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A qualitative exploration of barriers and facilitators to inclusion of dentistry in a regional shared health care record

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Objectives: To explore stakeholders' perceived barriers and facilitators to the inclusion of dental services in the Great North Care Record (GNCR) by identifying the stakeholders, exploring their perspectives and using the findings to inform integration of dental services in GNCR. ***Methods***: Qualitative online interview study with inductive thematic analysis. ***Results***: Twelve stakeholders identified through purposive sampling participated. Five key themes were identified: information accuracy, efficiency, safety and security, value of records and optimal GNCR design. Inclusion of dentistry in GNCR was favoured to improve information accuracy and efficiency. However, participants raised concerns about how information accessed would be handled safely and worries about intraprofessional criticism within dentistry. Others saw a real value in including dentistry in the GNCR. ***Conclusions***: This study demonstrates support for the inclusion of primary care dentistry in the GNCR, provided that the data are used responsibly, and that the system aids information safety and efficiency.

Keywords*: qualitative research, data sharing, oral health services*

Introduction

Health and care services are increasingly provided by a broad range of different intra- and inter-organisational teams, and the National Health Service in the United Kingdom is no exception. The sharing of clinical information between teams can help to prevent deficiencies in quality of care that can arise when patient care is shared or transferred between providers, through aiding communication, sharing results from clinical investigations and procedures and adding detail to patient histories (Coleman, 2003).

The Great North Care Record (GNCR) is a regional shared healthcare record that allows health and care professionals to view and contribute to patient records across North Cumbria and the North East of England. GNCR was introduced in line with NHS England's intentions to join up health and care data for professionals to make faster and better decisions for their patients based on a more complete health data (NHS England, 2018a, 2018b). Currently this sharing of data integrates the care of approximately 3.6 million people in the region with records being accessible in a range of settings: hospitals, general medical practice, mental health services, ambulances, adult social care and out of hours emergency services (Great North Care Record, 2022).

Whilst tertiary (hospital-based) dental care services in the North East and Cumbria can access the GNCR information, primary and secondary dental services, as well as out-of-hours dental services, cannot access or contribute to the GNCR. The inclusion of dental services in the GNCR could offer benefits to both patients and staff, as outlined above.

The option for one-way inclusion of dentistry, whereby dental teams could view the shared healthcare records or two-way inclusion, whereby dental records would also form part of the shared records, is possible, though it remains unclear what stakeholders' perceptions of these approaches would be. For these reasons, it is of paramount importance to explore the views of all stakeholders to understand the barriers and facilitators to the integration of dentistry into the GNCR.

The aim of this study was to explore stakeholders' perceived barriers and facilitators to the inclusion of oral healthcare in the Great North Care Record. The specific objectives were as follows:

- Identify relevant stakeholders in the inclusion of dentistry in the GNCR
- Explore their perceptions on the potential integration of dental services into the GNCR
- Identify barriers and facilitators to integration of dental services into the GNCR through qualitative analysis
- Use these themes to inform future integration of dental services into the GNCR

Methods

This study used online qualitative interviews with inductive thematic analysis (Braun and Clarke, 2021). This manuscript has been written in accordance with the consolidated criteria for reporting qualitative research (COREQ) checklist (Tong, Sainsbury, and Craig, 2007).

Ethical review and approval was provided by Newcastle University Ethics Committee (reference: 27696/2022).

An initial discussion between members of the research team identified the key stakeholder groups who would have an interest in dentistry being included in the GNCR. Participants were purposively sampled from these stakeholder groups, including dental professionals

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working across various settings such as general dental practice, out-of-hours-services and hospital, and with different roles, such as those in training positions, dentists with managerial positions or involvement in dental education. Furthermore, medical professionals, members of the public and key members of the GNCR team were invited to participate. This approach ensured that service users, individuals currently using GNCR in their work, and individuals who are currently unable to use GNCR were included.

A sampling strategy guided recruitment (Table 1) using the following inclusion and exclusion criteria.

