioner)	Yes (specialist practitioner)	Yes (specialist practitioner)
		Knees	Yes		Yes	Yes	Yes	Yes
15	UK	Hips	Yes	Yes (6 months)	N/A	N/A	7–8 years recalled by specialist physio	
		Knees	Yes					
16	THT	Hips	Yes	N/A	N/A	N/A	N/A	N/A
		Knees	Yes	Yes 3 months				

Note: Information on follow-up duration reported by participants.
Abbreviations: DGH: District General Hospital; N/A: not applicable; NHSFT: NHS Foundation Trust; THT: Teaching Hospital Trust; UK: unknown.
[a]Seen by specialist physio at 3 and 6 months.
[b]Depending on the care pathway if seen at home for post-op check at up to 6 weeks, automatically on a pathway to review at 3 months with X-rays performed at local hospitals, then seen in the clinic by the consultant.
[c]This is the practice by most consultants. A few may bring back at 5 years.

were more likely to bring patients back beyond that recommended by the hospital protocol. In one centre, new consultants were encouraged to follow-up patients to develop their understanding of the link between their surgical practice and patient outcomes.

> I mean one of my colleagues started out by just discharging everyone at 6 weeks (laughs). Why? Because he was confident in his results. And you can only do that when you've been around the block a couple of times as a consultant. One of the things that I didn't say at the start, which perhaps I should of done, is that we said to the junior consultants...., we did not feel that they needed to feed their patients into this system. They needed to see how their patients were behaving at 6 weeks, in terms of their recovery and rehabilitation needs, so that they understood what their practice was about.
>
> (Int 12 DGH)

The protocols were often fairly well controlled within the no long-term follow-up group; those who arranged to see patients for no obvious clinical reason could impact on other colleagues who may wish to see a patient back in the clinic for a specific reason.

> So the commissioners certainly do look at our new to follow-up ratio. They look at our total number of appointments per pathway. I think some of my colleagues see people a lot and that makes it harder for those who don't, like myself which means that when I do want to see someone I'm feeling guilty about it I suppose.
>
> (Int 15)

3.3 | Rationale

Those who followed the British Orthopaedic Association (BOA) guidelines and provided long-term follow-up explained how this worked in practice.

> The BOA blue book.... and it's sort of saying that patients over the age of 75 or low demand on their joint, could possibly be discharged so everybody at year one gets a review .....after that we are following the guidelines so if the patient is 85 and everything is fine at year one, they'll be discharged if the patient is younger, if they are 55 then their next review for hip will be at year seven in nurse-led services or at year five if it's a knee replacement in nurse led services.
>
> (Int 6 Tertiary centre)

It was acknowledged that patients with problems were not always picked up by long-term follow-up. This is probably because of the interval between the 5- and 10-year follow-up appointments. Others were moving towards focusing on the PROMS scores from patients to help them understand more possible ways of intervening when problems arise.

> A long term follow-up programme is good, or you could say 'Oh let's abandon the long term follow-up programme, it doesn't bring up the people whose joints have failed'. But that's not the purpose of the long term follow-up programme. So the purpose of the long term follow-up programme is to see actually are the scores maintained, are they ok, yes we will pick up one or two that have failed. So what we're looking at, at the moment,.....all our joint replacements since 2003 to see if any of the scores that were done ahead of a listing for a failed joint would have picked that one up as failing.
>
> (Int 2 NHSFT)

Those who continue to undertake follow-up as per the BOA guidelines have no involvement of consultants after 1 year. Patients above 70 years are usually discharged at 1 year if there are no issues with the implant. Some of those who bring patients back after 5 to 10 years and beyond make use of a range of other professionals including clinic nurses and specialist practitioners with a background in either nursing or physiotherapy.

The use of virtual clinics in these centres makes seeing large numbers of patients feasible, and a number of interviewees were interested in moving towards this approach to alleviate some of the problems that patients experienced when attending clinics. It was seen as an opportunity to make more use of specialist nurses or physiotherapists to manage long-term follow-up services.

