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“We don’t seem to engage with dentists”: A qualitative study of primary care healthcare staff and patients in the North East of England

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3 **“We don’t seem to engage with dentists”**: A qualitative study of primary care
4 **healthcare staff and patients in the North East of England**
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ABSTRACT

Objective: To explore the attitudes towards, and perceptions of, primary care healthcare staff and patients, regarding the role of clinical pharmacists in the provision of oral health advice and collaboration with dentists in general practice.

Design: Interpretivist methodology using qualitative semi-structured interviews and focus groups.

Participants: 22 participants; 10 pharmacists; 3 general practitioners, 2 nurses, 1 practice manager, 6 patients.

Setting: Primary care general medical practices in the North East of England and the University of Sunderland Patient Carer Public Involvement group.

Methods: One-to-one semi-structured interviews were performed with primary care healthcare staff. Integration of constant comparative analysis within a Grounded Theory approach facilitated the ongoing enrichment of data. Salient themes were identified using Ritchie and Spencer's Framework Analysis and related back to extant literature. A focus group was held with patients to further explore key themes.

Results: Four salient and inter-related themes emerged: (1) enhanced clinical roles; indicating rapidly changing roles of pharmacists working in general practice, increased responsibility and accountability of pharmacist prescribers, and the delivery of advanced clinical services; (2) limited knowledge; indicating basic understanding of appropriate oral health advice, but limited insight and provision of advice to patients with regards to the links with systemic diseases and medication; (3) geographical/situational isolation of the dental team; indicating the disparate context of multidisciplinary working in oral health and patients' attitudes towards dental care; (4) integration of oral health advice; indicating the potential of pharmacists to integrate oral health advice into current roles and to target specific patient groups in general practice.

Conclusions:

The lack of integration between oral and general healthcare services potentially impacts negatively on patient care. The role of the pharmacist in general practice is rapidly evolving

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3 and represents an opportunity to integrate oral health advice and/or interventions into the
4 management of patients in this setting.
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Strengths and limitations of this study

- There is limited research into the role of pharmacists in this setting; this is the first qualitative study that has explored the role of pharmacists as part of the general practice team in relation to oral healthcare.
- A wide range of general practice healthcare professionals and patients participated in this study; however a limited number of general practitioners participated and no dentists were interviewed.
- Semi-structured interviews provided rich qualitative data and an iterative process of concurrent data collection and constant comparative analysis facilitated the simultaneous exploration, refinement and enrichment of key themes.
- Participants were provided with a participant information leaflet in advance of data collection as part of the process of gaining informed consent, therefore exposing participants to the concepts before their scheduled interview.

Introduction

Oral health conditions are thought to affect a significant proportion of the world's population, approximately 3.9 billion people worldwide and cost the NHS in England £3.4 billion per year.(1-2) The most recent Adult Dental Health Survey (2009) stated that 23% of the UK population do not attend a dentist.(3) Oral health is important for general health and wellbeing, and there is increasing evidence that has linked periodontitis to a number of diseases, such as cardiovascular disease and diabetes.(4-5)

Wilson and Soni's recent opinion piece in the British Dental Journal highlighted the potential for a collaborative approach between pharmacy and dentistry in the management of chronic diseases, such as diabetes and the potential capacity for pharmacists to encourage hard-to-reach individuals to become dental attenders.(6)

Approximately half of the adults in the UK are affected by some level of periodontitis; a chronic inflammatory disease caused by bacterial infection of the supporting tissues surrounding the teeth.(3) This condition is usually painless and often goes unnoticed and untreated until it reaches an advanced stage.(7) The Cochrane Collaboration published a review in 2015, highlighting that randomised controlled trials have demonstrated that periodontal therapy is associated with a 3-4 mmol/mol (0.3-0.4%) reduction in HbA1c levels after 3 months;(8) this is a clinical impact equivalent to adding a second drug to a pharmacological regimen.(9) There is evidence that even a modest reduction in HbA1c is associated with improving outcomes for patients with type 2 diabetes; a 1% reduction in HbA1c has been associated with a 21% reduction in diabetes related death, 14% reduction in myocardial infarctions and 37% reduction in microvascular complications.(10) There is clear evidence of a bidirectional relationship between periodontitis and diabetes; poorly controlled diabetes increases the risk of periodontitis 2-3 times, and in turn periodontitis is associated with higher HbA1c levels and worse diabetes complications.(11,12) There is also evidence of an association between atherosclerotic cardiovascular disease and poor oral health.(13)

A number of medications can negatively impact oral health, representing a significant opportunity for pharmacists to provide advice in relation to the prevention and management of these issues. For example, polypharmacy and a high anticholinergic burden are associated with the development of xerostomia and inhaled corticosteroids with oropharyngeal adverse events, such as oral candidiasis.(14-15) Calcium channel blockers such as nifedipine,

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3 ciclosporin and phenytoin are all associated with development of drug-induced gingival
4 overgrowth.(16) Medication-related osteonecrosis of the jaw (MRONJ) is a rare, yet significant
5 complication of anti-resorptive and anti-angiogenic drugs used in the treatment of
6 osteoporosis and cancer.(17) MRONJ is difficult to treat and significantly impacts on patient's
7 quality of life;(18) therefore a multidisciplinary approach to prevention is usually
8 recommended.(17)

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11 Evidence suggests that pharmacists working in a community pharmacy setting see the
12 provision of oral health promotion to be part of their professional role. An oral health
13 promotion intervention in the North East of England demonstrated patient's acceptance to
14 the pharmacist's intervention and a positive intention to change oral health habits.(19) To the
15 authors knowledge, no studies have explored the utilisation of pharmacists working in general
16 practice to provide patients with oral health advice; however a systematic review of
17 pharmacists working in general practice found favourable results in various areas of chronic
18 disease management and the optimal use of medicines.(20)

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21 Following a successful pilot, NHS England's General Practice Forward view (2016) committed
22 to the investment of £112 million to further develop this role with the aim of providing an
23 additional 1500 clinical pharmacists to the general practice workforce by 2020.(21) The
24 Primary Care Pharmacy Associations, Clinical Pharmacist in General Practice Job Description
25 sets out the duties and areas of responsibility for pharmacists in this setting in the UK;(22) this
26 includes managing long-term conditions, performing medication reviews, implementing
27 medication safety guidance, supporting public health campaigns and signposting to
28 appropriate healthcare professionals. The provision of oral health advice, the delivery of
29 targeted oral health interventions and referrals to dental practitioners could fall under all of
30 these areas and are explored in our study.

Aims

- 1) To explore the attitudes towards and perceptions of primary care healthcare staff and patients, regarding the role of the clinical pharmacist in providing oral health advice in a general practice setting
- 2) To explore any potential barriers and/or facilitators in utilising pharmacists in general practice to improve the interprofessional management of oral health

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METHOD

Design:

A Grounded Theory approach was adopted throughout this research; an initial topic guide (Supplementary Document 1) was produced serving as a benchmark for semi-structured one-to-one interviews which were audio recorded and transcribed verbatim.⁽²³⁾ A key element of Grounded Theory is constant comparative analysis, facilitated by the concurrent and iterative process of data collection and analysis.⁽²⁴⁾ This process provided the opportunity for the further exploration of emergent themes through subsequent data collection. Framework Analysis (Ritchie and Spencer, 2002) provided a systematic approach to the identification and analysis of salient themes.⁽²⁵⁾ A focus group was held with patients to explore key themes following the collection and analysis of data from healthcare professionals.

Participants:

General practice healthcare professionals were recruited from across the North East of England. Four distinct professional groups were recruited to the study: [1] pharmacists working in general practice; [2] GPs; [3] general practice administrative staff; and [4] general practice nurses.

An invitation letter (Supplementary Document 2) and participant information sheet (Supplementary Document 3) were posted to medical practices in the region; an initial convenience sample of participants who responded to the invitation was implemented with further recruitment facilitated via snowball sampling.

Patient participants were recruited from the University of Sunderland Patient Carer and Public Involvement (PCPI) group; participant information sheets were emailed to PCPI representatives and those that responded to the invitation participated in a focus group.

Analysis:

Constant comparative analysis facilitated the identification and further exploration of salient themes through an iterative process of data collection and analysis. Ritchie and Spencer's Framework Analysis (2002),⁽²⁵⁾ provided a systematic five-stage approach to data analysis; familiarisation with the data; development of a thematic framework; indexing data; charting

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3 of the data and mapping of the data. Themes were reviewed by the research team until
4 definitive concepts could be produced from the data.
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7 **Ethical review:**
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10 Ethical approval was obtained from the University of Sunderland Research Ethics Committee
11 prior to data collection (REF: 002856)
12
13

14 **Patient Involvement:**
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16
17 The principal investigator met with a patient representative from the University of Sunderland
18 PCPI Group to discuss the initial design and ethical implications of the study. Following the
19 collection and analysis of data from healthcare professionals, a focus group was held with 6
20 patients; the focus group facilitated the refinement of emerging concepts and the co-
21 construction of overarching themes.
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Results

22 participants were recruited to this study (Table 1 and 2). In-depth semi-structured interviews were carried out between October 2018 and April 2019 until no new themes emerged and extant ones were exhausted. Interviews took place at participants' places of work or at the University of Sunderland, with two interviews performed via telephone for logistical reasons; 1 hour was designated for each interview. 6 patients participated in a focus group, lasting 1 hour, held in April 2019 at the University of Sunderland.

Table 1. Healthcare Professional Participant Characteristics

| Participant | Identifier | Role | No. years' experience | Gender |
|-------------|------------|----------------------|-----------------------|--------|
| 1 | Ph1 | Pharmacist | 5-9 | Female |
| 2 | Ph2 | Pharmacist | 10-14 | Male |
| 3 | Ph3 | Pharmacist | <5 | Female |
| 4 | Ph4 | Pharmacist | >20 | Female |
| 5 | Ph5 | Pharmacist | 10-14 | Female |
| 6 | Ph6 | Pharmacist | 5-9 | Male |
| 7 | Ph7 | Pharmacist | 10-14 | Female |
| 8 | Ph8 | Pharmacist | 10-14 | Male |
| 9 | Ph9 | Pharmacist | <5 | Female |
| 10 | Ph10 | Pharmacist | 15-19 | Female |
| 11 | PM1 | Practice Manager | >20 | Female |
| 12 | GP1 | General Practitioner | 15-19 | Female |
| 13 | GP2 | General Practitioner | <5 | Male |
| 14 | GP3 | General Practitioner | >20 | Male |
| 15 | N1 | Nurse | 15-19 | Female |
| 16 | N2 | Nurse | >20 | Female |

Table 2. Patient Participant Characteristics

| Participant | Identifier | Role | Age | Gender |
|-------------|------------|---------|-------------|--------|
| 1 | Pt1 | Patient | 50-59 years | Female |
| 2 | Pt2 | Patient | 60-69 years | Male |
| 3 | Pt3 | Patient | 50-59 years | Female |
| 4 | Pt4 | Patient | 60-69 years | Male |
| 5 | Pt5 | Patient | 40-49 years | Female |
| 6 | Pt6 | Patient | 60-69 years | Female |

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3 Four salient inter-related themes emerged from the data: (1) enhanced clinical roles; (2)
4 limited knowledge; (3) geographical /situational isolation of the dental team; (4) integration
5 of oral health advice.
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8 9 **1. Enhanced clinical roles**

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11 Participants described the accessibility of pharmacists as part of the general practice team,
12 providing a complementary skill set to existing staff that adds to the provision of services
13 provided at practices.
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18 I'm directly contactable face-to-face by prescribers, GPs, nurse practitioners, nurses,
19 admin team, everything. They can just come directly into my office and ask me for
20 information. So, I'm probably more likely to be utilised clinically. In community
21 pharmacy, you obviously have other responsibilities as well and the pharmacist also
22 takes on the role of the manager. (Ph1)
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28 The role was seen as rapidly evolving, with pharmacists involved with, and leading, more
29 advanced, patient facing clinical services that contribute positively to patient care.
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33 Our roles in the surgeries are evolving and perhaps new to some, but I found it on the
34 whole to be very very positive and that the other staff have been accepting. (Ph8)
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36
37 Many of the pharmacist participants had prescribing qualifications and were utilising these
38 skills in their role. This facilitates a higher level of clinical service, but it also results in a
39 consequently greater degree of responsibility and accountability.
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43 I'm in quite an advanced clinical role now. So I do a lot of diagnostics and treating
44 myself. I'm a prolific prescriber. (Ph7)
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47
48 Participants described a key role of pharmacists in relation to the management of chronic
49 long-term conditions; with a specific focus on optimising therapy and providing detailed,
50 clinically focused medication reviews.
51

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53 I would see patients for medication reviews, particularly the complex ones, the ones
54 with polypharmacy in particular come to me. It would be about making sure they are
55 on the right regimens, making sure they haven't got any adverse effects and maybe
56 stopping drugs if no longer appropriate. (Ph4)
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3 The management of high-risk medications and the reconciliation of medication provided on
4 discharge or from a specialist setting was seen as an important part of the pharmacist's role.
5 This includes following up on monitoring requirements, liaising with community pharmacies
6 and updating medical records to accurately reflect patient's current medication.
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10
11 Some of my work is quite administrative, so dealing with queries, issues from
12 community pharmacies, discharge prescriptions or hospital letters, things like that.
13 Making sure that patient's medication lists are correct, particularly with medicines
14 started on discharge or in outpatients, you know, ones with shared care agreements
15 or high-risk drugs. (Ph3)
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21 The provision of lifestyle and preventive advice was seen as a key role for pharmacists,
22 complementing work done by practice nurses; this would typically include signposting
23 patients and formal interprofessional referral where required.
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27 There is an increasing amount of work for GPs, and I think the lifestyle issues seem to
28 get shifted down the line as to what we are able to focus on, its often not what the
29 patient presents with. I think both pharmacists and nurses are good at doing that, it is
30 about prioritising in that short time you have. (GP1)
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35 Some of the patients had experience of having appointments with pharmacists in general
36 practice. Those who had reported favourable experiences and were positive towards the
37 benefits for their care; with a particular focus on reviewing medications and reducing the
38 known side-effects of prescribed medicines.
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43 She (pharmacist) rang up to discuss the medication because they were changing my
44 insulin. So, she was on about ten minutes going through everything that I was on to
45 make sure I was happy, everything was balanced, no side-effects and she decided to
46 change a couple of things that I'd been on for a number of years. She was really helpful
47 and its definitely better now. (Pt1)
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52
53 Some patients had not experienced services provided by pharmacists in this role; a number of
54 participants perceived that the benefit of pharmacists resulted from the accessible locations
55 and opening hours of community pharmacies and were concerned that the pharmacist in
56 general practice would become another healthcare professional with whom making
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3 appointments was challenging. This was a common experience of patients when trying to
4 make appointments with general practice staff.
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7 You could get a doctor's appointment more easily when we were young. But I think
8 people tend to just to pop in a pharmacy, I think there's more information in the
9 pharmacy now, there is no wait for appointments and they are open all the time. (Pt3)
10
11

12
13 If you have to wait to get an appointment with the pharmacist at the doctor's surgery,
14 you may as well just see the doctor or whatever else, the point of a pharmacist to me
15 is that it's, like, around the corner and it's easy. (Pt6)
16
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19 **2. Limited knowledge**