Inclusion Criteria:

- Adults over 18 years in the identified stakeholder groups
- Contactable by email invitation via a known contact
- Access to a device with Microsoft® Teams® (Microsoft® Corporation, Washington, United States) software
- Able to communicate and read in English

Exclusion Criteria:

- Working or accessing healthcare services (as relevant) outside of areas covered by the GNCR

Most potential participants were invited via an open email invitation. A General Dental Practice was identified as having several potential participants that could meet the sampling requirements within its staff, and hence was contacted with an invitation to circulate to staff. A similar approach was used to recruit from Newcastle Dental Hospital, whereby the lead for an individual department was sent an open invitation to circulate. Where no responses to the open invitation were received, or the sampling strategy remained incomplete, a further practice or department was contacted. Potential participants holding more specific roles were contacted directly through personal contacts of the research team. Care was taken to ensure that the potential participants were not familiar with the lead interviewer.

Members of the local public were approached through Voice®, a platform allowing researchers to connect with members of the community. An open invitation was placed on the Voice® website, with contact details for those meeting the inclusion criteria to contact the research team.

All invitations included a participant information leaflet tailored to the stakeholder group. The eligibility of respondents was confirmed by the research team, any queries were answered, and they were sent an electronic consent form. Recruitment continued until all stakeholder groups were represented. At this point no new concepts or ideas were being gained from the interviews.

Interviews were arranged at a time convenient for the participant and were conducted over the Microsoft® Teams® platform. Online interviews were considered most appropriate as they offered the greatest flexibility for participants, removed any burden of travel and enabled interviews to be conducted with participants in more remote areas (Keen *et al.*, 2022). Interviews started with participants being asked if they had any further queries about the study, and their consent was confirmed. They were advised that they could stop the interview and withdraw from the study at any time. Interviews were recorded using a digital voice recorder and also via the online platform. Interviews were semi-structured and steered using a topic guide (Available at https://www.ncl.ac.uk/dental/people/profile/helenrogers.html). The topic guide was piloted with personal contacts who were not potential participants and developed iteratively following each interview. Field notes were taken through the interviews. Interviews were expected to last between 30 and 45 minutes.

On completion of the interview, participants were thanked for their time and sent a £20 Love2Shop voucher. Participants signed an online form to confirm safe receipt of the voucher.

All the research team members had a clinical background as dentists. The primary interviewer was a male novice qualitative researcher, and was supported by two experienced female qualitative researchers with PhDs (NP and HR). The primary interviewer received bespoke training in qualitative interviewing, which included numerous practice interviews and thematic analysis.

The interviewer introduced himself to participants as a researcher, with no apparent clinical role. The researcher was not known to the participants before study and wore non-clinical, casual clothing to avoid influencing participant responses, or introducing any power imbalance. Participants were informed that the interviewer was a junior academic and keen to develop research skills and gain experience. The interviewer had not previously accessed GNCR, though had recently commenced working in general dental practice, so understood the sensitivities regarding access to patient data. The other members of the research team (NP and HR) had accessed GNCR through the hospital and recognised the potential for its use in other areas of dental care.

Interview recordings were transcribed verbatim and organised using NVivo (©QSR International PSY Ltd) software. Two members of the research team coded the data independently and then collaborated with the third member of the team to derive key themes and sub-themes (Braun and Clarke, 2021). Transcripts and a summary of the analysed data were shared with participants, who confirmed that their quotes had been transcribed and interpreted accurately.

Results

Interviews were conducted with 12 stakeholders between January and May 2023, of which eight identified as male and four female. No participants withdrew during the study. No non-participants were present during the interviews and no repeat interviews were undertaken. The sampling frame was largely met (Table 1). The research team were unable to identify a Dental Care Professional who was able to take part during the time limits of the study.

Five key themes were identified in the data: information accuracy, efficiency, safety and security, value of records, and optimal GNCR design.

Information Accuracy

Participants were acutely aware of the challenges of relying on patient recall when taking a medical history and the potential for inaccuracies to arise:

Table 1. Purposive sampling strategy and stakeholders recruited.