> We have trained nurses who are waiting in the wings, they come and see the patients in the clinic..... they do more detailed survey, more detailed looks, do all the checks, all the measuring scores like we have Oxford knee score, Harris score and the functional outcome of the patients which we don't usually check when—in the follow-up clinic it's just whizz and go I mean they come 'are you fine?' 'X-ray is fine' 'no concerns, OK off you go'.
>
> (Int 7 DGH)

3.4 | Evidence

There were mixed views about the state of the current evidence base for either continuing with long-term follow-up, moving to a virtual system or withdrawing all follow-up after the immediate postoperative period.

> I think one particular year when we [still] saw the patients at their one year, you know there was no one that needed reviewing and everyone was just, every single patient had been fine and discharged. Every single one of those appointments had just been so the

> consultant could know how the patient was doing, and not for the patient's benefit at all.
>
> (Int 3 DGH)

> I think there is a paucity of evidence at the moment. But our concern was that we'd be following up a huge number of patients.., and that very small group where they'd potentially have a violently failing hip that you know, but we're not entirely clear that seeing them regularly would have necessarily changed their ... final outcome.
>
> (Int 8 Large tertiary)

3.5 | Pressure to Change

A number of interviewees explained the pressures involved in changing their practice; for example, bringing people back into the clinic, when there was no obvious clinical indication, caused logistical problems.

> There was some issue regarding the logistics of getting so many patients into the follow-up clinics as the numbers are limited and the trust was finding it very difficult to arrange these patients into the follow-up clinics. There was a need for extra clinics.
>
> (Int 13 DGH)

3.6 | Prostheses and Surgical Skill

The discussion around the choice of the implant manufacturer raised some interesting points. Some were very satisfied with the performance of the Exeter implants, whereas others explained that they saw some very surprising implants of unrecognisable origin in the clinic. Some referred to a combination of changes in surgical practice and implant choice, which contributed to their success rates.

> The rest with aseptic loosening of arthroplasty they are old standard. Any processes done properly by a proper surgeon should last 15–18 years easily so the loosening rate is 1 - 1.5% so 1 in 100 or 2 in 200 might have some loosening before the 10 years or if the surgery has been done slightly wrong way or there are some other factors in the patient like they've got some significant disease ...but on the standard pack, the ones we are revising now is the hips which have been done 12–15 years ago by a previous cohort of surgeons which have all retired.
>
> (Int 7 DGH)

> I disagree with BOA advice and British Hip Society advice in that regard. I think if you're using a well-chosen prosthesis with a very low failure rate then we're back that QALY issue where the amount of money that you'd have to spend to bring back that one asymptomatic patient just isn't justifiable.
>
> (Int 12 DGH)

> There are other big Exeter users around the country who will put an Exeter in and as long as it looks alright at 3 months will forget about that patient for 10 years. Because they just don't cause trouble. The Exeter guys will be really rigorously following them up because of their research interests which is important.
>
> (Int 10 Specialist Centre)

Others expressed a different view and were of the opinion that this was not always the case.

> I've been in practice now for 20 years as a consultant, and I've just had my first failed worn out hip replacement come back. So my argument until 3 weeks ago was 'I don't need to follow anyone up because my hips don't fail, my NGR data backs it up'. I've had... not a battle, but I'm critical of Exeter who have published an item about the success of the Exeter hip, and I just say 'How on earth can you justify following every patient every year when you tell us they don't fail?'
>
> (Int 12 DGH)

Another shared some experience with this implant.

> I mean it is true that the Exeter is extremely reliable-that's what we use, that's our default implant. Having said that, we've observed a trend of increasing peri-prosthetic fractures with Exeter and I think that relates to the design of the thing, especially in the elderly. Um, but um in the peripheries we have lots of implants that we've never seen before and that have never been followed up. And they come in sometimes loose, sometimes not.
>
> (Int 5 Tertiary centre)

Others challenged the evidence base for follow-up and were of the opinion that this did not justify frequent long-term follow-up.

> There isn't any evidence anywhere to suggest that following yearly that you might detect changes that would necessitate you to subject individuals to a revision procedure....
>
> (Int 13 DGH)

Others were confident of the evidence from their service and evaluated regularly.