20
21 All healthcare professional participants reported limited knowledge of basic oral health advice
22 and would try to signpost patients to dental services where possible, but perceived that they
23 were able to manage common conditions, such as a mouth ulcer, and provide basic oral
24 hygiene advice.
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30 You will get people presenting to surgery with queries around the mouth generally.
31 Perhaps unexplained problems. It might be anything from halitosis, to soreness, to
32 ulcers, to even presenting with dental abscess because they'd rather come to us than
33 go to a dentist. We try to signpost them to a dentist, but we can deal with some of the
34 minor issues. (N1)
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40 The primary care staff participants described the presentation of patients in general practice
41 with dental problems, such as dental pain and likely infections. Participants described limited
42 knowledge in the assessment and management of dental infections; GPs would typically
43 signpost these patients to a dentist, but did report a perceived duty of care to help this patient
44 group if the patient was unable/unwilling to attend a dental appointment.
45
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49 Even if a GP thinks, 'actually, I think it's an abscess' he or she's got a duty of care to
50 treat that infection and not to leave it, even if we don't know a great deal about more
51 complex dental issues. Especially when they say they don't have a dentist. (Ph10)
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56 Participants had limited knowledge of the links between oral and systemic health; with oral
57 health advice not usually forming part of discussions with patients in high risk groups, such as
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3 those with diabetes and with multidisciplinary diabetes teams not including dental
4 professionals.
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7 I haven't really heard of links between the two. I see lots of patients with diabetes and
8 it is definitely not something that I would tell patients about. (Ph5)
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11 Although not a direct focus of interventions, pharmacists described a key role in the
12 deprescribing of medications in patients with a high anticholinergic burden. These patients
13 would typically complain of xerostomia and this would be used by some as an incentive to
14 stop or reduce implicated medicines.
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17
18 I look to stop some medicines during medication or falls reviews, medicines that have
19 antimuscarinic side-effects, so like those for urinary incontinence or tricyclic
20 antidepressants that cause, like a drying effect, and patients experience dry mouth.
21
22 (Ph1)
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27
28 The pharmacists were aware of MRONJ, mainly due to historic Medicines Healthcare
29 Regulatory Agency safety alerts. The actioning of these alerts was described as a key role of
30 the practice pharmacist; participants reported that following safety alerts patients were
31 identified and provided signposting advice, however pharmacist and GP participants
32 acknowledged that these alerts are often forgotten or lose focus and need to become longer
33 term initiatives, not isolated alerts.
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38
39 I remember a couple of years ago, there was an alert and where we set it up so that all
40 new patients going on a bisphosphonate got told to have a dental check-up before
41 they went on. Now, I don't know – I haven't seen anything around that lately and I've
42 got a feeling that might have lapsed a bit. Or at least I'm not aware of it happening.
43
44 (Ph4)
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49
50 The patient participants identified that their knowledge in relation to oral health has almost
51 exclusively come from their dentist or their parents as a child. None of the participants
52 described receiving any oral health advice from other healthcare professionals.
53

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55 I think it would be from my mum and dad and then the dentist. I don't think anyone
56 else has ever talked about oral health with me, maybe the school nurse a long time
57 ago. (Pt5)
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3 All participants described a need and willingness to receive further education and training on
4 oral health; this was perceived as a deficit in both undergraduate training in post registration
5 continuing professional development.
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9 I think it would be useful to have more training – directed at general practice. I think
10 most of us know the basics, but not really much depth, especially around how oral
11 health and just general health and wellbeing are related. (Ph3)
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15 **3. Geographical/situational isolation of the dental team;**

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18 General practice staff reported limited collaboration with dental colleagues in primary care,
19 with no formal referral pathways between medical and dental services and a lack of
20 communication between the professional groups.
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24 I would say there is anonymity really. If you compare it with, for example, local
25 opticians where we have frequent interactions, albeit by paper, we don't really get
26 any, sort of, direct contact. Not that I can recall. (GP3)
27
28

29
30 We don't seem to engage with dentists. In fact, the only time that I ever had a proper
31 conversation with a dentist was when I worked in community pharmacy and that
32 would have been over an incorrect prescription or an out of stock item. And I just think,
33 you know, there is a lot of cross conversations that we could have. (Ph10)
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38
39 There were concerns about the lack of information shared between primary medical and
40 dental services and the impact that this has on patient safety; with dentists not having access
41 to patient's past medical or medication history and general practice staff not receiving
42 information about the care or interventions provided in a dental setting. This included a lack
43 of information on medication prescribed by dentists.
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49 We would never know if the dentists had prescribed any antibiotics or anything for a
50 patient. Yet, if anyone else in the primary healthcare team prescribes anything for our
51 patients, we know. We would get either a letter or a fax summary, something sent over
52 to say this is what's happened in this patient (Ph7)
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56
57 Both patients and the healthcare professionals described their own and their patient's
58 reluctance to engage fully with dental services; barriers include the cost of both preventive
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3 and remedial dental work, dental phobias and a lack of education on the benefits of good oral
4 health.
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6
7 The area I am in is very deprived and actually, I would say that the majority don't ever
8 visit the dentist, I think they just don't see it as important and loads of them just don't
9 have the money, and fear, loads of people hate seeing a dentist unless it's absolutely
10 necessary. (Ph5)
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14
15 The patients also reported a perceived segregation between the dental and medical
16 professions, with historic stereotyping contributing to their formative understanding of each
17 role. This was described as a barrier in engaging with oral healthcare outside of a dental
18 setting, as historically this is not an environment that patients associate with dental care
19 provision.
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24
25 I think it's just the way society has brought us up in that there are two defining
26 people, dentists and doctors. Anything to do with dentists, you go to the dentist
27 anything about your health you go to the doctors. They have always been seen as
28 separate. (Pt6)
29
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33 **4. Integration of oral health advice**

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35 Pharmacists working in general practice have better access to patient medical records than
36 their community pharmacy colleagues and are therefore well placed to identify patients who
37 may be suitable for targeted interventions. For example, the practice diabetes register or
38 those patients prescribed medications with oral health-related adverse effects, such as
39 bisphosphonates, could be easily identified and invited for review by the pharmacist.
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44
45 In GP practices, people are coded appropriately, as smokers, or based on specific
46 conditions, or you could look at medications that are associated with oral complications
47 and target those people. It is easy enough to identify potential higher risk patients. (Ph1)
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51 Participants described the role of the pharmacist in optimising medication regimens and their
52 specific focus on providing input into patient care through chronic disease management clinics
53 and medication reviews. All participants agreed that the provision of appropriate lifestyle
54 advice should form a key element of these consultations.
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3 Generally, I think pharmacists can focus on medicines and do a really good job getting
4 those right, but with the, let's call it, soft interventions, lifestyle advice etc., they seem
5 to work better when they're repeated by various people. (GP3)
6
7
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9 Participants reported that consultations with the pharmacist are typically less time pressured
10 than GP appointments; with most pharmacist participants not routinely involved in providing
11 acute care. This time could facilitate the provision of more detailed consultations,
12 representing an opportunity to incorporate oral health advice into current practices.
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17 My clinics could easily be timetabled for 20 minutes instead of 10, and as I don't really
18 see acute patients or have the same time pressures as some of the GPs or practice
19 nurses. I can talk longer and to go into more detail about things, there is scope to take
20 more time and really reinforce the key messages. (Ph2)
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25 I don't see any reason why you can't promote oral hygiene at a doctor's practice, you
26 can promote it, give people the information so they are properly informed. Then it is
27 up to them. (Pt2)
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31 The incorporation of basic oral health advice can be integrated into the current role of the
32 pharmacist; however, participants reported a need for more direction from service
33 commissioners to provide more complex interventions and to improve interprofessional
34 collaboration with dental professionals.
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39 There is loads that we could do and as a practice we could just do it to give a better quality
40 of care, but if it is a paid service or linked to certain targets etc then there may be more
41 incentive to focus on it. (Ph2)
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Discussion

Our research has highlighted the disparate contexts of provision of oral and general healthcare in the North East of England. This is further hindered by a lack of communication between medical and dental service providers and no shared access to medical records. The evolving role of the clinical pharmacist in general practice is facilitating the provision of additional clinical services and is improving patient care.(20,26) The provision of oral healthcare by pharmacists in general practice is limited at present, but this role represents an opportunity to target at risk patients and incorporate appropriate advice into current services.

Our findings are similar to those of Bissett et al (2013) with general practice staff demonstrating limited knowledge of the bidirectional relationship between periodontitis and diabetes.(7) Their study did not specifically include pharmacists and the subsequent enhancement of the clinical pharmacist in general practice role discussed in our study represents an unexplored opportunity to improve medical and dental collaboration.

Previous studies have identified a role for pharmacists working in a community pharmacy setting to provide oral health advice to patients.(19,27-30) Our study has explored the expanding role of the pharmacist in the general practice setting; this has received significant funding from the NHS and forms a key component of NHS England's General Practice Forward View (2016).(21) Further exploration of the potential roles of pharmacists in this setting is required to establish the impact made on patient care.

Further consideration needs to be made by both clinicians and policymakers to better integrate oral health into holistic healthcare provision. Research by Bissett et al (2019) identified that dentists tend not to contact GPs regarding the management of patients with diabetes, and when they do so, they typically communicate through the patient, as opposed to through formal referral channels.(31) Participants in our study reported little collaboration between general practice and dentists, with a lack of formal referral pathways and the limited sharing of patient information. More than 96% of the population of England have a Summary Care Record (SCR) that can be accessed from a variety of NHS service providers; however, NHS dental practices do not currently have access to SCRs.(32) This represents a barrier to optimal patient care, but also potentially results in a risk to patient safety; dentists are currently reliant on patients to be able to provide accurate medication histories and general practice staff are

1
2
3 potentially unaware of medication prescribed by dentists. Access to medical records in dental
4 practices could facilitate a reduction in patient safety concerns that arise as a result of
5 incomplete or inaccurate information and encourage better communication between
6
7 settings. Participants in our study described a key role for pharmacists in general practice in
8
9 relation to the reconciliation of medicines and the maintenance of accurate medication
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11 histories; this represents an opportunity to ensure the flow of correct information between
12
13 care settings and could be utilised if records were shared between medical and dental service
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15 providers.
16

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18 Participants described the presentation of patients in general practice with oral health
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20 complaints; this was perceived to be due to issues with patients accessing dental services, the
21
22 cost of dental treatment in the United Kingdom and patients' phobias of dentists. The
23
24 healthcare professional participants reported some knowledge in relation to basic oral health
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26 advice, however further education is required of general practice staff to address the limited
27
28 knowledge of the associated links between oral health and systemic diseases. This is the first
29
30 study that has explored the role of the pharmacist in general practice in relation to the
31
32 provision of oral health advice, but these findings are consistent with those from our previous
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34 qualitative studies and the literature in relation to community pharmacists and other
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36 healthcare professionals.

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38 Pharmacists are now providing more complex clinical services in general practice,
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40 representing an opportunity to enhance service provision, taking both increased responsibility
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42 and accountability; this represents an opportunity to facilitate the provision of oral health
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44 advice by this professional group and optimise patient care.

45
46 Our study has shown that pharmacists in general practice represent a new avenue for the
47
48 provision of oral health advice and/or interventions and further research to explore the
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50 potential for this group to impact on patient care is needed; however the integration of this
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52 could potentially have significant benefits to patients.
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Conclusion

Participants reported the relatively disparate contexts of oral and general healthcare services; the limited dental input into the multidisciplinary primary care team, a lack of communication and the absence of access to medical records by relevant primary care health professionals are potentially impacting on capacity to provide optimal patient care.

Further education in relation to oral health is required; however, the established links between periodontitis and diabetes, and the association of specific medicines with oral health-related adverse drug reactions represent a key focus for pharmacists who are becoming increasingly responsible and accountable for patient care in general practice.

The role of the clinical pharmacist working in general practice is rapidly evolving and represents an opportunity to integrate oral health advice into the management of patients in this setting. Further work to explore the benefit and impact of providing oral health care by this professional group in general practice ought to be explored.

1
2
3 **Acknowledgements:** We thanks the participants who generously gave their time
4

5
6 **Author Contributors:** AS, SW, CH and PP designed the study. AS recruited the participants and
7 carried out the study. AS identified the thematic framework and interpreted the data. AS, SW,
8 PP and CH reviewed and refined the data. AS wrote the paper and all authors revised it. AS
9 received training in qualitative research skills by the research team and through attendance
10 at a Qualitative Research Methods in Health Course at University College London.
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15 **Data Sharing:** Participant information sheets and invitation letters are included
16 (Supplementary Documents 2 and 3); no further data shared.
17

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19
20 **Funding:** This work was supported by an internal research award from the University of
21 Sunderland.
22

23
24 **Competing interests:** None
25

26
27 **Ethics approval:** Ethical approval was obtained from the University of Sunderland Research
28 Ethics Committee (REF: 002856)
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An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Initial Topic Guide

The following guide outlines the key areas for exploration during the interview.

Aims and objectives

- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff regarding the role of the pharmacist in oral health
- To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, regarding the role of the pharmacist in providing oral health promotion and interventions
- To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

Introduction

Aim: To introduce the research and set the context for the proceeding discussion

- Introduce self: Researchers background, University of Sunderland
- Introduce the study: what it is about
- Talk through key points
 - This will be a conversation where I will ask you questions
 - It will last between 30 and 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to, just let me know that you want to move on
 - Participation is voluntary and participant can withdraw at any time
- Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
- The interview will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
- This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
- Does the participant have any questions?



An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

All Participants

Background of participant

Prompts: age, employment, experience, undergraduate training, postgraduate training

Education on oral health

Prompts: undergraduate and postgraduate training, CPD, discipline only education or interprofessional, what was the focus

Current practices - pharmacists

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why

Links between prescribed medication and oral health problems - pharmacists

Prompts: MRONJ, bisphosphonates, awareness, current practices, role with this patient group, any other issues xerostomia, oral cancer etc.

Links between diabetes and periodontal disease - pharmacists

Prompts: Awareness of links, significance of links, benefits of periodontal treatment

Current practices in diabetic patients - pharmacists

Prompts: Is oral health promotion in this group part of your current practice, if not why not, if yes how do you deliver this

Current practices – GPs/Admin/Nurses

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why, knowledge of systemic diseases and medications affecting oral health

Perceived role of the practice pharmacist in oral health – GPs/Admin/Nurses

Prompts: Is there a role, is this a priority what does this look like, barriers, facilitators

Interprofessional working in oral health

Prompts: Current practices, what works, doesn't work and why, what are the challenges, how could this improve, learning from other areas

Experiences of interprofessional working

Prompts: Good examples, what makes it work well, what doesn't, frequency, in relation to diabetes

Education on the role of other healthcare professionals

Prompts: Particularly between medicine/dentistry/pharmacy, understanding of professional roles

Anything further to discuss?

Next steps

- Thank the participant
- Do they have any remaining questions about the research
- Reassurance around confidentiality and anonymity



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8 Mr Andrew Sturrock
9 School of Pharmacy and Pharmaceutical Sciences
10 Faculty of Health Sciences and Wellbeing
11 Sciences Complex
12 City Campus
13 Chester Road
14 University of Sunderland
15 SR1 3SD
16 Email: andrew.sturrock@sunderland.ac.uk
17 Tel: 01915152448
18
19

20 Dear Sir/Madam
21

22 My name is Andrew Sturrock; I am a Principal Lecturer in Pharmacy Practice at the University
23 of Sunderland. I am writing to you as an invitation to take part in a research project that I am
24 running in conjunction with Scott Wilkes, Professor of General Practice and Primary Care.
25

26 Please find enclosed the participant information sheet, outlining the background to the study
27 and what is required of participants.
28

29 Participation can be either in person at your practice or via a scheduled telephone appointment.
30 If you would like to take part in the study please contact me via [email](#) or telephone at the above
31 address or complete and return the response form in the prepaid envelope included with this
32 letter.
33

34
35 Yours faithfully
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37 Andrew Sturrock
38 Principal Lecturer– Pharmacy Practice
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I would like find out more about the study and I am happy for a member of the research team to contact me

Contact details *(Please enter your contact details below)*

Title: _____ Dr/Mr/Mrs/Ms/Miss *(please delete as appropriate)*

Name: _____

Telephone contact number: _____

A convenient time to call is: _____ Between _____ and _____

Please return this slip in the envelope provided. A member of research team will contact you on the contact number provided above.



Participant Information Sheet

Study title:

An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England.

What is the purpose of this study?

This study is looking to explore the current practices and feasibility of primary care pharmacists providing oral health promotion and interventions in a general practice setting.

Who can take part?

This study requires participants from five different groups;

1. General Practice Pharmacists, registered with the General Pharmaceutical Council
2. General Medical Practitioners, registered with the General Medical Council
3. General Practice Administrative Staff – Practice Managers at General Medical Practices
4. General Practice Nurses, registered with the Nursing & Midwifery Council
5. Patients, recruited from the University Patient Carer Public Involvement Group

Do I have to take part and can I change my mind?

Participation is entirely voluntary. If you change your mind about taking part in the study, you can withdraw at any point during the session without giving a reason and without penalty. Once the anonymised transcripts have been produced you will not be able to withdraw from the study. After the interview has been completed audio recording will be transcribed within 7 days.

What will happen to me if I take part?

We would like your help with this study by asking you to talk to one of our team members for up to an hour. We will audio record this conversation so that it is easier for us to make notes later about what was said. The interview can take place in person or via telephone, at your place of work, at the University of Sunderland, or we can come to your home to talk to you. The researcher will ask you a series of questions in relation to the study title and your experiences in practice, from which there are absolutely no right or wrong answers. Your answers may lead to further discussion around any point or topics raised.

What are the possible disadvantages and risks of taking part?

We don't think that there are any risks associated with taking part in this study.

What if something goes wrong?