Stakeholder Group	*Target number of participants*	*Number interviewed*
General Medical Practitioner	2	2
Dental Foundation Trainer/ General Dental Practitioner	1	1
Dental Care Professional	1	0
Dental Foundation Trainee	1	1
Hospital dental practitioner	1-2	1
General Dental Practitioner providing out-of-hours service	1	1
Dental Corporate Clinical Director/Manager	1	1
NHS/GNCR Information Officer	1	1
Dental Training Programme Director	1	1
Members of the public	2-4	2
Accident and Emergency practitioner	1	1
Total participants	13-16	12

It's remarkable, particularly when people have lots of medical issues, they have no idea what they're taking. And they don't think dentistry has any relevance you know, having a tooth out, well what's the big deal?

P.01 GDP providing out-of-hours service

For instance, each time I go to the dentist, I'm asked, "Have my medications changed?" And quite often I say, "No", but then later on I think, "Ooh, actually, in the last year, maybe that has changed, or that"

P.05 Member of Public

Well, obviously it's up to the patient to tell you everything that they're on, and sometimes they might forget or might, miss things out so, it would be good to have a resource where you can just double check everything to make sure that the information they're giving is accurate.

P.08 Dental Foundation Trainee

Participants considered these inaccuracies to be an important safety issue and recognised that it could also be burdensome to patients in having to shoulder the responsibility for their medical history. They identified a role for the GNCR in helping to reduce this risk, and the benefits of dental teams being able to access accurate healthcare information for patients:

*I think it depends on the patient, because some patients might be more ignorant. So, if I supply my dentist with this information, how does the dentist know that I'm supplying them with everything, other than it covers them, that you know, they don't take any risks because their patient has given whatever the patient was concerned about you know? Do you have any allergies? The patient said, no, for instance. But things *could* still happen because that patient didn't know about those allergies, for whatever reason, ignorance, forgetfulness, all those things, whereas if this information was communicated from a previous healthcare provider, then that bypasses the patient's ignorance, and I think it would be safer.*

P.06 Member of Public

Dentistry is a really interesting one. So, someone who goes to the dentist, you know, they might be on blood thinners and have a tooth extraction. Dentist doesn't know, patient doesn't tell them, all of a sudden, big problem. So, by exposing the right level of information to the right care setting, you can potentially reduce unnecessary risks. And just make things a little bit safer.

P.09 GNCR Information Officer

Efficiency

Participants felt that current approaches to gaining an accurate medical history was time consuming for both patients and dentists, particularly when it required information to be sought from other healthcare providers.

So, often times you'd call up the GP and that would take an extra fifteen minutes, to try and obtain that information whereas obviously, if it was on one system then it would make it a lot easier. So I'd say it's quite an ineffective way of obtaining information from the patient, directly.

P.08 Dental Foundation Trainee

So for me it would be much easier if that—even that simple question didn't have to be asked, because they would have in front of them, the information of whatever medication I'm actually on, at that point in time.

P.05 Member of Public

Participants felt this was an outdated approach to gathering information, and that the incorporation of dentistry into the GNCR could be more efficient.

It's wasted a bit of time. I'm having to ask the patient a load of information that perhaps I could have at the click of a button. It's a shame in this day and age that we are having to do that and that we're not connected to the rest of health and social care.

P.07 Hospital dental practitioner

Safety and security

In general, participants believed dental teams having access to the GNCR would not pose a risk to the security of their information. Nonetheless, there were some concerns expressed regarding inappropriate use of patient information and specifically who should have access to such information:

Those who are not so used to the professional needs of privacy, confidentiality, and all of that, are not as careful about what they do with that information.

P.05 Member of Public

I mean, I'm not entirely sure how relevant it is for the nurse to know all that information or certainly the receptionist to know that level of detailed information but I do think having different levels of access does seem to kind of almost introduce that hierarchical kind of, you're not as important as me in the team whereas, actually it's probably just as important that the nurse knows if the person has got a medical problem.