> We've got pretty good buy in because it's a well-established service that L has run well and has been able to demonstrate the outcomes and the results.
>
> (Int 15)

3.7 | Patient Route Back to Orthopaedic Care Post Arthroplasty

Patients were often relied on to self-report issues with their implants. Most of the interviewees understood that patients would make their way back into the system via their GP. Some explained that patients sometimes contacted the consultant via their secretary or made telephone calls to the ward where they had their original surgery. However, there was some lingering concern that patients with problems might not seek the appropriate advice when they experienced problems.

> We are obviously concerned that there are patients with silently failing hips out in the community that are going to present with catastrophic failure and periprosthetic factures that we could have perhaps done something about had the loosening been picked up earlier. But anecdotally we haven't seen people coming through the system presenting in that way. Generally speaking, if they have any problems then they still present ... relatively early.
>
> (Int 8 Large tertiary)

> I guess the issue is reminding people in later life about that conversation we had when we discharged them at 1 year. Which is if your symptoms come back, take it seriously, have an X-ray, get your orthopaedic surgeon to look at it, or your GP to review the report. And I think most people forget that. And maybe it's time for a very different approach to this.
>
> (Int 12 DGH)

3.8 | Other Interviewees Were Confident That Patients Would Find Their Way Back Into the System

> Via their GP. We import a lot of patients from upcountry, because we're a retirement area.... So if there's a problem they'll come through their GP.
>
> (Int 12 DGH)

It was noted, however, that older patients might not necessarily want to proceed to revision surgery when asymptomatic. This was reflected across a number of interviewees, and this comment is typical of these views.

> another thing you need to note is that even if you are following them up and you find that there is some kind of loosening of the prosthesis and they're asymptomatic they're very, very reluctant to come and have a procedure. So even if you catch them early you're not guaranteed that they would proceed with a big operation.
>
> (Int 13 THT)

3.9 | Patient Experience and Adding Value to Follow-Up

Many negative views were expressed about the patient's experience of attending an outpatient appointment for follow-up; participants felt it added little value to the patient or their outcomes. However, one interviewee, when describing their early care pathway, noted that some patients with long term experience of attending orthopaedic clinics expected to be seen on several occasions post-operatively. They put pressure on the registrars to make repeat appointments.

> If they are good at six months they will be discharged but there are some patients who come back and back because they in affect bully the registrars to be seen again
>
> (Interviewee 16 THT)

We were slightly surprised that when asked about the number of patients from their follow-up clinics with problems indicating intervention and potential revision, an interviewee observed that they had seen an increase in the number of those coming in acutely with a periprosthetic fracture.

> One observation we have made is that we seem to be doing fewer elective revisions, but we're certainly doing much, much more periprosthetic revisions now.
>
> (Int 5 Tertiary centre)

A partial explanation was their geographical location: on the border among counties, they saw referrals from all the smaller periphery hospitals. These were not generally their own patients.

The patients were discharged at 1-year follow-up if they were 80 years or over. However, of the patients currently on the ward was a patient with a periprosthetic fracture at the age of 82. The interviewee was concerned that patients like this, who are not followed up, can still present with very serious complications.

> [Catchment] borders on a different health care trust, where we often pick up patients that haven't been followed up for many, many years. It's always at the periphery of the county, where you pick up these individuals with weird and wonderful implants in that haven't been followed up for 10, 15 years.
>
> (Int 5 Tertiary centre)

3.10 | Commissioners and Funding

Almost all the interviewees had experience of preparing business plans for managers or having discussions with commissioners to initiate change or innovations in practice. These relationships often had mixed results, with some being supported and others not.

> We've had discussions with the commissioners because we need to fund the virtual follow-up. Because

> obviously if they're not coming into clinic and getting a clinic tag then the £150 follow-up fee or whatever it is and then we're then taking that on our chin by having the surgical care practitioner do it from their office, then we the hospital are going to be subsidising the commissioners. So discussions have been had.
>
> (Int 12 DGH)

> With the primary care commissioners, ... because the X-ray departments were actually managed by a different trust for the satellite services- so we actually had to have an agreement with them to be able to do this service. So it took years, literally, from that first conversation in 2009 it probably took 5 years to get the thing properly off the ground
>
> (Int 14 Tertiary centre)

4 | Discussion

There was considerable variation in practice across the centres involved in our study. Follow-up for a period exceeding 1 year was reported by participants in just over half of the centres. We have illustrated that, even within a given NHS Trust, pockets of different practices exist among consultants, which is tolerated; although colleagues who wished to make sure that resources were targeted towards patients considered at greater need sometimes found this problematic.