If you change your mind about participation, please contact me by email to cancel your participation. If you feel unhappy about the conduct of the study, please contact me immediately or the Chairperson of the University of Sunderland Research Ethics Group, whose contact details are given below.



Participant Information Sheet

Will my taking part in this study be kept confidential?

The University of Sunderland is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Sunderland will keep identifiable information about you; a list of participants and signed consent forms will be stored securely by the principle investigator for a period of up to 2 years. Audio recordings and transcripts will be stored securely by the principle investigator for a period of up to 6 years. Access will be restricted to the research team and persons authorised by the University for Quality Assurance purposes.

Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided, the first participant will be given the code P1, the numerical value will change with each subsequent participant e.g. P2, P3 etc.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting the Principal Investigator, Andrew Sturrock andrew.sturrock@sunderland.ac.uk or Dr John Fulton, Chair of the University of Sunderland Research Ethics Group john.fulton@sunderland.ac.uk.

What will happen to the results of this study?

If suitable, the results may be presented at academic conferences and/or written up for publication in peer reviewed academic journals. A summary of the results will be made available to participants if you choose to receive a copy.

Who is organising and funding the research?

The research is being done by a research team at the University of Sunderland. The Chief Investigator for the project is Andrew Sturrock. His title is 'Principal Lecturer' and he is based in the School of Pharmacy and Pharmaceutical Sciences.

This project has received no external funding.

Who has reviewed the study?

The University of Sunderland Research Ethics Group has reviewed and approved the study.

Contact for further information:

Doctor John Fulton (Chair of the University of Sunderland Research Ethics Group, University of Sunderland) Email: john.fulton@sunderland.ac.uk Phone: 0191 515 2529

Who can I contact if I have questions about the study?



Participant Information Sheet

If you have any questions, we would like you to get in touch with us. You can do this by telephoning us on 0191 5152448 or you can email us on andrew.sturrock@sunderland.ac.uk

What should I do if I want to take part?

If you don't have any questions and would like to take part, please can you fill in the **Response Form** and send it to us. Please let us know the best way for us to get in touch with you. We don't know how many practitioners will want to help us so we might find we have too many and we may not need to ask for your help. Once we have your form, someone from the research team will get in touch with you and let you know if we do need your help or not. If we do they will arrange the best time and place for you to meet and talk to us.

Thank you for taking the time to read this information.

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

| No. Item | Guide questions/description | Reported on Page # | Details |
|--|--|--------------------------|--|
| Domain 1: Research team and reflexivity | | | |
| <i>Personal Characteristics</i> | | | |
| 1. Interviewer/facilitator | Which author/s conducted the interview or focus group? | 21 | Andrew Sturrock (AS) |
| 2. Credentials | What were the researcher's credentials? E.g. PhD, MD | 1 | AS has an MSc in Clinical Pharmacy |
| 3. Occupation | What was their occupation at the time of the study? | 1 | Principal Lecturer – Master of Pharmacy Programme Leader |
| 4. Gender | Was the researcher male or female? | 1 | Male |
| 5. Experience and training | What experience or training did the researcher have? | 1 + 21 | AS received training in qualitative research skills by the research team and through attendance at a Qualitative Research Methods in Health Course at University College London. |
| <i>Relationship with participants</i> | | | |
| 6. Relationship established | Was a relationship established prior to study commencement? | 8 | Invitation letter and participant information sheets were posted out prior to the study. |
| 7. Participant knowledge of the interviewer | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | Supplementary document 3 | A participant information sheet was provided to all participants. |
| 8. Interviewer characteristics | What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | 1+21 | AS is a pharmacist. Interest in the research topic was developed due to teaching commitments on the MPharm programme at the University of Sunderland. The multidisciplinary team was assembled to reduce bias in the research process. |
| Domain 2: study design | | | |
| <i>Theoretical framework</i> | | | |
| 9. Methodological orientation and Theory | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 8 | A Grounded Theory approach, with constant comparative analysis. |

| | | | |
|----------------------------------|--|----|---|
| <i>Participant selection</i> | | | |
| 10. Sampling | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 8 | A convenience sampling and snowball sampling method were adopted |
| 11. Method of approach | How were participants approached? e.g. face-to-face, telephone, mail, email | 8 | An invitation letter and information sheets were posted (Supplementary Documents 2-3) |
| 12. Sample size | How many participants were in the study? | 10 | 22 participants |
| 13. Non-participation | How many people refused to participate or dropped out? Reasons? | 22 | No participants who responded to the invitation refused to participate or dropped out of the study. |
| <i>Setting</i> | | | |
| 14. Setting of data collection | Where was the data collected? e.g. home, clinic, workplace | 10 | Data were collected at a time and place convenient to the interviewee; this was at their place of work, telephone and at the University of Sunderland |
| 15. Presence of non-participants | Was anyone else present besides the participants and researchers? | 8 | Interviews were held on a one-to-one basis or as a Focus Group. |
| 16. Description of sample | What are the important characteristics of the sample? e.g. demographic data, date | 10 | As displayed in table 1 and 2. |
| <i>Data collection</i> | | | |
| 17. Interview guide | Were questions, prompts, guides provided by the authors? Was it pilot tested? | 8 | Interview guide was developed and refined by the research team. Included as (Supplementary Document 1) |
| 18. Repeat interviews | Were repeat interviews carried out? If yes, how many? | 8 | No repeat interviews were performed |
| 19. Audio/visual recording | Did the research use audio or visual recording to collect the data? | 8 | Audio recording |
| 20. Field notes | Were field notes made during and/or after the interview or focus group? | 8 | No field notes were taken due to the verbatim transcribing |
| 21. Duration | What was the duration of the interviews or focus group? | 10 | Up to 1 hour |
| 22. Data saturation | Was data saturation discussed? | 10 | Data were analysed by AS, with transcripts and emerging themes cross-checked for interpretation and agreed amongst the research team. Constant comparative analysis was utilised as a means of enriching the data through |

| | | | |
|--|---|-------|---|
| | | | iterative data collection and analysis |
| 23. Transcripts returned | Were transcripts returned to participants for comment and/or correction? | 8 | No |
| Domain 3: analysis and findings | | | |
| <i>Data analysis</i> | | | |
| 24. Number of data coders | How many data coders coded the data? | 21 | AS identified the thematic framework and interpreted the data, which was reviewed and refined by the research team. |
| 25. Description of the coding tree | Did authors provide a description of the coding tree? | N/A | A description of the coding tree is not provided. |
| 26. Derivation of themes | Were themes identified in advance or derived from the data? | 8 | Themes were derived from the data |
| 27. Software | What software, if applicable, was used to manage the data? | N/A | |
| 28. Participant checking | Did participants provide feedback on the findings? | 8 | No |
| <i>Reporting</i> | | | |
| 29. Quotations presented | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 11-17 | Quotation are presented with clearly identifiable participant numbers |
| 30. Data and findings consistent | Was there consistency between the data presented and the findings? | 11-17 | Yes |
| 31. Clarity of major themes | Were major themes clearly presented in the findings? | 11-17 | Yes |
| 32. Clarity of minor themes | Is there a description of diverse cases or discussion of minor themes? | 11-17 | Yes |

BMJ Open

“We don’t seem to engage with dentists”: A qualitative study of primary care healthcare staff and patients in the North East of England

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3 **“We don’t seem to engage with dentists”**: A qualitative study of primary care
4 **healthcare staff and patients in the North East of England**
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ABSTRACT

Objective: To explore the attitudes towards, and perceptions of, primary care healthcare staff and patients, regarding the role of clinical pharmacists in the provision of oral health advice and collaboration with dentists in general practice.

Design: Interpretivist methodology using qualitative semi-structured interviews and focus groups.

Participants: 22 participants; 10 pharmacists; 3 general practitioners, 2 nurses, 1 practice manager, 6 patients.

Setting: Primary care general medical practices in the North East of England and the University of Sunderland Patient Carer Public Involvement group.

Methods: One-to-one semi-structured interviews were performed with primary care healthcare staff. Integration of constant comparative analysis within a Grounded Theory approach facilitated the ongoing enrichment of data. Salient themes were identified using Ritchie and Spencer's Framework Analysis and related back to extant literature. A focus group was held with patients to further explore key themes.

Results: Four salient and inter-related themes emerged: (1) enhanced clinical roles; indicating rapidly changing roles of pharmacists working in general practice, increased responsibility and accountability of pharmacist prescribers, and the delivery of advanced clinical services; (2) limited knowledge; indicating basic understanding of appropriate oral health advice, but limited insight and provision of advice to patients with regards to the links with systemic diseases and medication; (3) geographical/situational isolation of the dental team; indicating the disparate context of multidisciplinary working in oral health and patients' attitudes towards dental care; (4) integration of oral health advice; indicating the potential of pharmacists to integrate oral health advice into current roles and to target specific patient groups in general practice.

Conclusions:

The lack of integration between oral and general healthcare services potentially impacts negatively on patient care. The role of the pharmacist in general practice is rapidly evolving

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3 and represents an opportunity to integrate oral health advice and/or interventions into the
4 management of patients in this setting.
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For peer review only

Strengths and limitations of this study

- There is limited research into the role of pharmacists in this setting; this is the first qualitative study that has explored the role of pharmacists as part of the general practice team in relation to oral healthcare.
- A wide range of general practice healthcare professionals and patients participated in this study; however a limited number of general practitioners participated and no dentists were interviewed.
- Semi-structured interviews provided rich qualitative data and an iterative process of concurrent data collection and constant comparative analysis facilitated the simultaneous exploration, refinement and enrichment of key themes.
- Participants were provided with a participant information leaflet in advance of data collection as part of the process of gaining informed consent, therefore exposing participants to the concepts before their scheduled interview.

Introduction

Oral health conditions are thought to affect a significant proportion of the world's population, approximately 3.9 billion people worldwide and cost the NHS in England £3.4 billion per year.(1-2) The most recent Adult Dental Health Survey (2009) stated that 23% of the UK population do not attend a dentist.(3) Oral health is important for general health and wellbeing, and there is increasing evidence that has linked periodontitis to a number of diseases, such as cardiovascular disease and diabetes.(4-5)

Wilson and Soni's recent opinion piece in the British Dental Journal highlighted the potential for a collaborative approach between pharmacy and dentistry in the management of chronic diseases, such as diabetes and the potential capacity for pharmacists to encourage hard-to-reach individuals to become dental attenders.(6) In the United Kingdom, dental treatment is available privately or provided as part of the National Health Service (NHS). However, even under NHS arrangements, the majority of patients pay a contribution towards the cost of care their care, and currently care is charged into 1 of 3 bands (Band 1 £22.70; Band 2 £62.10; Band 3 £269.30) depending on the extent and complexity of treatment that is needed.(7)

Approximately half of the adults in the UK are affected by some level of periodontitis; a chronic inflammatory disease caused by bacterial infection of the supporting tissues surrounding the teeth.(3) This condition is usually painless and often goes unnoticed and untreated until it reaches an advanced stage.(8) The Cochrane Collaboration published a review in 2015, highlighting that randomised controlled trials have demonstrated that periodontal therapy is associated with a 3-4 mmol/mol (0.3-0.4%) reduction in HbA1c levels after 3 months;(9) this is a clinical impact equivalent to adding a second drug to a pharmacological regimen.(10) There is evidence that even a modest reduction in HbA1c is associated with improving outcomes for patients with type 2 diabetes; a 1% reduction in HbA1c has been associated with a 21% reduction in diabetes related death, 14% reduction in myocardial infarctions and 37% reduction in microvascular complications.(11) There is clear evidence of a bidirectional relationship between periodontitis and diabetes; poorly controlled diabetes increases the risk of periodontitis 2-3 times, and in turn periodontitis is associated with higher HbA1c levels and worse diabetes complications.(12,13) There is also evidence of an association between atherosclerotic cardiovascular disease and poor oral health.(14)

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3 A number of medications can negatively impact oral health, representing a significant
4 opportunity for pharmacists to provide advice in relation to the prevention and management
5 of these issues. For example, polypharmacy and a high anticholinergic burden are associated
6 with the development of xerostomia and inhaled corticosteroids with oropharyngeal adverse
7 events, such as oral candidiasis.(15-16) Calcium channel blockers such as nifedipine,
8 ciclosporin and phenytoin are all associated with development of drug-induced gingival
9 overgrowth.(17) Medication-related osteonecrosis of the jaw (MRONJ) is a rare, yet significant
10 complication of anti-resorptive and anti-angiogenic drugs used in the treatment of
11 osteoporosis and cancer.(18) MRONJ is difficult to treat and significantly impacts on patient's
12 quality of life;(19) therefore a multidisciplinary approach to prevention is usually
13 recommended.(18)

14
15 Evidence suggests that pharmacists working in a community pharmacy setting see the
16 provision of oral health promotion to be part of their professional role. An oral health
17 promotion intervention in the North East of England demonstrated patient's acceptance to
18 the pharmacist's intervention and a positive intention to change oral health habits.(20) To the
19 authors knowledge, no studies have explored the utilisation of pharmacists working in general
20 practice to provide patients with oral health advice; however a systematic review of
21 pharmacists working in general practice found favourable results in various areas of chronic
22 disease management and the optimal use of medicines.(21)

23
24 Following a successful pilot, NHS England's General Practice Forward view (2016) committed
25 to the investment of £112 million to further develop this role with the aim of providing an
26 additional 1500 clinical pharmacists to the general practice workforce by 2020.(22) The
27 Primary Care Pharmacy Associations, Clinical Pharmacist in General Practice Job Description
28 sets out the duties and areas of responsibility for pharmacists in this setting in the UK;(23) this
29 includes managing long-term conditions, performing medication reviews, implementing
30 medication safety guidance, supporting public health campaigns and signposting to
31 appropriate healthcare professionals. Each of these areas represents an opportunity for the
32 provision of oral health advice or interventions from clinical pharmacists. This could
33 potentially include the prevention or management of the oral health-related adverse drug
34 effects outlined above and the promotion of good oral hygiene to patients. The role of clinical
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3 pharmacist in the provision of oral health advice and collaboration with dentists in general
4 practice is explored in our study.
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For peer review only

Aims

- 1) To explore the attitudes towards and perceptions of primary care healthcare staff and patients, regarding the role of the clinical pharmacist in providing oral health advice in a general practice setting
- 2) To explore any potential barriers and/or facilitators in utilising pharmacists in general practice to improve the interprofessional management of oral health

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METHOD

Design:

A Grounded Theory approach was adopted throughout this research; an initial topic guide (Supplementary Document 1) was produced serving as a benchmark for semi-structured one-to-one interviews which were audio recorded and transcribed verbatim.⁽²⁴⁾ A key element of Grounded Theory is constant comparative analysis, facilitated by the concurrent and iterative process of data collection and analysis.⁽²⁵⁾ This process provided the opportunity for the further exploration of emergent themes through subsequent data collection. Framework Analysis (Ritchie and Spencer, 2002) provided a systematic approach to the identification and analysis of salient themes.⁽²⁶⁾ A focus group was held with patients to explore key themes; a topic guide (Supplementary Document 2) was produced following the collection and analysis of data from healthcare professionals.

Participants:

General practice healthcare professionals were recruited from 12 practices across the North East of England. Four distinct professional groups were recruited to the study: [1] pharmacists working in general practice; [2] GPs; [3] general practice administrative staff; and [4] general practice nurses.

An invitation letter (Supplementary Document 3) and participant information sheet (Supplementary Document 4) were posted to medical practices in the region; an initial convenience sample of participants who responded to the invitation was implemented with further recruitment facilitated via snowball sampling.

Patient participants were recruited from the University of Sunderland Patient Carer and Public Involvement (PCPI) group; participant information sheets were emailed to PCPI representatives and those that responded to the invitation participated in a focus group. Informed consent was obtained (Supplementary Document 5) before participation in the interviews and focus groups ; no participants withdrew or refused to participate.

Analysis:

Constant comparative analysis facilitated the identification and further exploration of salient themes through an iterative process of data collection and analysis. Ritchie and Spencer's

1
2
3 Framework Analysis (2002),(26) provided a systematic five-stage approach to data analysis;
4 familiarisation with the data; development of a thematic framework; indexing data; charting
5 of the data and mapping of the data. Themes were reviewed by the research team until
6 definitive concepts could be produced from the data.
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10 **Ethical review:**

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13 Ethical approval was obtained from the University of Sunderland Research Ethics Committee
14 prior to data collection (REF: 002856)
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18 **Patient Involvement:**

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20 The principal investigator met with a patient representative from the University of Sunderland
21 PCPI Group to discuss the initial design and ethical implications of the study. Following the
22 collection and analysis of data from healthcare professionals, a focus group was held with 6
23 patients; the focus group facilitated the refinement of emerging concepts and the co-
24 construction of overarching themes.
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Results

22 participants were recruited to this study (Table 1 and 2). In-depth semi-structured interviews were carried out between October 2018 and April 2019 until no new themes emerged and extant ones were exhausted. Interviews took place at participants' places of work or at the University of Sunderland, with two interviews performed via telephone for logistical reasons; 1 hour was designated for each interview. 6 patients participated in a focus group, lasting 1 hour, held in April 2019 at the University of Sunderland.