P.02 General Medical Practitioner

There was a suggestion that having access to too much information about patients could burden dental teams and could even present its own risks for litigation:

> *General information, that in fact, is totally *irrelevant* is just wasteful of everyone's time. Because in the end, dentists won't read it anyway. They're going to get twenty odd pages of information around an individual. They're not going to have time to do the dentistry.*
>
> P.05 Member of Public

> *It's just such a big responsibility to have someone's medical history available. You know, it's just a different thing completely, so it would be an internal risk, it's just something new. It's something new, when there's seismic change like this, it always obviously has some securities that come with it, and some concerns.*
>
> P.01 GDP providing out-of-hours service

Some felt that patients should have a role in deciding the amount of information that dental services should have access to:

> *I think it would only be fair really for the patient to let us know, tell us how much they want us to know, and have that capability to hold some things back, let us know other things.*
>
> P.12 Corporate Dental Clinical Director

An important subtheme related to safety and security was identified in relation to litigation and intraprofessional criticism.

Considering providing access to the dental records within GNCR, some dental team participants expressed concerns about the potential for legal action against them, arising from other dental professionals being able to view their records. This was a negative aspect of including dentistry in the GNCR.

> *So, blue on blue, is um… dentists criticising other dentists' work. And this is a big, big issue. And I always tell my associates—and my colleagues—be very careful going blue on blue because often what happens is, when it ends up at the GDC, neither dentist is without blame. [...] And as a profession are we responsible enough to look at someone else's records… and be able to understand and read them properly? And, I don't know. So, having—the benefits of having access to the patient's previous dental records, obviously it gives an awful lot of history about what the patient's had done etc, but whether dentists can interpret that information correctly, and not jump to conclusions that are unwarranted is, I would have a doubt over.*
>
> P.01 GDP providing out-of-hours service

> *And that, is the one area where I think could lead to potential litigation, or more litigation, from people making judgements about—other people's treatments.*
>
> P.03 Dental Foundation Trainer and GDP

A contrasting viewpoint felt dental professionals viewing other dentists' records could be a possible learning opportunity. This may reflect the participants' current position on the career ladder, requiring them to be open to criticism.

> *I think fine. I think unless you're taking really bad notes, which you shouldn't be doing anyway, I feel like… they would be okay, I think. I think it would be good because then maybe if your notes aren't as good and another dentist sees your old notes, they could like tell you, "Oh, your notes are bad" and then you could try and improve them.*
>
> P.08 Dental Foundation Trainee

Value of records

Contrary to the concerns about data security, benefits of including dentistry in the GNCR were recognised by participants, though they acknowledged some may have initial reservations:

> *So, by exposing the right level of information to the right care setting, you can potentially reduce unnecessary risks. And just make things a little bit safer. And take the onus away from patients having to remember.*
>
> P.09 GNCR Information Officer

> *I think it can only be helpful really. I think like, I could imagine that everyone would be slightly uncomfortable with everyone being able to see their notes and things like that because at the minute it's not something that we're used to. But you know, like if for any reason you know, a patient requests their notes then obviously they're allowed to have them, so I think people would feel weird and uncomfortable about it at first, but there shouldn't be a real logical reason why we shouldn't be able to see, you know, just normal clinical records from the dentist.*
>
> P.03 Dental Foundation Trainer and GDP

Optimal GNCR design

Whilst participants could see value in a two-way design for incorporating dentistry into GNCR, they felt the greater advantage was of dental teams having access to medical records, than medical teams having access to dental records. They felt dental teams having access to a brief summary of relevant and up-to-date medical history would be most valuable:

> *What we want is that quick snapshot don't we? So, at a glance you can get that overall sense of how the patient is.*
>
> P.07 Dental Training Programme Director

> *If I was designing what was available, it would be basically that sheet I get from the doctor, which has all the medications on and all the relevant medical procedures they've had undertaken in the last year. And that's all I'd want.*
>
> P.01 GDP providing out-of-hours service

> *I think it would help dentists probably make better—you know, make more informed decisions, without having to quiz the patient and the patient might not understand that they're on blood thinners or something that might affect their dental treatment. Also yeah, you can just get a bit of a background into allergies as well, the patient might have forgotten. And also, it would probably stop the dentist having to ring the GPs and the GP having to ring the dentist, so probably save time on both sides for that as well.*
>
> P.10 General Medical Practitioner

> *The least important I would say would be seeing another, like dental records from another practice because we absolutely manage, at the moment, fine without being able to see records from other practices, and you know, if you really needed some information you could request it.*
>
> P.03 Dental Foundation Trainer and GDP

Discussion

This study, for the first time, explored stakeholders' perspectives of inclusion of dental services in the GNCR and two-way access to records. Along with identifying the facilitators and barriers, this study also details the stakeholders' perspectives of an optimal GNCR design integrating dental services. Stakeholders would value inclusion of dental services in the GNCR, but held some reservations regarding how much information would be shared, and who would have access to this information.