The 'traditional' outpatient appointment, where very little was done for the patient, was a source of frustration for some participants. The idea that a patient often travelled considerable distances and had to contend with hospital parking, only to spend less than 5 mins in the clinic, was dismissed by some as poor management. There was considerable feeling that if follow-up is performed, it needs to be structured and purposeful. Many expressed the opinion that moving to a model where the follow-up care is provided by specialist nurses or physiotherapists added value to the encounter. Participants from centres that no longer followed up patients beyond 1 year expressed a wish that some form of follow-up that would be meaningful both clinically and to patients could be adopted. Nevertheless, it should be noted that even those who continue to follow-up patients 'routinely' have upper age limits for follow-up, beyond the year one check, in accordance with the BOA 'Blue Book' ('Knee Replacement: A Guide To Good Practice' 1999; 'Primary Total Hip Replacement. A Guide to Good Practice' 2012).

The reliability of newer prostheses and surgical skill has influenced some of the changes in follow-up practice. National data on the cumulative revision percentage for total hip and total knee replacements, from 2003 to 2018, demonstrate a trend for reduction in revision rates over time, whilst research evidence of the long-term survival of different types of implants can increase the confidence in a pathway which does not routinely provide long-term follow-up (Briggs 2020).

Service commissioners had a role to play in how follow-up care pathways are configured in some areas. There is scrutiny of the ratio of new to follow-up appointments, which puts additional pressure on clinical staff to see only patients who have an identified clinical need. Moreover, patients undergoing primary arthroplasty through private providers may not be followed up in their local Trust, even if long-term follow-up is routine for NHS patients.

Trusts frequently have a 'block payment' allocated for arthroplasty, and some follow-up is expected within that budget. Where the participants wanted to make changes and invest in alternative ways of working, for example, Virtual Clinics, the business cases for investment were not always supported.

There was considerable interest in either expanding an existing or introducing a virtual clinic. This was seen by some as a way of providing a service to patients while making use of scarce resources. There was also a general expression of frustration with some of the NHS IT systems that would be needed to support more remote working, with telemedicine being an example; plans to collect PROMS data online from patients to assist with monitoring were not very advanced. The work in this study was performed in 2018 and it would now be timely to explore the impact of COVID-19 on the care pathways reported in this study and whether the adaptions made will continue with remote consultations being the norm.

Virtual clinics have been found to be safe and effective alternatives (Kingsbury et al. 2016; Parkes, Palmer 2019; Preston et al. 2019, 2023) but not all clinicians value the opportunity to increase the use of technology in their clinical practice. Some felt that something would be lost in the interaction between the patient and their surgeon, and one centre encouraged newly appointed consultants to follow-up their own patients for longer than the normal protocol to link their surgical work with outcomes. It should be acknowledged, however, that in many of the participating centres, the patients were not always seen by their consultant or a registrar even at the 1-year visit. All of the centres that were able to offer long-term follow-up did so because they had access to very experienced senior nurses or senior physiotherapy arthroplasty specialists to organise and run these services.

We believe this is the first study to explore the issues around arthroplasty follow-up, in depth, with clinical staff. The insight gained has been useful to inform and support the recommendations generated from the UKSAFE main study.

Author Contributions

C.C.-M., L.K.S., M.S., P.G.C. and S.R.K. contributed to the project conception and design; C.C.-M. conducted the qualitative interviews; K.H., C.C.-M., L.K.S. and S.R.K. were involved in analysis and interpretation of findings and K.H., L.K.S. and S.R.K. contributed to drafting and revising the manuscript. All authors have read and approved the final manuscript.

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Ethics Statement

Ethical approval was obtained from the North West Haydock Research Ethics Committee Yorkshire (17/NW/0469).

Consent

All participants provided written informed consent.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.