Table 1. Healthcare Professional Participant Characteristics

| Participant | Identifier | Role | No. years' experience | Gender |
|-------------|------------|----------------------|-----------------------|--------|
| 1 | Ph1 | Pharmacist | 5-9 | Female |
| 2 | Ph2 | Pharmacist | 10-14 | Male |
| 3 | Ph3 | Pharmacist | <5 | Female |
| 4 | Ph4 | Pharmacist | >20 | Female |
| 5 | Ph5 | Pharmacist | 10-14 | Female |
| 6 | Ph6 | Pharmacist | 5-9 | Male |
| 7 | Ph7 | Pharmacist | 10-14 | Female |
| 8 | Ph8 | Pharmacist | 10-14 | Male |
| 9 | Ph9 | Pharmacist | <5 | Female |
| 10 | Ph10 | Pharmacist | 15-19 | Female |
| 11 | PM1 | Practice Manager | >20 | Female |
| 12 | GP1 | General Practitioner | 15-19 | Female |
| 13 | GP2 | General Practitioner | <5 | Male |
| 14 | GP3 | General Practitioner | >20 | Male |
| 15 | N1 | Nurse | 15-19 | Female |
| 16 | N2 | Nurse | >20 | Female |

Table 2. Patient Participant Characteristics

| Participant | Identifier | Role | Age | Gender |
|-------------|------------|---------|-------------|--------|
| 1 | Pt1 | Patient | 50-59 years | Female |
| 2 | Pt2 | Patient | 60-69 years | Male |
| 3 | Pt3 | Patient | 50-59 years | Female |
| 4 | Pt4 | Patient | 60-69 years | Male |
| 5 | Pt5 | Patient | 40-49 years | Female |
| 6 | Pt6 | Patient | 60-69 years | Female |

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3 Four salient inter-related themes emerged from the data and a coding tree was produced
4 (Supplementary Document 6): (1) enhanced clinical roles; (2) limited knowledge; (3)
5 geographical /situational isolation of the dental team; (4) integration of oral health advice.
6
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8 9 **1. Enhanced clinical roles**

10
11 Participants highlighted the accessibility of pharmacists as part of the general practice team,
12 providing a complementary skill set to existing staff that enhances the provision of services
13 provided at practices.
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18 I'm directly contactable face-to-face by prescribers, GPs, nurse practitioners, nurses,
19 admin team, everything. They can just come directly into my office and ask me for
20 information. So, I'm probably more likely to be utilised clinically. In community
21 pharmacy, you obviously have other responsibilities as well and the pharmacist also
22 takes on the role of the manager. (Ph1)
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27
28 Participants identified that general practice is a rapidly evolving role for pharmacists, who are
29 increasingly involved with, and leading, more advanced, patient facing clinical services that
30 contribute positively to patient care.
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34 Our roles in the surgeries are evolving and perhaps new to some, but I found it on the
35 whole to be very very positive and that the other staff have been accepting. (Ph8)
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39 Many of the pharmacist participants described providing a higher level of clinical service
40 facilitated through obtaining postgraduate prescribing qualifications, resulting in a greater
41 degree of clinical responsibility and accountability.
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44
45 I'm in quite an advanced clinical role now. So I do a lot of diagnostics and treating
46 myself. I'm a prolific prescriber. (Ph7)
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49
50 Participants perceived that the management of chronic long-term conditions, with a specific
51 focus on optimising therapy and the provision of detailed, clinically focused medication
52 reviews to be a key role for pharmacists in this setting.
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56 I would see patients for medication reviews, particularly the complex ones, the ones
57 with polypharmacy in particular come to me. It would be about making sure they are
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3 on the right regimens, making sure they haven't got any adverse effects and maybe
4 stopping drugs if no longer appropriate. (Ph4)
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7 The management of high-risk medications and the reconciliation of medication provided on
8 discharge or from a specialist setting was seen as an important part of the pharmacist's role.
9 This includes following up on monitoring requirements, liaising with community pharmacies
10 and updating medical records to accurately reflect patient's current medication.
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15 Some of my work is quite administrative, so dealing with queries, issues from
16 community pharmacies, discharge prescriptions or hospital letters, things like that.
17 Making sure that patient's medication lists are correct, particularly with medicines
18 started on discharge or in outpatients, you know, ones with shared care agreements
19 or high-risk drugs. (Ph3)
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25 The provision of lifestyle and preventive advice was seen as a key role for pharmacists,
26 complementing work done by practice nurses; this would typically include signposting
27 patients and formal interprofessional referral where required.
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31 There is an increasing amount of work for GPs, and I think the lifestyle issues seem to
32 get shifted down the line as to what we are able to focus on, its often not what the
33 patient presents with. I think both pharmacists and nurses are good at doing that, it is
34 about prioritising in that short time you have. (GP1)
35
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39 Some of the patients had experience of having appointments with pharmacists in general
40 practice. Those who had reported favourable experiences and were positive towards the
41 benefits for their care; with a particular focus on reviewing medications and reducing the
42 known side-effects of prescribed medicines.
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47 She (pharmacist) rang up to discuss the medication because they were changing my
48 insulin. So, she was on about ten minutes going through everything that I was on to
49 make sure I was happy, everything was balanced, no side-effects and she decided to
50 change a couple of things that I'd been on for a number of years. She was really helpful
51 and its definitely better now. (Pt1)
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57 Some patients had not experienced services provided by pharmacists in this role; a number of
58 participants perceived that the benefit of pharmacists resulted from the accessible locations
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3 and opening hours of community pharmacies and were concerned that the pharmacist in
4 general practice would become another healthcare professional with whom making
5 appointments was challenging. This was a common experience of patients when trying to
6 make appointments with general practice staff.
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10
11 You could get a doctor's appointment more easily when we were young. But I think
12 people tend to just to pop in a pharmacy, I think there's more information in the
13 pharmacy now, there is no wait for appointments and they are open all the time. (Pt3)
14
15

16
17 If you have to wait to get an appointment with the pharmacist at the doctor's surgery,
18 you may as well just see the doctor or whatever else, the point of a pharmacist to me
19 is that it's, like, around the corner and it's easy. (Pt6)
20
21
22

23 **2. Limited knowledge**

24
25 All healthcare professional participants reported limited knowledge of basic oral health advice
26 and would try to signpost patients to dental services where possible, but perceived that they
27 were able to manage common conditions, such as a mouth ulcer, and provide basic oral
28 hygiene advice.
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33
34 You will get people presenting to surgery with queries around the mouth generally.
35 Perhaps unexplained problems. It might be anything from halitosis, to soreness, to
36 ulcers, to even presenting with dental abscess because they'd rather come to us than
37 go to a dentist. We try to signpost them to a dentist, but we can deal with some of the
38 minor issues. (N1)
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43
44 The primary care staff participants described the presentation of patients in general practice
45 with dental problems, such as dental pain and likely infections. Participants described limited
46 knowledge in the assessment and management of dental infections; GPs would typically
47 signpost these patients to a dentist, but did report a perceived duty of care to help this patient
48 group if the patient was unable/unwilling to attend a dental appointment.
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54 Even if a GP thinks, 'actually, I think it's an abscess' he or she's got a duty of care to
55 treat that infection and not to leave it, even if we don't know a great deal about more
56 complex dental issues. Especially when they say they don't have a dentist. (Ph10)
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3 Participants had limited knowledge of the links between oral and systemic health; with oral
4 health advice not usually forming part of discussions with patients in high risk groups, such as
5 those with diabetes and with multidisciplinary diabetes teams not including dental
6 professionals.
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9

10
11 I haven't really heard of links between the two. I see lots of patients with diabetes and
12 it is definitely not something that I would tell patients about. (Ph5)
13
14

15 Although not a direct focus of interventions, pharmacists described a key role in the
16 deprescribing of medications in patients with a high anticholinergic burden. These patients
17 would typically complain of xerostomia and this would be used by some as an incentive to
18 stop or reduce implicated medicines.
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22

23 I look to stop some medicines during medication or falls reviews, medicines that have
24 antimuscarinic side-effects, so like those for urinary incontinence or tricyclic
25 antidepressants that cause, like a drying effect, and patients experience dry mouth.
26
27
28
29 (Ph1)
30

31 The pharmacists were aware of MRONJ, mainly due to historic Medicines Healthcare
32 Regulatory Agency safety alerts. The actioning of these alerts was described as a key role of
33 the practice pharmacist; participants reported that following safety alerts patients were
34 identified and provided signposting advice, however pharmacist and GP participants
35 acknowledged that these alerts are often forgotten or lose focus and need to become longer
36 term initiatives, not isolated alerts.
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42

43 I remember a couple of years ago, there was an alert and where we set it up so that all
44 new patients going on a bisphosphonate got told to have a dental check-up before
45 they went on. Now, I don't know – I haven't seen anything around that lately and I've
46 got a feeling that might have lapsed a bit. Or at least I'm not aware of it happening.
47
48
49
50 (Ph4)
51
52

53 The patient participants identified that their knowledge in relation to oral health has almost
54 exclusively come from their dentist or their parents as a child. None of the participants
55 described receiving any oral health advice from other healthcare professionals.
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3 I think it would be from my mum and dad and then the dentist. I don't think anyone
4 else has ever talked about oral health with me, maybe the school nurse a long time
5 ago. (Pt5)
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9 All participants described a need and willingness to receive further education and training on
10 oral health; this was perceived as a deficit in both undergraduate training in post registration
11 continuing professional development.
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14
15 I think it would be useful to have more training – directed at general practice. I think
16 most of us know the basics, but not really much depth, especially around how oral
17 health and just general health and wellbeing are related. (Ph3)
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19
20

21 **3. Geographical/situational isolation of the dental team;**

22
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24 General practice staff reported limited collaboration with dental colleagues in primary care,
25 with no formal referral pathways between medical and dental services and a lack of
26 communication between the professional groups.
27
28

29
30 I would say there is anonymity really. If you compare it with, for example, local
31 opticians where we have frequent interactions, albeit by paper, we don't really get
32 any, sort of, direct contact. Not that I can recall. (GP3)
33
34

35
36 We don't seem to engage with dentists. In fact, the only time that I ever had a proper
37 conversation with a dentist was when I worked in community pharmacy and that
38 would have been over an incorrect prescription or an out of stock item. And I just think,
39 you know, there is a lot of cross conversations that we could have. (Ph10)
40
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43
44 There were concerns about the lack of information shared between primary medical and
45 dental services and the impact that this has on patient safety; with dentists not having access
46 to patient's Summary Care Records and general practice staff not receiving information about
47 the care or interventions provided in a dental setting. This included a lack of information on
48 medication prescribed by dentists.
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54 We would never know if the dentists had prescribed any antibiotics or anything for a
55 patient. Yet, if anyone else in the primary healthcare team prescribes anything for our
56 patients, we know. We would get either a letter or a fax summary, something sent over
57 to say this is what's happened in this patient (Ph7)
58
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2
3 Both patients and the healthcare professionals described their own and their patient's
4 reluctance to engage fully with dental services; barriers include the cost of both preventive
5 and remedial dental work, dental phobias and a lack of education on the benefits of good oral
6 health.
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11 The area I am in is very deprived and actually, I would say that the majority don't ever
12 visit the dentist, I think they just don't see it as important and loads of them just don't
13 have the money, and fear, loads of people hate seeing a dentist unless it's absolutely
14 necessary. (Ph5)
15
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18
19 The patients also reported a perceived segregation between the dental and medical
20 professions, with historic stereotyping contributing to their formative understanding of each
21 role. This was described as a barrier in engaging with oral healthcare outside of a dental
22 setting, as historically this is not an environment that patients associate with dental care
23 provision.
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28
29 I think it's just the way society has brought us up in that there are two defining
30 people, dentists and doctors. Anything to do with dentists, you go to the dentist
31 anything about your health you go to the doctors. They have always been seen as
32 separate. (Pt6)
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37 **4. Integration of oral health advice**

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39 Pharmacists working in general practice have better access to patient medical records than
40 their community pharmacy colleagues and are therefore well placed to identify patients who
41 may be suitable for targeted interventions. For example, the practice diabetes register or
42 those patients prescribed medications with oral health-related adverse effects, such as
43 bisphosphonates, could be easily identified and invited for review by the pharmacist.
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49 In GP practices, people are coded appropriately, as smokers, or based on specific
50 conditions, or you could look at medications that are associated with oral complications
51 and target those people. It is easy enough to identify potential higher risk patients. (Ph1)
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55 Participants described the role of the pharmacist in optimising medication regimens and their
56 specific focus on providing input into patient care through chronic disease management clinics
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3 and medication reviews. All participants agreed that the provision of appropriate lifestyle
4 advice should form a key element of these consultations.
5

6
7 Generally, I think pharmacists can focus on medicines and do a really good job getting
8 those right, but with the, let's call it, soft interventions, lifestyle advice etc., they seem
9 to work better when they're repeated by various people. (GP3)
10
11

12
13 Participants reported that consultations with the pharmacist are typically less time pressured
14 than GP appointments; with most pharmacist participants not routinely involved in providing
15 acute care. This time could facilitate the provision of more detailed consultations,
16 representing an opportunity to incorporate oral health advice into current practices.
17
18

19
20 My clinics could easily be timetabled for 20 minutes instead of 10, and as I don't really
21 see acute patients or have the same time pressures as some of the GPs or practice
22 nurses. I can talk longer and to go into more detail about things, there is scope to take
23 more time and really reinforce the key messages. (Ph2)
24
25

26
27 I don't see any reason why you can't promote oral hygiene at a doctor's practice, you
28 can promote it, give people the information so they are properly informed. Then it is
29 up to them. (Pt2)
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31

32
33 The incorporation of basic oral health advice can be integrated into the current role of the
34 pharmacist; however, participants reported a need for more direction from professional
35 bodies or the commissioners of local or national services to provide more complex
36 interventions and to improve interprofessional collaboration with dental professionals.
37
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39
40 There is loads that we could do and as a practice we could just do it to give a better quality
41 of care, but if it is a paid service or linked to certain targets etc then there may be more
42 incentive to focus on it. (Ph2)
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Discussion

Our research has highlighted the disparate contexts of provision of oral and general healthcare in the North East of England. This is further hindered by a lack of communication between medical and dental service providers and no shared access to medical records. The evolving role of the clinical pharmacist in general practice is facilitating the provision of additional clinical services and is improving patient care.(21,27) The provision of oral healthcare by pharmacists in general practice is limited at present, but this role represents an opportunity to target at risk patients and incorporate appropriate advice into current services.

The limited knowledge of oral health reported by our participants is similar to findings published in the literature.(28) In particular, our findings in relation to the limited knowledge of general practice staff of the bidirectional relationship between periodontitis and diabetes match those by Bissett et al 2013.(8) Their study did not specifically include pharmacists and the subsequent enhancement of the clinical pharmacist in general practice role discussed in our study represents an unexplored opportunity to improve medical and dental collaboration.

Previous studies have identified a role for pharmacists working in a community pharmacy setting to provide oral health advice to patients.(20,29-32) Our study has explored the expanding role of the pharmacist in the general practice setting; this has received significant funding from the NHS and forms a key component of NHS England's General Practice Forward View (2016).(21) Further exploration of the potential roles of pharmacists in this setting is required to establish the impact made on patient care.