The primary advantage of integrating dental services to the GNCR was related to information accuracy about the patient's medical history without having to rely on patient recall. The dental environment is a setting where medical emergencies can occur, hence the requirement from the General Dental Council (2013) for all dental staff to be trained to handle medical emergencies. An accurate medical history can enable dental teams to implement appropriate safeguards during care and take appropriate action should an emergency arise. Furthermore, it can also ensure that the treatment provided is optimal for patient, for example, providing endodontic treatment instead of extractions for a patient taking bisphosphonates. The current reliance of dental teams on a patient-provided medical history could restrict this accuracy, potentially increasing the risk to patients. The value of accurate medical histories has been demonstrated in a previous study, which showed that access to even very brief patient information through NHS Summary Care Records supported decision-making and care in medical emergencies in other settings (NHS England, 2020). Interestingly, primary and community dental settings are not currently included in the Summary Care Record scheme either.

Stakeholders perceived that information sharing within GNCR could improve efficiency. The current administrative burden for both parties was highlighted when information that could influence dental care provision had to be sought from other healthcare providers e.g. cardiac history to determine whether antibiotic prophylaxis was indicated (British National Formulary, 2023; SDCEP, 2018). This aligns with the findings of GNCR's Public Engagement Report (Mulrine *et al.*, 2018), in which patients anticipated that sharing data would make healthcare professionals' jobs easier and that they would also personally benefit from not having to repeat themselves to other healthcare professionals.

Interestingly, sharing of dental records with other healthcare providers, including other dental professionals, was viewed less favourably. Stakeholders acknowledged the potential benefits of dental professionals knowing what care had been provided to new patients, such as investigations and monitoring of chronic conditions such as periodontitis (West *et al.*, 2021). Nonetheless, benefits were undermined by fears of litigation and intraprofessional criticism. The need to practice 'defensive dentistry' is a direct consequence of the litigious environment dental professionals are now subjected to (Holden, 2014). Nonetheless, to the authors knowledge, this is the first time that a study has revealed the concerns that dental professionals have about being reported to their regulatory body by another dental professional in relation to their records.

This study also highlighted how incorporating dental services into the GNCR could address the current exclusion of dental services from the wider healthcare team, and acknowledge the importance of the care provided. The literature describes a historical separation between dentistry and general healthcare, which has not yet been overcome, despite a wealth of evidence to demonstrate how the two fields are inextricably linked, not least due to common risk factors for the most prevalent conditions (Faculty of Dental Surgery, 2019; Peres *et al.*, 2019; Simon, 2016). Furthermore, with access to dental services becoming increasingly difficult, those with oral healthcare problems are presenting at other healthcare services in a bid to seek care (Allareddy *et al.*, 2014; Currie *et al.*, 2017; 2022). Our data suggest that inclusion of dental services into GNCR could not only improve communication between dental services and the wider healthcare team, but could also start to rectify the long-standing exclusion perceived by dental care providers.

This study has a number of strengths. This is a novel area, explored for the first time, and we involved a breadth of interested parties. The research team comprised individuals with a range of skills and areas of interest, and particular attention was paid to reflexivity. Despite the researchers' efforts, it was not possible to identify a dental care professional to take part due to the time limitation of the study. It is likely that a dental care professional would have had different experiences and perspectives than the other stakeholders to enrich the results.

Whilst there is an intention to include dental services in the GNCR, further research is necessary to establish exactly what information would be relevant for different healthcare professionals to have access to.

In conclusion, stakeholders supported the inclusion of primary care dentistry in the GNCR, provided that the data were used responsibly, and that the system aids information safety and efficiency. If these changes were implemented, as they are intended to be, the concerns highlighted in this study should be considered.

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