Further consideration needs to be made by both clinicians and policymakers to better integrate oral health into holistic healthcare provision. Research by Bissett et al (2019) identified that dentists tend not to contact GPs regarding the management of patients with diabetes, and when they do so, they typically communicate through the patient, as opposed to through formal referral channels.(33) Participants in our study reported little collaboration between general practice and dentists, with a lack of formal referral pathways and the limited sharing of patient information. A lack of shared information between medical and dental services was identified by participants in our study as a risk to patient safety. More than 96% of the population of England have a Summary Care Record (SCR) that can be accessed from a variety of NHS service providers; however, NHS dental practices do not currently have access

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3 to SCRs.(34) This represents a barrier to optimal patient care, but also potentially results in a
4 risk to patient safety; dentists are currently reliant on patients to be able to provide accurate
5 medication histories and general practice staff are potentially unaware of medication
6 prescribed by dentists. Access to medical records in dental practices could improve
7 collaboration,(35) facilitate a reduction in patient safety concerns that arise as a result of
8 incomplete or inaccurate information. For example accurate medication histories could
9 reduce the risk of dentists inadvertently prescribing medication that interacts with existing
10 therapy or missing dentally important drugs such as bisphosphonates and could encourage
11 better communication between settings. Participants in our study described a key role for
12 pharmacists in general practice in relation to the reconciliation of medicines and the
13 maintenance of accurate medication histories; this represents an opportunity to ensure the
14 flow of correct information between care settings and could be utilised if records were shared
15 between medical and dental service providers.
16

17
18 Participants described the presentation of patients in general practice with oral health
19 complaints; this was perceived to be due to issues with patients accessing dental services, the
20 cost of dental treatment in the United Kingdom and patients' phobias of dentists. The
21 healthcare professional participants reported some knowledge in relation to basic oral health
22 advice, however there is a clear need for further education of non-dental health professionals
23 to address the limited knowledge of the associated links between oral health and systemic
24 diseases.
25

26
27 This is the first study that has explored the role of the pharmacist in general practice in relation
28 to the provision of oral health advice, but these findings are consistent with those in the
29 literature in relation to community pharmacists and other healthcare professionals.(8,20)
30 There is also a need for further interprofessional education between the professional groups,
31 as identified our previous qualitative studies and in research outside of the UK.(36) This could
32 act to improve collaboration, reduce the perceived isolation of dental services and optimise
33 patient care.
34

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36 Pharmacists are now providing more complex clinical services in general practice,
37 representing an opportunity to enhance service provision, taking both increased responsibility
38 and accountability; this represents an opportunity to facilitate the provision of oral health
39 advice by this professional group and optimise patient care.
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3 Our study has shown that pharmacists in general practice represent a new avenue for the
4 provision of oral healthcare. Professional bodies and the commissioners of healthcare services
5 at both a local and national level should consider utilising pharmacists in general practice to
6 provide oral health related advice and/or interventions. Further research to explore the
7 potential for this group to impact on patient care is needed; however the integration of this
8 could potentially have significant benefits to patients.
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For peer review only

Conclusion

Participants reported the relatively disparate contexts of oral and general healthcare services; the limited dental input into the multidisciplinary primary care team, a lack of communication and the absence of access to medical records by relevant primary care health professionals are potentially impacting on capacity to provide optimal patient care.

Further education in relation to oral health is required; however, the established links between periodontitis and diabetes, and the association of specific medicines with oral health-related adverse drug reactions represent a key focus for pharmacists who are becoming increasingly responsible and accountable for patient care in general practice.

The role of the clinical pharmacist working in general practice is rapidly evolving and represents an opportunity to integrate oral health advice into the management of patients in this setting. Further work to explore the benefit and impact of providing oral health care by this professional group in general practice ought to be explored.

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4

5
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23
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An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Initial Topic Guide

The following guide outlines the key areas for exploration during the interview.

Aims and objectives

- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff regarding the role of the pharmacist in oral health
- To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, regarding the role of the pharmacist in providing oral health promotion and interventions
- To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

Introduction

Aim: To introduce the research and set the context for the proceeding discussion

- Introduce self: Researchers background, University of Sunderland
- Introduce the study: what it is about
- Talk through key points
 - This will be a conversation where I will ask you questions
 - It will last between 30 and 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to, just let me know that you want to move on
 - Participation is voluntary and participant can withdraw at any time
- Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
- The interview will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
- This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
- Does the participant have any questions?



An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

All Participants

Background of participant

Prompts: age, employment, experience, undergraduate training, postgraduate training

Education on oral health

Prompts: undergraduate and postgraduate training, CPD, discipline only education or interprofessional, what was the focus

Current practices - pharmacists

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why

Links between prescribed medication and oral health problems - pharmacists

Prompts: MRONJ, bisphosphonates, awareness, current practices, role with this patient group, any other issues xerostomia, oral cancer etc.

Links between diabetes and periodontal disease - pharmacists

Prompts: Awareness of links, significance of links, benefits of periodontal treatment

Current practices in diabetic patients - pharmacists

Prompts: Is oral health promotion in this group part of your current practice, if not why not, if yes how do you deliver this

Current practices – GPs/Admin/Nurses

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why, knowledge of systemic diseases and medications affecting oral health

Perceived role of the practice pharmacist in oral health – GPs/Admin/Nurses

Prompts: Is there a role, is this a priority what does this look like, barriers, facilitators

Interprofessional working in oral health

Prompts: Current practices, what works, doesn't work and why, what are the challenges, how could this improve, learning from other areas

Experiences of interprofessional working

Prompts: Good examples, what makes it work well, what doesn't, frequency, in relation to diabetes

Education on the role of other healthcare professionals

Prompts: Particularly between medicine/dentistry/pharmacy, understanding of professional roles

Anything further to discuss?

Next steps

- Thank the participant
- Do they have any remaining questions about the research
- Reassurance around confidentiality and anonymity



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5 **An explorative study into the feasibility of oral health promotion and interventions**
6 **by pharmacists working in general practice. A qualitative study in the North East of**
7 **England**
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9 **Focus Group Topic Guide**

10 The following guide outlines the key areas for exploration during the interview.
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13 **Aims and objectives**

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- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff and patients regarding the role of the pharmacist in oral health
 - To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, and patients regarding the role of the pharmacist in providing oral health promotion and interventions
 - To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

23 **Introduction**

24 *Aim: To introduce the research and set the context for the proceeding discussion*

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- Introduce self: Researchers background, University of Sunderland
 - Introduce the study: what it is about
 - Talk through key points
 - This will be a conversation where I will some questions
 - These questions can then be discussed amongst the group
 - It will last between approximately 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to
 - Participation is voluntary and participant can withdraw at any time
 - It is important that only one person talks at any time
 - Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
 - The focus group will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
 - This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
 - Do the participants have any questions?



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An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

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All Participants

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Roles of the GP practice pharmacist

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Prompts: What has been your current experience/attitudes towards this role, what sort of work do you think practice pharmacists do, length of appointments, focus of this role, crossover or segregation between GP role and nurse's role.

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Patient education on oral health

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Prompts: Where has it come from, which healthcare professionals have talked about oral health with you, awareness of any link between oral and systemic health, side-effects of medications, expectations of who should do this

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Barriers to dental services

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Prompts: Access, costs, phobias, priority of oral health, education

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Communication between general practice and the dental team

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Prompts: Current thoughts, expectations, ways to improve, good examples of interprofessional work in practice

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Opportunities for pharmacists in this role

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Prompts: What else could pharmacists do, incorporation of oral health advice into medication reviews and chronic disease management, signposting, acceptability of oral health advice from this professional group

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Anything further to discuss?

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Next steps

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- Thank the participants
 - Do they have any remaining questions about the research
 - Reassurance around confidentiality and anonymity



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8 Mr Andrew Sturrock
9 School of Pharmacy and Pharmaceutical Sciences
10 Faculty of Health Sciences and Wellbeing
11 Sciences Complex
12 City Campus
13 Chester Road
14 University of Sunderland
15 SR1 3SD
16 Email: andrew.sturrock@sunderland.ac.uk
17 Tel: 01915152448
18
19

20 Dear Sir/Madam
21

22
23 My name is Andrew Sturrock; I am a Principal Lecturer in Pharmacy Practice at the University
24 of Sunderland. I am writing to you as an invitation to take part in a research project that I am
25 running in conjunction with Scott Wilkes, Professor of General Practice and Primary Care.
26

27 Please find enclosed the participant information sheet, outlining the background to the study
28 and what is required of participants.
29

30 Participation can be either in person at your practice or via a scheduled telephone
31 appointment. If you would like to take part in the study please contact me via [email](#) or
32 telephone at the above address or complete and return the response form in the prepaid
33 envelope included with this letter.
34

35 Yours faithfully
36

37 Andrew Sturrock
38 Principal Lecturer– Pharmacy Practice
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I would like find out more about the study and I am happy for a member of the research team to contact me

Contact details *(Please enter your contact details below)*

Title: _____ Dr/Mr/Mrs/Ms/Miss *(please delete as appropriate)*

Name: _____

Telephone contact number: _____

A convenient time to call is: Between _____ and _____

Please return this slip in the envelope provided. A member of research team will contact you on the contact number provided above.



Participant Information Sheet

Study title:

An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England.

What is the purpose of this study?

This study is looking to explore the current practices and feasibility of primary care pharmacists providing oral health promotion and interventions in a general practice setting.

Who can take part?

This study requires participants from five different groups;

1. General Practice Pharmacists, registered with the General Pharmaceutical Council
2. General Medical Practitioners, registered with the General Medical Council
3. General Practice Administrative Staff – Practice Managers at General Medical Practices
4. General Practice Nurses, registered with the Nursing & Midwifery Council
5. Patients, recruited from the University Patient Carer Public Involvement Group

Do I have to take part and can I change my mind?

Participation is entirely voluntary. If you change your mind about taking part in the study, you can withdraw at any point during the session without giving a reason and without penalty. Once the anonymised transcripts have been produced you will not be able to withdraw from the study. After the interview has been completed audio recording will be transcribed within 7 days.

What will happen to me if I take part?

We would like your help with this study by asking you to talk to one of our team members for up to an hour. We will audio record this conversation so that it is easier for us to make notes later about what was said. The interview can take place in person or via telephone, at your place of work, at the University of Sunderland, or we can come to your home to talk to you. The researcher will ask you a series of questions in relation to the study title and your experiences in practice, from which there are absolutely no right or wrong answers. Your answers may lead to further discussion around any point or topics raised.

What are the possible disadvantages and risks of taking part?

We don't think that there are any risks associated with taking part in this study.

What if something goes wrong?

If you change your mind about participation, please contact me by email to cancel your participation. If you feel unhappy about the conduct of the study, please contact me immediately or the Chairperson of the University of Sunderland Research Ethics Group, whose contact details are given below.



Participant Information Sheet

Will my taking part in this study be kept confidential?

The University of Sunderland is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Sunderland will keep identifiable information about you; a list of participants and signed consent forms will be stored securely by the principle investigator for a period of up to 2 years. Audio recordings and transcripts will be stored securely by the principle investigator for a period of up to 6 years. Access will be restricted to the research team and persons authorised by the University for Quality Assurance purposes.

Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided, the first participant will be given the code P1, the numerical value will change with each subsequent participant e.g. P2, P3 etc.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting the Principal Investigator, Andrew Sturrock andrew.sturrock@sunderland.ac.uk or Dr John Fulton, Chair of the University of Sunderland Research Ethics Group john.fulton@sunderland.ac.uk.

What will happen to the results of this study?

If suitable, the results may be presented at academic conferences and/or written up for publication in peer reviewed academic journals. A summary of the results will be made available to participants if you choose to receive a copy.

Who is organising and funding the research?

The research is being done by a research team at the University of Sunderland. The Chief Investigator for the project is Andrew Sturrock. His title is 'Principal Lecturer' and he is based in the School of Pharmacy and Pharmaceutical Sciences.

This project has received no external funding.

Who has reviewed the study?

The University of Sunderland Research Ethics Group has reviewed and approved the study.

Contact for further information:

Doctor John Fulton (Chair of the University of Sunderland Research Ethics Group, University of Sunderland) Email: john.fulton@sunderland.ac.uk Phone: 0191 515 2529

Who can I contact if I have questions about the study?

If you have any questions, we would like you to get in touch with us. You can do this by telephoning us on 0191 5152448



Participant Information Sheet

or you can email us on andrew.sturrock@sunderland.ac.uk

What should I do if I want to take part?

If you don't have any questions and would like to take part, please can you fill in the **Response Form** and send it to us. Please let us know the best way for us to get in touch with you. We don't know how many practitioners will want to help us so we might find we have too many and we may not need to ask for your help. Once we have your form, someone from the research team will get in touch with you and let you know if we do need your help or not. If we do they will arrange the best time and place for you to meet and talk to us.

Thank you for taking the time to read this information.

For peer review only



Consent Form

Study title: An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Anonymity and confidentiality: Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided.

Participant code: _____

Please ✓ or X as appropriate

| | |
|---|--|
| I have read and understood the attached study information and, by signing below, I consent to participate in this study | |
| I understand that I have the right to withdraw from the study without giving a reason up to 7 days after the completion of the interview. | |
| I understand that the interview will be audio recorded and transcribed anonymously. | |
| I consent to anonymised participant data to be included in any future publications. | |
| Would you like a summary of the results to be sent to you once the project is complete? If so please provide an email or postal address that the results can be sent too. Address: | |

Signed: _____

Print name: _____

(Your name, along with your participant code will not be used in or shared with anyone outside of the research team;)

Date: _____

Researcher Signature: _____

Print name: _____

Date: _____

Coding Tree

Enhanced clinical roles

- Accessibility to other primary care staff
- An evolving and advancing role
- Increased responsibility and accountability
- Chronic disease and medication management
- Management of high-risk medications
- Interface between care settings
- Lifestyle advice
- Access by patients

Limited knowledge

- Basic understanding
- Signposting to dental services
- Duty of care
- Limited links to systemic health
- Role in deprescribing
- Patient safety alerts – actioned but often forgotten
- Patient knowledge gained from dentists or parents
- A willingness for more education

Geographical/situational isolation

- Limited collaboration/communication
- No formal pathways
- Lack of shared records
- Reluctance/barriers for patient engagement with dental services
- Stereotyped professional roles

Integration of oral health advice

- Ability to identify and access patients
- Provision of lifestyle advice
- Less time pressures
- Need for direction/services

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

| No. Item | Guide questions/description | Reported on Page # | Details |
|--|--|--------------------------|--|
| Domain 1: Research team and reflexivity | | | |
| <i>Personal Characteristics</i> | | | |
| 1. Interviewer/facilitator | Which author/s conducted the interview or focus group? | 21 | Andrew Sturrock (AS) |
| 2. Credentials | What were the researcher's credentials? E.g. PhD, MD | 1 | AS has an MSc in Clinical Pharmacy |
| 3. Occupation | What was their occupation at the time of the study? | 1 | Principal Lecturer – Master of Pharmacy Programme Leader |
| 4. Gender | Was the researcher male or female? | 1 | Male |
| 5. Experience and training | What experience or training did the researcher have? | 1 + 21 | AS received training in qualitative research skills by the research team and through attendance at a Qualitative Research Methods in Health Course at University College London. |
| <i>Relationship with participants</i> | | | |
| 6. Relationship established | Was a relationship established prior to study commencement? | 8 | Invitation letter and participant information sheets were posted out prior to the study. |
| 7. Participant knowledge of the interviewer | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | Supplementary document 3 | A participant information sheet was provided to all participants. |
| 8. Interviewer characteristics | What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | 1+21 | AS is a pharmacist. Interest in the research topic was developed due to teaching commitments on the MPharm programme at the University of Sunderland. The multidisciplinary team was assembled to reduce bias in the research process. |
| Domain 2: study design | | | |
| <i>Theoretical framework</i> | | | |
| 9. Methodological orientation and Theory | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 8 | A Grounded Theory approach, with constant comparative analysis. |

| | | | |
|----------------------------------|--|----|---|
| <i>Participant selection</i> | | | |
| 10. Sampling | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 8 | A convenience sampling and snowball sampling method were adopted |
| 11. Method of approach | How were participants approached? e.g. face-to-face, telephone, mail, email | 8 | An invitation letter and information sheets were posted (Supplementary Documents 2-3) |
| 12. Sample size | How many participants were in the study? | 10 | 22 participants |
| 13. Non-participation | How many people refused to participate or dropped out? Reasons? | 9 | No participants who responded to the invitation refused to participate or dropped out of the study. |
| <i>Setting</i> | | | |
| 14. Setting of data collection | Where was the data collected? e.g. home, clinic, workplace | 10 | Data were collected at a time and place convenient to the interviewee; this was at their place of work, telephone and at the University of Sunderland |
| 15. Presence of non-participants | Was anyone else present besides the participants and researchers? | 8 | Interviews were held on a one-to-one basis or as a Focus Group. |
| 16. Description of sample | What are the important characteristics of the sample? e.g. demographic data, date | 10 | As displayed in table 1 and 2. |
| <i>Data collection</i> | | | |
| 17. Interview guide | Were questions, prompts, guides provided by the authors? Was it pilot tested? | 8 | Interview guide was developed and refined by the research team. Included as (Supplementary Document 1) |
| 18. Repeat interviews | Were repeat interviews carried out? If yes, how many? | 8 | No repeat interviews were performed |
| 19. Audio/visual recording | Did the research use audio or visual recording to collect the data? | 8 | Audio recording |
| 20. Field notes | Were field notes made during and/or after the interview or focus group? | 8 | No field notes were taken due to the verbatim transcribing |
| 21. Duration | What was the duration of the interviews or focus group? | 10 | Up to 1 hour |
| 22. Data saturation | Was data saturation discussed? | 10 | Data were analysed by AS, with transcripts and emerging themes cross-checked for interpretation and agreed amongst the research team. Constant comparative analysis was utilised as a means of enriching the data through |

| | | | |
|--|---|-------|---|
| | | | iterative data collection and analysis |
| 23. Transcripts returned | Were transcripts returned to participants for comment and/or correction? | 8 | No |
| Domain 3: analysis and findings | | | |
| <i>Data analysis</i> | | | |
| 24. Number of data coders | How many data coders coded the data? | 21 | AS identified the thematic framework and interpreted the data, which was reviewed and refined by the research team. |
| 25. Description of the coding tree | Did authors provide a description of the coding tree? | N/A | A description of the coding tree is not provided. |
| 26. Derivation of themes | Were themes identified in advance or derived from the data? | 8 | Themes were derived from the data |
| 27. Software | What software, if applicable, was used to manage the data? | N/A | |
| 28. Participant checking | Did participants provide feedback on the findings? | 8 | No |
| <i>Reporting</i> | | | |
| 29. Quotations presented | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 11-17 | Quotation are presented with clearly identifiable participant numbers |
| 30. Data and findings consistent | Was there consistency between the data presented and the findings? | 11-17 | Yes |
| 31. Clarity of major themes | Were major themes clearly presented in the findings? | 11-17 | Yes |
| 32. Clarity of minor themes | Is there a description of diverse cases or discussion of minor themes? | 11-17 | Yes |

BMJ Open

“We don’t seem to engage with dentists”: A qualitative study of the role of pharmacists in providing oral health advice and collaboration with dentists in a primary care setting in the North East of England; perceptions of general practice staff and patients.

| | |
|---------------------------------|--|
| Journal: | <i>BMJ Open</i> |
| Manuscript ID | bmjopen-2019-032261.R2 |
| Article Type: | Original research |
| Date Submitted by the Author: | 11-Nov-2019 |
| Complete List of Authors: | Sturrock, Andrew; University of Sunderland, Faculty of Health Sciences and Wellbeing Preshaw, Philip; National University of Singapore, National University Centre for Oral Health Hayes, Catherine; University of Sunderland, Faculty of Health Sciences and Wellbeing Wilkes, Scott; University of Sunderland, Faculty of Health Sciences and Wellbeing |
| Primary Subject Heading: | Qualitative research |
| Secondary Subject Heading: | Dentistry and oral medicine, Health services research, Pharmacology and therapeutics |
| Keywords: | PRIMARY CARE, QUALITATIVE RESEARCH, Organisation of health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT |
| | |

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3 **“We don’t seem to engage with dentists”**: A qualitative study of the role of
4 **pharmacists in providing oral health advice and collaboration with dentists in**
5 **a primary care setting in the North East of England; perceptions of general**
6 **practice staff and patients.**
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10 **Sturrock A, Preshaw PM, Hayes C, Wilkes S**
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54 **Keywords:** Pharmacists, Primary Care, Oral Health, Qualitative Research
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ABSTRACT

Objective: To explore the attitudes towards, and perceptions of, primary care healthcare staff and patients, regarding the role of clinical pharmacists in the provision of oral health advice and collaboration with dentists in general practice.

Design: Interpretivist methodology using qualitative semi-structured interviews and focus groups.

Participants: 22 participants; 10 pharmacists; 3 general practitioners, 2 nurses, 1 practice manager, 6 patients.

Setting: Primary care general medical practices in the North East of England and the University of Sunderland Patient Carer Public Involvement group.

Methods: One-to-one semi-structured interviews were performed with primary care healthcare staff. An iterative approach utilising constant comparative analysis facilitated the ongoing enrichment of data, salient themes were identified using Framework Analysis and related back to extant literature. A focus group was held with patients to further explore key themes.

Results: Four salient and inter-related themes emerged: (1) enhanced clinical roles; indicating rapidly changing roles of pharmacists working in general practice, increased responsibility and accountability of pharmacist prescribers, and the delivery of advanced clinical services; (2) limited knowledge; indicating basic understanding of appropriate oral health advice, but limited insight and provision of advice to patients with regards to links with systemic diseases and medication; (3) geographical/situational isolation of the dental team; indicating the disparate contexts and challenges of multidisciplinary working in oral health, and patients' attitudes towards dental care; (4) integration of oral health advice; indicating the potential of pharmacists to integrate oral health advice into current roles and to target specific patient groups in practice.

Conclusions:

The lack of integration between oral and general healthcare services potentially impacts negatively on patient care, requiring further interprofessional oral health education. The

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3 developing role of the pharmacist in general practice represents an opportunity to integrate
4 oral health advice and/or interventions into the management of patients in this setting.
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For peer review only

Strengths and limitations of this study

- There is limited research into the role of pharmacists in this setting; this is the first qualitative study that has explored the role of pharmacists as part of the general practice team in relation to oral healthcare.
- A wide range of general practice healthcare professionals and patients participated in this study; however a limitation is that no general dental practitioners were interviewed.
- Semi-structured interviews provided rich qualitative data and an iterative process of concurrent data collection and constant comparative analysis facilitated the simultaneous exploration, refinement and enrichment of key themes.

Introduction

Oral health conditions are thought to affect a significant proportion of the world's population, approximately 3.9 billion people worldwide and cost the NHS in England £3.4 billion per year.(1-2) The most recent Adult Dental Health Survey (2009) stated that 23% of the UK population do not attend a dentist.(3) Oral health is important for general health and wellbeing, and there is increasing evidence that has linked periodontitis to a number of diseases, such as cardiovascular disease and diabetes.(4-5)

Wilson and Soni's recent opinion piece in the British Dental Journal highlighted the potential for a collaborative approach between pharmacy and dentistry in the management of chronic diseases, such as diabetes and the potential capacity for pharmacists to encourage hard-to-reach individuals to become dental attenders.(6) In the United Kingdom, dental treatment is available privately or provided as part of the National Health Service (NHS). However, even under NHS arrangements, the majority of patients pay a contribution towards the cost of care their care, and currently care is charged into 1 of 3 bands (Band 1 £22.70; Band 2 £62.10; Band 3 £269.30) depending on the extent and complexity of treatment that is needed.(7)

Approximately half of the adults in the UK are affected by some level of periodontitis; a chronic inflammatory disease caused by bacterial infection of the supporting tissues surrounding the teeth.(3) This condition is usually painless and often goes unnoticed and untreated until it reaches an advanced stage.(8) The Cochrane Collaboration published a review in 2015, highlighting that randomised controlled trials have demonstrated that periodontal therapy is associated with a 3-4 mmol/mol (0.3-0.4%) reduction in HbA1c levels after 3 months;(9) this is a clinical impact equivalent to adding a second drug to a pharmacological regimen.(10) There is evidence that even a modest reduction in HbA1c is associated with improving outcomes for patients with type 2 diabetes; a 1% reduction in HbA1c has been associated with a 21% reduction in diabetes related death, 14% reduction in myocardial infarctions and 37% reduction in microvascular complications.(11) There is clear evidence of a bidirectional relationship between periodontitis and diabetes; poorly controlled diabetes increases the risk of periodontitis 2-3 times, and in turn periodontitis is associated with higher HbA1c levels and worse diabetes complications.(12,13) There is also evidence of an association between atherosclerotic cardiovascular disease and poor oral health.(14)

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3 A number of medications can negatively impact oral health, representing a significant
4 opportunity for pharmacists to provide advice in relation to the prevention and management
5 of these issues. For example, polypharmacy and a high anticholinergic burden are associated
6 with the development of xerostomia and inhaled corticosteroids with oropharyngeal adverse
7 events, such as oral candidiasis.(15-16) Calcium channel blockers such as nifedipine,
8 ciclosporin and phenytoin are all associated with development of drug-induced gingival
9 overgrowth.(17) Medication-related osteonecrosis of the jaw (MRONJ) is a rare, yet significant
10 complication of anti-resorptive and anti-angiogenic drugs used in the treatment of
11 osteoporosis and cancer.(18) MRONJ is difficult to treat and significantly impacts on patient's
12 quality of life;(19) therefore a multidisciplinary approach to prevention is usually
13 recommended.(18)

14
15 Evidence suggests that pharmacists working in a community pharmacy setting see the
16 provision of oral health promotion to be part of their professional role. An oral health
17 promotion intervention in the North East of England demonstrated patient's acceptance to
18 the pharmacist's intervention and a positive intention to change oral health habits.(20) To the
19 authors knowledge, no studies have explored the utilisation of pharmacists working in general
20 practice to provide patients with oral health advice; however a systematic review of
21 pharmacists working in general practice found favourable results in various areas of chronic
22 disease management and the optimal use of medicines.(21)

23
24 Following a successful pilot, NHS England's General Practice Forward view (2016) committed
25 to the investment of £112 million to further develop this role with the aim of providing an
26 additional 1500 clinical pharmacists to the general practice workforce by 2020.(22) The
27 Primary Care Pharmacy Associations, Clinical Pharmacist in General Practice Job Description
28 sets out the duties and areas of responsibility for pharmacists in this setting in the UK;(23) this
29 includes managing long-term conditions, performing medication reviews, implementing
30 medication safety guidance, supporting public health campaigns and signposting to
31 appropriate healthcare professionals.

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33 Each of these areas represents an opportunity for the provision of oral healthcare by clinical
34 pharmacists. Potential oral health related roles could include the provision of oral hygiene
35 advice and the recommendation of appropriate products, which could be targeted to high risk
36 patient groups or those in which the benefits of improved oral hygiene can impact on systemic
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3 health e.g. diabetes. Pharmacists could play an important role in the prevention or
4 management of the oral health-related adverse drug effects outlined above; this includes the
5 prevention of MRONJ through signposting and formal dental referrals, the prescribing of saliva
6 substitutes or high fluoride toothpastes, deprescribing medications implicated with
7 xerostomia and screening patients for oral cancer. The role of clinical pharmacist in the
8 provision of oral health advice and collaboration with dentists in general practice is explored
9 in our study.
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Aims

- 1) To explore the attitudes towards and perceptions of primary care healthcare staff and patients, regarding the role of the clinical pharmacist in providing oral health advice in a general practice setting
- 2) To explore any potential barriers and/or facilitators in utilising pharmacists in general practice to improve the interprofessional management of oral health

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METHOD

Design:

An interpretive approach was adopted throughout this research; an initial topic guide (Supplementary Document 1) was produced serving as a benchmark for semi-structured one-to-one interviews with healthcare professionals, which were audio recorded and transcribed verbatim. Constant comparative analysis, facilitated the concurrent and iterative process of data collection and analysis.⁽²⁴⁾ This process provided the opportunity for the further exploration of emergent themes through subsequent data collection. Framework Analysis (Ritchie and Spencer, 2002) facilitated the process of constant comparative analysis and provided a systematic approach to the identification and analysis of salient themes.⁽²⁵⁾ Framework analysis involved a five-stage process: (1) familiarisation with the data – achieved via iterative cycles of listening to and re-reading of transcripts; (2) development of a thematic framework – the initial themes formed the basis of a thematic framework; (3) indexing data – data were indexed against the thematic framework; (4) charting – charts were produced of the data within the framework; (5) mapping of the data – themes were reviewed until definitive concepts were produced. A focus group was held with patients to explore key themes; a topic guide (Supplementary Document 2) was produced following the collection and analysis of data from healthcare professionals.

Participants:

General practice healthcare professionals were recruited from 12 practices across the North East of England. Four distinct professional groups were recruited to the study: [1] pharmacists working in general practice; [2] GPs; [3] general practice administrative staff; and [4] general practice nurses.

An invitation letter (Supplementary Document 3) and participant information sheet (Supplementary Document 4) were posted to medical practices in the region; an initial convenience sample of participants who responded to the invitation was implemented with further recruitment facilitated via snowball sampling.

Patient participants were recruited from the University of Sunderland Patient Carer and Public Involvement (PCPI) group; participant information sheets were emailed to PCPI representatives and those that responded to the invitation participated in a focus group.

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3 Informed consent was obtained (Supplementary Document 5) before participation in the
4 interviews and focus groups ; no participants withdrew or refused to participate.
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8 **Analysis:**

9 Constant comparative analysis facilitated the identification and further exploration of salient
10 themes through an iterative process of data collection and analysis. Ritchie and Spencer's
11 Framework Analysis (2002),(25) provided a systematic five-stage approach to data analysis;
12 familiarisation with the data; development of a thematic framework; indexing data; charting
13 of the data and mapping of the data. Themes were reviewed by the research team until
14 definitive concepts could be produced from the data.
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21 **Ethical review:**

22 Ethical approval was obtained from the University of Sunderland Research Ethics Committee
23 prior to data collection (REF: 002856).
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30 **Patient Involvement:**

31 The principal investigator met with a patient representative from the University of Sunderland
32 PCPI Group to discuss the initial design and ethical implications of the study. Following the
33 collection and analysis of data from healthcare professionals, a focus group was held with 6
34 patients; the focus group facilitated the refinement of emerging concepts and the co-
35 construction of overarching themes.
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Results

22 participants were recruited to this study (Table 1 and 2). In-depth semi-structured interviews were carried out between October 2018 and April 2019 until no new themes emerged and extant ones were exhausted. Interviews took place at participants' places of work or at the University of Sunderland, with two interviews performed via telephone for logistical reasons; 1 hour was designated for each interview. 6 patients participated in a focus group, lasting 1 hour, held in April 2019 at the University of Sunderland.

Table 1. Healthcare Professional Participant Characteristics

| Participant | Identifier | Role | No. years' experience | Gender |
|-------------|------------|----------------------|-----------------------|--------|
| 1 | Ph1 | Pharmacist | 5-9 | Female |
| 2 | Ph2 | Pharmacist | 10-14 | Male |
| 3 | Ph3 | Pharmacist | <5 | Female |
| 4 | Ph4 | Pharmacist | >20 | Female |
| 5 | Ph5 | Pharmacist | 10-14 | Female |
| 6 | Ph6 | Pharmacist | 5-9 | Male |
| 7 | Ph7 | Pharmacist | 10-14 | Female |
| 8 | Ph8 | Pharmacist | 10-14 | Male |
| 9 | Ph9 | Pharmacist | <5 | Female |
| 10 | Ph10 | Pharmacist | 15-19 | Female |
| 11 | PM1 | Practice Manager | >20 | Female |
| 12 | GP1 | General Practitioner | 15-19 | Female |
| 13 | GP2 | General Practitioner | <5 | Male |
| 14 | GP3 | General Practitioner | >20 | Male |
| 15 | N1 | Nurse | 15-19 | Female |
| 16 | N2 | Nurse | >20 | Female |

Table 2. Patient Participant Characteristics

| Participant | Identifier | Role | Age | Gender |
|-------------|------------|---------|-------------|--------|
| 1 | Pt1 | Patient | 50-59 years | Female |
| 2 | Pt2 | Patient | 60-69 years | Male |
| 3 | Pt3 | Patient | 50-59 years | Female |
| 4 | Pt4 | Patient | 60-69 years | Male |
| 5 | Pt5 | Patient | 40-49 years | Female |
| 6 | Pt6 | Patient | 60-69 years | Female |

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3 Four salient inter-related themes emerged from the data and a coding tree was produced
4 (Supplementary Document 6): (1) enhanced clinical roles; (2) limited knowledge; (3)
5 geographical /situational isolation of the dental team; (4) integration of oral health advice.
6
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8 9 **1. Enhanced clinical roles**

10
11 Participants highlighted the accessibility of pharmacists as part of the general practice team,
12 providing a complementary skill set to existing staff that enhances the provision of services
13 provided at practices.
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18 I'm directly contactable face-to-face by prescribers, GPs, nurse practitioners, nurses,
19 admin team, everything. They can just come directly into my office and ask me for
20 information. So, I'm probably more likely to be utilised clinically. In community
21 pharmacy, you obviously have other responsibilities as well and the pharmacist also
22 takes on the role of the manager. (Ph1)
23
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26

27
28 Participants identified that general practice is a rapidly evolving role for pharmacists, who are
29 increasingly involved with, and leading, more advanced, patient facing clinical services. These
30 services require an enhanced level of clinical knowledge compared to more traditional
31 pharmacy roles, with pharmacists increasing inputting more into the clinical management of
32 patients in this setting.
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38 Our roles in the surgeries are evolving and perhaps new to some, but I found it on the
39 whole to be very very positive and that the other staff have been accepting. (Ph8)
40
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42
43 Many of the pharmacist participants described providing a higher level of clinical service
44 facilitated through obtaining postgraduate prescribing qualifications resulting in a greater
45 degree of clinical responsibility and accountability.
46
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48
49 I'm in quite an advanced clinical role now. So I do a lot of diagnostics and treating
50 myself. I'm a prolific prescriber. (Ph7)
51

52
53 Participants perceived that the management of chronic long-term conditions, with a specific
54 focus on optimising therapy and the provision of detailed, clinically focused medication
55 reviews to be a key role for pharmacists in this setting.
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3 I would see patients for medication reviews, particularly the complex ones, the ones
4 with polypharmacy in particular come to me. It would be about making sure they are
5 on the right regimens, making sure they haven't got any adverse effects and maybe
6 stopping drugs if no longer appropriate. (Ph4)
7
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10
11 The management of high-risk medications and the reconciliation of medication provided on
12 discharge or from a specialist setting was seen as an important part of the pharmacist's role..
13 The services provided are integrated into the existing practice infrastructure and the access
14 of pharmacists in this setting to full clinical records facilitates a higher degree of clinical input.
15 Through working in this setting pharmacists can also clearly communicate with the rest of the
16 practice team; this includes following up on monitoring requirements, liaising with community
17 pharmacies and updating medical records to accurately reflect patient's current medication.
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24 Some of my work is quite administrative, so dealing with queries, issues from
25 community pharmacies, discharge prescriptions or hospital letters, things like that.
26 Making sure that patient's medication lists are correct, particularly with medicines
27 started on discharge or in outpatients, you know, ones with shared care agreements
28 or high-risk drugs. (Ph3)
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34 The provision of lifestyle and preventive advice was seen as a key role for pharmacists,
35 complementing work done by practice nurses; this would typically include signposting
36 patients and formal interprofessional referral where required.
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40 There is an increasing amount of work for GPs, and I think the lifestyle issues seem to
41 get shifted down the line as to what we are able to focus on, its often not what the
42 patient presents with. I think both pharmacists and nurses are good at doing that, it is
43 about prioritising in that short time you have. (GP1)
44
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48 Some of the patients had experience of having appointments with pharmacists in general
49 practice. Those who had reported favourable experiences and were positive towards the
50 benefits for their care; with a particular focus on reviewing medications and reducing the
51 known side-effects of prescribed medicines.
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56 She (pharmacist) rang up to discuss the medication because they were changing my
57 insulin. So, she was on about ten minutes going through everything that I was on to
58 make sure I was happy, everything was balanced, no side-effects and she decided to
59
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3 change a couple of things that I'd been on for a number of years. She was really helpful
4 and its definitely better now. (Pt1)
5
6

7 Some patients had not experienced services provided by pharmacists in this role; a number of
8 participants perceived that the benefit of pharmacists resulted from the accessible locations
9 and opening hours of community pharmacies and were concerned that the pharmacist in
10 general practice would become another healthcare professional with whom making
11 appointments was challenging. This was a common experience of patients when trying to
12 make appointments with general practice staff.
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19 You could get a doctor's appointment more easily when we were young. But I think
20 people tend to just to pop in a pharmacy, I think there's more information in the
21 pharmacy now, there is no wait for appointments and they are open all the time. (Pt3)
22
23
24

25 If you have to wait to get an appointment with the pharmacist at the doctor's surgery,
26 you may as well just see the doctor or whatever else, the point of a pharmacist to me
27 is that it's, like, around the corner and it's easy. (Pt6)
28
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31 **2. Limited knowledge**

32 All healthcare professional participants reported limited knowledge of basic oral health advice
33 and would try to signpost patients to dental services where possible, but perceived that they
34 were able to manage common conditions, such as a mouth ulcer, and provide basic oral
35 hygiene advice.
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41 You will get people presenting to surgery with queries around the mouth generally.
42 Perhaps unexplained problems. It might be anything from halitosis, to soreness, to
43 ulcers, to even presenting with dental abscess because they'd rather come to us than
44 go to a dentist. We try to signpost them to a dentist, but we can deal with some of the
45 minor issues. (N1)
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51 The primary care staff participants described the presentation of patients in general practice
52 with dental problems, such as dental pain and likely infections. Participants described limited
53 knowledge in the assessment and management of dental infections; GPs would typically
54 signpost these patients to a dentist, but did report a perceived duty of care to help this patient
55 group if the patient was unable/unwilling to attend a dental appointment.
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3 Even if a GP thinks, 'actually, I think it's an abscess' he or she's got a duty of care to
4 treat that infection and not to leave it, even if we don't know a great deal about more
5 complex dental issues. Especially when they say they don't have a dentist. (Ph10)
6
7
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9 Participants had limited knowledge of the links between oral and systemic health; with oral
10 health advice not usually forming part of discussions with patients in high risk groups, such as
11 those with diabetes and with multidisciplinary diabetes teams not including dental
12 professionals.
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17 I haven't really heard of links between the two. I see lots of patients with diabetes and
18 it is definitely not something that I would tell patients about. (Ph5)
19
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21 Although not a direct focus of interventions, pharmacists described a key role in the
22 deprescribing of medications in patients with a high anticholinergic burden. These patients
23 would typically complain of a dry mouth and this would be used by some as an incentive to
24 stop or reduce implicated medicines.
25
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28
29 I look to stop some medicines during medication or falls reviews, medicines that have
30 antimuscarinic side-effects, so like those for urinary incontinence or tricyclic
31 antidepressants that cause, like a drying effect, and patients experience dry mouth.
32
33
34
35 (Ph1)
36

37 The pharmacists were aware of MRONJ, mainly due to historic Medicines Healthcare
38 Regulatory Agency safety alerts. The actioning of these alerts was described as a key role of
39 the practice pharmacist; participants reported that following safety alerts patients were
40 identified and provided signposting advice, however pharmacist and GP participants
41 acknowledged that these alerts are often forgotten or lose focus and need to become longer
42 term initiatives, not isolated alerts.
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49 I remember a couple of years ago, there was an alert and where we set it up so that all
50 new patients going on a bisphosphonate got told to have a dental check-up before
51 they went on. Now, I don't know – I haven't seen anything around that lately and I've
52 got a feeling that might have lapsed a bit. Or at least I'm not aware of it happening.
53
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56 (Ph4)
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3 The patient participants identified that their knowledge in relation to oral health has almost
4 exclusively come from their dentist or their parents as a child. None of the participants
5 described receiving any oral health advice from other healthcare professionals.
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9 I think it would be from my mum and dad and then the dentist. I don't think anyone
10 else has ever talked about oral health with me, maybe the school nurse a long time
11 ago. (Pt5)
12
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15 All participants described a need and willingness to receive further education and training on
16 oral health; this was perceived as a deficit in both undergraduate training in post registration
17 continuing professional development.
18
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21 I think it would be useful to have more training – directed at general practice. I think
22 most of us know the basics, but not really much depth, especially around how oral
23 health and just general health and wellbeing are related. (Ph3)
24
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28 **3. Geographical/situational isolation of the dental team;**

29
30 General practice staff reported limited collaboration with dental colleagues in primary care,
31 with no formal referral pathways between medical and dental services and a lack of
32 communication between the professional groups. These were all seen as significant barriers
33 to providing high quality and safe oral health care to patients.
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38 I would say there is anonymity really. If you compare it with, for example, local
39 opticians where we have frequent interactions, albeit by paper, we don't really get
40 any, sort of, direct contact. Not that I can recall. (GP3)
41
42
43

44 We don't seem to engage with dentists. In fact, the only time that I ever had a proper
45 conversation with a dentist was when I worked in community pharmacy and that
46 would have been over an incorrect prescription or an out of stock item. And I just think,
47 you know, there is a lot of cross conversations that we could have. (Ph10)
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52 There were concerns about the lack of information shared between primary medical and
53 dental services and the impact that this has on patient safety; with dentists not having access
54 to patient's Summary Care Records and general practice staff not receiving information about
55 the care or interventions provided in a dental setting. This included a lack of information on
56 medication prescribed by dentists.
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3 We would never know if the dentists had prescribed any antibiotics or anything for a
4 patient. Yet, if anyone else in the primary healthcare team prescribes anything for our
5 patients, we know. We would get either a letter or a fax summary, something sent over
6 to say this is what's happened in this patient (Ph7)
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11 Both patients and the healthcare professionals described their own and their patient's
12 reluctance to engage fully with dental services; barriers include the cost of both preventive
13 and remedial dental work, dental phobias and a lack of education on the benefits of good oral
14 health.
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19 The area I am in is very deprived and actually, I would say that the majority don't ever
20 visit the dentist, I think they just don't see it as important and loads of them just don't
21 have the money, and fear, loads of people hate seeing a dentist unless it's absolutely
22 necessary. (Ph5)
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27 The patients also reported a perceived segregation between the dental and medical
28 professions, with historic stereotyping contributing to their formative understanding of each
29 role. This was described as a barrier in engaging with oral healthcare outside of a dental
30 setting, as historically this is not an environment that patients associate with dental care
31 provision.
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37 I think it's just the way society has brought us up in that there are two defining
38 people, dentists and doctors. Anything to do with dentists, you go to the dentist
39 anything about your health you go to the doctors. They have always been seen as
40 separate. (Pt6)
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45 **4. Integration of oral health advice**

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47 Pharmacists working in general practice have better access to patient medical records than
48 their community pharmacy colleagues and are therefore well placed to identify patients who
49 may be suitable for targeted interventions. For example, the practice diabetes register or
50 those patients prescribed medications with oral health-related adverse effects, such as
51 bisphosphonates, could be easily identified and invited for review by the pharmacist.
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3 In GP practices, people are coded appropriately, as smokers, or based on specific
4 conditions, or you could look at medications that are associated with oral complications
5 and target those people. It is easy enough to identify potential higher risk patients. (Ph1)
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9 Participants described the role of the pharmacist in optimising medication regimens and their
10 specific focus on providing input into patient care through chronic disease management clinics
11 and medication reviews. All participants agreed that the provision of appropriate lifestyle
12 advice should form a key element of these consultations.
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17 Generally, I think pharmacists can focus on medicines and do a really good job getting
18 those right, but with the, let's call it, soft interventions, lifestyle advice etc., they seem
19 to work better when they're repeated by various people. (GP3)
20
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23 Participants reported that consultations with the pharmacist are typically less time pressured
24 than GP appointments; with most pharmacist participants not routinely involved in providing
25 acute care. This time could facilitate the provision of more detailed consultations,
26 representing an opportunity to incorporate oral health advice into current practices.
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31 My clinics could easily be timetabled for 20 minutes instead of 10, and as I don't really
32 see acute patients or have the same time pressures as some of the GPs or practice
33 nurses. I can talk longer and to go into more detail about things, there is scope to take
34 more time and really reinforce the key messages. (Ph2)
35
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39 I don't see any reason why you can't promote oral hygiene at a doctor's practice, you
40 can promote it, give people the information so they are properly informed. Then it is
41 up to them. (Pt2)
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45 The incorporation of basic oral health advice can be integrated into the current role of the
46 pharmacist; however, participants reported a need for more direction from professional
47 bodies or the commissioners of local or national services to provide more complex
48 interventions and to improve interprofessional collaboration with dental professionals.
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53 There is loads that we could do and as a practice we could just do it to give a better quality
54 of care, but if it is a paid service or linked to certain targets etc then there may be more
55 incentive to focus on it. (Ph2)
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Discussion

Our research has highlighted the disparate contexts of provision of oral and general healthcare in the North East of England. This is further hindered by a lack of communication between medical and dental service providers, a lack of clear referral pathways and no shared access to medical records. All of these are significant barriers to the provision of high quality and safe oral health care. Further consideration and action is therefore needed at the level of policy and practice if patient safety and quality care in an oral health context are to be implemented and sustained in a non-dental setting.

The evolving role of the clinical pharmacist in general practice is facilitating the provision of additional clinical services and is improving patient care.(21,26) The provision of oral healthcare by pharmacists in general practice is limited at present, but this role represents an opportunity to target at risk patients and incorporate appropriate advice into current services.

The limited knowledge of oral health reported by our participants is similar to findings published in the literature.(27) In particular, our findings in relation to the limited knowledge of general practice staff of the bidirectional relationship between periodontitis and diabetes match those by Bissett et al 2013.(8) Their study did not specifically include pharmacists and the subsequent enhancement of the clinical pharmacist in general practice role discussed in our study represents an unexplored opportunity to improve medical and dental collaboration.

Previous studies have identified a role for pharmacists working in a community pharmacy setting to provide oral health advice to patients.(20,28-31) Our study has explored the expanding role of the pharmacist in the general practice setting; this has received significant funding from the NHS and forms a key component of NHS England's General Practice Forward View (2016).(21) Further exploration of the potential roles of pharmacists in this setting is required to establish the impact made on patient care.

Further consideration needs to be made by both clinicians and policymakers to better integrate oral health into holistic healthcare provision. Research by Bissett et al (2019) identified that dentists tend not to contact GPs regarding the management of patients with diabetes, and when they do so, they typically communicate through the patient, as opposed to through formal referral channels.(32) Participants in our study reported little collaboration between general practice and dentists, with a lack of formal referral pathways and the limited

1
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3 sharing of patient information. A lack of shared information between medical and dental
4 services was identified by participants in our study as a risk to patient safety. More than 96%
5 of the population of England have a Summary Care Record (SCR) that can be accessed from a
6 variety of NHS service providers; however, NHS dental practices do not currently have access
7 to SCRs.(33) This represents a barrier to optimal patient care, but also potentially results in a
8 risk to patient safety; dentists are currently reliant on patients to be able to provide accurate
9 medication histories and general practice staff are potentially unaware of medication
10 prescribed by dentists. Access to medical records in dental practices could improve
11 collaboration,(34) facilitate a reduction in patient safety concerns that arise as a result of
12 incomplete or inaccurate information. For example accurate medication histories could
13 reduce the risk of dentists inadvertently prescribing medication that interacts with existing
14 therapy or missing dentally important drugs such as bisphosphonates and could encourage
15 better communication between settings. Participants in our study described a key role for
16 pharmacists in general practice in relation to the reconciliation of medicines and the
17 maintenance of accurate medication histories; this represents an opportunity to ensure the
18 flow of correct information between care settings and could be utilised if records were shared
19 between medical and dental service providers.
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35 Participants described the presentation of patients in general practice with oral health
36 complaints; this was perceived to be due to issues with patients accessing dental services, the
37 cost of dental treatment in the United Kingdom and patients' phobias of dentists. The
38 healthcare professional participants reported some knowledge in relation to basic oral health
39 advice, however there is a clear need for further education of non-dental health professionals
40 to address the limited knowledge of the associated links between oral health and systemic
41 diseases.
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48 This is the first study that has explored the role of the pharmacist in general practice in relation
49 to the provision of oral health advice, but these findings are consistent with those in the
50 literature in relation to community pharmacists and other healthcare professionals.(8,20)
51 There is also a need for further interprofessional education between the professional groups,
52 as identified our previous qualitative studies and in research outside of the UK.(35) This could
53 act to improve collaboration, reduce the perceived isolation of dental services and optimise
54 patient care.
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3 Pharmacists are now providing more complex clinical services in general practice,
4 representing an opportunity to enhance service provision, taking both increased responsibility
5 and accountability; this represents an opportunity to facilitate the provision of oral health
6 advice by this professional group and optimise patient care.
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11 Our study has shown that pharmacists in general practice represent a new avenue for the
12 provision of oral healthcare. Further enhancement of this role could improve the quality and
13 safety of oral healthcare through effective collaboration between pharmacists, other
14 members of the primary care health team and the dental profession. Professional bodies and
15 the commissioners of healthcare services at both a local and national level should consider
16 utilising pharmacists in general practice to provide oral health related advice and/or
17 interventions. Further research to explore the potential for this group to impact on patient
18 care is needed; however the integration of this could potentially have significant benefits to
19 patients.
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Conclusion

Our findings suggest that clinical pharmacists working in general practice are not currently providing optimum care in relation to oral health, with limited incorporation of oral health issues into current clinical practices. However, the disparate contexts of oral and general healthcare services, and a lack of clear referral pathways, is a significant barrier for the provision of high quality and safe oral healthcare in a primary care setting. The limited dental input into the multidisciplinary primary care team, a lack of communication and the absence of access to medical records by relevant primary care health professionals are potentially impacting on capacity to provide optimal patient care.

Further education in relation to oral health is required and could enable improved oral healthcare in this setting; the established links between periodontitis and diabetes, and the association of specific medicines with oral health-related adverse drug reactions represent a key focus for pharmacists who are becoming increasingly responsible and accountable for patient care in general practice.

The role of the clinical pharmacist working in general practice is rapidly developing and growth of this professional group is part of the NHS General Practice Forward View;⁽²²⁾ this represents an opportunity to integrate oral health advice into the management of patients in this setting. Further work to explore the benefit and impact of providing oral health care by this professional group in general practice ought to be explored.

1
2
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4

5
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7 carried out the study. AS identified the thematic framework and interpreted the data. AS, SW,
8 PP and CH reviewed and refined the data. AS wrote the paper and all authors revised it. AS
9 received training in qualitative research skills by the research team and through attendance
10 at a Qualitative Research Methods in Health Course at University College London.
11
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13

14
15 **Data Sharing:** Participant information sheets and invitation letters are included
16 (Supplementary Documents 3 and 4); no further data shared.
17
18

19
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21 Sunderland.
22

23
24 **Competing interests:** None
25

26
27 **Ethics approval:** Ethical approval was obtained from the University of Sunderland Research
28 Ethics Committee (REF: 002856)
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An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Initial Topic Guide

The following guide outlines the key areas for exploration during the interview.

Aims and objectives

- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff regarding the role of the pharmacist in oral health
- To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, regarding the role of the pharmacist in providing oral health promotion and interventions
- To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

Introduction

Aim: To introduce the research and set the context for the proceeding discussion

- Introduce self: Researchers background, University of Sunderland
- Introduce the study: what it is about
- Talk through key points
 - This will be a conversation where I will ask you questions
 - It will last between 30 and 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to, just let me know that you want to move on
 - Participation is voluntary and participant can withdraw at any time
- Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
- The interview will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
- This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
- Does the participant have any questions?



An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

All Participants

Background of participant

Prompts: age, employment, experience, undergraduate training, postgraduate training

Education on oral health

Prompts: undergraduate and postgraduate training, CPD, discipline only education or interprofessional, what was the focus

Current practices - pharmacists

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why

Links between prescribed medication and oral health problems - pharmacists

Prompts: MRONJ, bisphosphonates, awareness, current practices, role with this patient group, any other issues xerostomia, oral cancer etc.

Links between diabetes and periodontal disease - pharmacists

Prompts: Awareness of links, significance of links, benefits of periodontal treatment

Current practices in diabetic patients - pharmacists

Prompts: Is oral health promotion in this group part of your current practice, if not why not, if yes how do you deliver this

Current practices – GPs/Admin/Nurses

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why, knowledge of systemic diseases and medications affecting oral health

Perceived role of the practice pharmacist in oral health – GPs/Admin/Nurses

Prompts: Is there a role, is this a priority what does this look like, barriers, facilitators

Interprofessional working in oral health

Prompts: Current practices, what works, doesn't work and why, what are the challenges, how could this improve, learning from other areas

Experiences of interprofessional working

Prompts: Good examples, what makes it work well, what doesn't, frequency, in relation to diabetes

Education on the role of other healthcare professionals

Prompts: Particularly between medicine/dentistry/pharmacy, understanding of professional roles

Anything further to discuss?

Next steps

- Thank the participant
- Do they have any remaining questions about the research
- Reassurance around confidentiality and anonymity



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5 **An explorative study into the feasibility of oral health promotion and interventions**
6 **by pharmacists working in general practice. A qualitative study in the North East of**
7 **England**
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9 **Focus Group Topic Guide**

10 The following guide outlines the key areas for exploration during the interview.
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13 **Aims and objectives**

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- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff and patients regarding the role of the pharmacist in oral health
 - To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, and patients regarding the role of the pharmacist in providing oral health promotion and interventions
 - To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

23 **Introduction**

24 *Aim: To introduce the research and set the context for the proceeding discussion*

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- Introduce self: Researchers background, University of Sunderland
 - Introduce the study: what it is about
 - Talk through key points
 - This will be a conversation where I will some questions
 - These questions can then be discussed amongst the group
 - It will last between approximately 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to
 - Participation is voluntary and participant can withdraw at any time
 - It is important that only one person talks at any time
 - Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
 - The focus group will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
 - This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
 - Do the participants have any questions?



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5 **An explorative study into the feasibility of oral health promotion and interventions**
6 **by pharmacists working in general practice. A qualitative study in the North East of**
7 **England**
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10 **All Participants**

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12 **Roles of the GP practice pharmacist**

13 *Prompts:* What has been your current experience/attitudes towards this role, what sort of work
14 do you think practice pharmacists do, length of appointments, focus of this role,
15 crossover or segregation between GP role and nurse's role.
16

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18 **Patient education on oral health**

19 *Prompts:* Where has it come from, which healthcare professionals have talked about oral
20 health with you, awareness of any link between oral and systemic health, side-
21 effects of medications, expectations of who should do this
22

23 **Barriers to dental services**

24 *Prompts:* Access, costs, phobias, priority of oral health, education
25

26 **Communication between general practice and the dental team**

27 *Prompts:* Current thoughts, expectations, ways to improve, good examples of
28 interprofessional work in practice
29

30 **Opportunities for pharmacists in this role**

31 *Prompts:* What else could pharmacists do, incorporation of oral health advice into medication
32 reviews and chronic disease management, signposting, acceptability of oral health
33 advice from this professional group
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35 **Anything further to discuss?**
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40 **Next steps**

- 41 • Thank the participants
- 42 • Do they have any remaining questions about the research
- 43 • Reassurance around confidentiality and anonymity
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8 Mr Andrew Sturrock
9 School of Pharmacy and Pharmaceutical Sciences
10 Faculty of Health Sciences and Wellbeing
11 Sciences Complex
12 City Campus
13 Chester Road
14 University of Sunderland
15 SR1 3SD
16 Email: andrew.sturrock@sunderland.ac.uk
17 Tel: 01915152448
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20 Dear Sir/Madam
21

22
23 My name is Andrew Sturrock; I am a Principal Lecturer in Pharmacy Practice at the University
24 of Sunderland. I am writing to you as an invitation to take part in a research project that I am
25 running in conjunction with Scott Wilkes, Professor of General Practice and Primary Care.
26

27 Please find enclosed the participant information sheet, outlining the background to the study
28 and what is required of participants.
29

30 Participation can be either in person at your practice or via a scheduled telephone
31 appointment. If you would like to take part in the study please contact me via [email](#) or
32 telephone at the above address or complete and return the response form in the prepaid
33 envelope included with this letter.
34

35 Yours faithfully
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37 Andrew Sturrock
38 Principal Lecturer– Pharmacy Practice
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I would like find out more about the study and I am happy for a member of the research team to contact me

Contact details *(Please enter your contact details below)*

Title: _____ Dr/Mr/Mrs/Ms/Miss *(please delete as appropriate)*

Name: _____

Telephone contact number: _____

A convenient time to call is: Between _____ and _____

Please return this slip in the envelope provided. A member of research team will contact you on the contact number provided above.



Participant Information Sheet

Study title:

An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England.

What is the purpose of this study?

This study is looking to explore the current practices and feasibility of primary care pharmacists providing oral health promotion and interventions in a general practice setting.

Who can take part?

This study requires participants from five different groups;

1. General Practice Pharmacists, registered with the General Pharmaceutical Council
2. General Medical Practitioners, registered with the General Medical Council
3. General Practice Administrative Staff – Practice Managers at General Medical Practices
4. General Practice Nurses, registered with the Nursing & Midwifery Council
5. Patients, recruited from the University Patient Carer Public Involvement Group

Do I have to take part and can I change my mind?

Participation is entirely voluntary. If you change your mind about taking part in the study, you can withdraw at any point during the session without giving a reason and without penalty. Once the anonymised transcripts have been produced you will not be able to withdraw from the study. After the interview has been completed audio recording will be transcribed within 7 days.

What will happen to me if I take part?

We would like your help with this study by asking you to talk to one of our team members for up to an hour. We will audio record this conversation so that it is easier for us to make notes later about what was said. The interview can take place in person or via telephone, at your place of work, at the University of Sunderland, or we can come to your home to talk to you. The researcher will ask you a series of questions in relation to the study title and your experiences in practice, from which there are absolutely no right or wrong answers. Your answers may lead to further discussion around any point or topics raised.

What are the possible disadvantages and risks of taking part?

We don't think that there are any risks associated with taking part in this study.

What if something goes wrong?

If you change your mind about participation, please contact me by email to cancel your participation. If you feel unhappy about the conduct of the study, please contact me immediately or the Chairperson of the University of Sunderland Research Ethics Group, whose contact details are given below.



Participant Information Sheet

Will my taking part in this study be kept confidential?

The University of Sunderland is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Sunderland will keep identifiable information about you; a list of participants and signed consent forms will be stored securely by the principle investigator for a period of up to 2 years. Audio recordings and transcripts will be stored securely by the principle investigator for a period of up to 6 years. Access will be restricted to the research team and persons authorised by the University for Quality Assurance purposes.

Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided, the first participant will be given the code P1, the numerical value will change with each subsequent participant e.g. P2, P3 etc.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting the Principal Investigator, Andrew Sturrock andrew.sturrock@sunderland.ac.uk or Dr John Fulton, Chair of the University of Sunderland Research Ethics Group john.fulton@sunderland.ac.uk.

What will happen to the results of this study?

If suitable, the results may be presented at academic conferences and/or written up for publication in peer reviewed academic journals. A summary of the results will be made available to participants if you choose to receive a copy.

Who is organising and funding the research?

The research is being done by a research team at the University of Sunderland. The Chief Investigator for the project is Andrew Sturrock. His title is 'Principal Lecturer' and he is based in the School of Pharmacy and Pharmaceutical Sciences.

This project has received no external funding.

Who has reviewed the study?

The University of Sunderland Research Ethics Group has reviewed and approved the study.

Contact for further information:

Doctor John Fulton (Chair of the University of Sunderland Research Ethics Group, University of Sunderland) Email: john.fulton@sunderland.ac.uk Phone: 0191 515 2529

Who can I contact if I have questions about the study?

If you have any questions, we would like you to get in touch with us. You can do this by telephoning us on 0191 5152448



Participant Information Sheet

or you can email us on andrew.sturrock@sunderland.ac.uk

What should I do if I want to take part?

If you don't have any questions and would like to take part, please can you fill in the **Response Form** and send it to us. Please let us know the best way for us to get in touch with you. We don't know how many practitioners will want to help us so we might find we have too many and we may not need to ask for your help. Once we have your form, someone from the research team will get in touch with you and let you know if we do need your help or not. If we do they will arrange the best time and place for you to meet and talk to us.

Thank you for taking the time to read this information.

For peer review only



Consent Form

Study title: An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Anonymity and confidentiality: Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided.

Participant code: _____

Please ✓ or X as appropriate

| | |
|---|--|
| I have read and understood the attached study information and, by signing below, I consent to participate in this study | |
| I understand that I have the right to withdraw from the study without giving a reason up to 7 days after the completion of the interview. | |
| I understand that the interview will be audio recorded and transcribed anonymously. | |
| I consent to anonymised participant data to be included in any future publications. | |
| Would you like a summary of the results to be sent to you once the project is complete? If so please provide an email or postal address that the results can be sent too. Address: | |

Signed: _____

Print name: _____

(Your name, along with your participant code will not be used in or shared with anyone outside of the research team;)

Date: _____

Researcher Signature: _____

Print name: _____

Date: _____

Coding Tree

Enhanced clinical roles

- Accessibility to other primary care staff
- An evolving and advancing role
- Increased responsibility and accountability
- Chronic disease and medication management
- Management of high-risk medications
- Interface between care settings
- Lifestyle advice
- Access by patients

Limited knowledge

- Basic understanding
- Signposting to dental services
- Duty of care
- Limited links to systemic health
- Role in deprescribing
- Patient safety alerts – actioned but often forgotten
- Patient knowledge gained from dentists or parents
- A willingness for more education

Geographical/situational isolation

- Limited collaboration/communication
- No formal pathways
- Lack of shared records
- Reluctance/barriers for patient engagement with dental services
- Stereotyped professional roles

Integration of oral health advice

- Ability to identify and access patients
- Provision of lifestyle advice
- Less time pressures
- Need for direction/services

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

| No. Item | Guide questions/description | Reported on Page # | Details |
|--|--|--------------------------|--|
| Domain 1: Research team and reflexivity | | | |
| <i>Personal Characteristics</i> | | | |
| 1. Inter viewer/facilitator | Which author/s conducted the interview or focus group? | 21 | Andrew Sturrock (AS) |
| 2. Credentials | What were the researcher's credentials? E.g. PhD, MD | 1 | AS has an MSc in Clinical Pharmacy |
| 3. Occupation | What was their occupation at the time of the study? | 1 | Principal Lecturer – Master of Pharmacy Programme Leader |
| 4. Gender | Was the researcher male or female? | 1 | Male |
| 5. Experience and training | What experience or training did the researcher have? | 1 + 21 | AS received training in qualitative research skills by the research team and through attendance at a Qualitative Research Methods in Health Course at University College London. |
| <i>Relationship with participants</i> | | | |
| 6. Relationship established | Was a relationship established prior to study commencement? | 8 | Invitation letter and participant information sheets were posted out prior to the study. |
| 7. Participant knowledge of the interviewer | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | Supplementary document 3 | A participant information sheet was provided to all participants. |
| 8. Interviewer characteristics | What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | 1+21 | AS is a pharmacist. Interest in the research topic was developed due to teaching commitments on the MPharm programme at the University of Sunderland. The multidisciplinary team was assembled to reduce bias in the research process. |
| Domain 2: study design | | | |
| <i>Theoretical framework</i> | | | |
| 9. Methodological orientation and Theory | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 8 | An interpretive approach, with constant comparative analysis. |

| | | | |
|----------------------------------|--|----|---|
| <i>Participant selection</i> | | | |
| 10. Sampling | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 8 | A convenience sampling and snowball sampling method were adopted |
| 11. Method of approach | How were participants approached? e.g. face-to-face, telephone, mail, email | 8 | An invitation letter and information sheets were posted (Supplementary Documents 2-3) |
| 12. Sample size | How many participants were in the study? | 10 | 22 participants |
| 13. Non-participation | How many people refused to participate or dropped out? Reasons? | 9 | No participants who responded to the invitation refused to participate or dropped out of the study. |
| <i>Setting</i> | | | |
| 14. Setting of data collection | Where was the data collected? e.g. home, clinic, workplace | 10 | Data were collected at a time and place convenient to the interviewee; this was at their place of work, telephone and at the University of Sunderland |
| 15. Presence of non-participants | Was anyone else present besides the participants and researchers? | 8 | Interviews were held on a one-to-one basis or as a Focus Group. |
| 16. Description of sample | What are the important characteristics of the sample? e.g. demographic data, date | 10 | As displayed in table 1 and 2. |
| <i>Data collection</i> | | | |
| 17. Interview guide | Were questions, prompts, guides provided by the authors? Was it pilot tested? | 8 | Interview guide was developed and refined by the research team. Included as (Supplementary Document 1) |
| 18. Repeat interviews | Were repeat interviews carried out? If yes, how many? | 8 | No repeat interviews were performed |
| 19. Audio/visual recording | Did the research use audio or visual recording to collect the data? | 8 | Audio recording |
| 20. Field notes | Were field notes made during and/or after the interview or focus group? | 8 | No field notes were taken due to the verbatim transcribing |
| 21. Duration | What was the duration of the interviews or focus group? | 10 | Up to 1 hour |
| 22. Data saturation | Was data saturation discussed? | 10 | Data were analysed by AS, with transcripts and emerging themes cross-checked for interpretation and agreed amongst the research team. Constant comparative analysis was utilised as a means of enriching the data through |

| | | | |
|--|---|-------|---|
| | | | iterative data collection and analysis |
| 23. Transcripts returned | Were transcripts returned to participants for comment and/or correction? | 8 | No |
| Domain 3: analysis and findings | | | |
| <i>Data analysis</i> | | | |
| 24. Number of data coders | How many data coders coded the data? | 21 | AS identified the thematic framework and interpreted the data, which was reviewed and refined by the research team. |
| 25. Description of the coding tree | Did authors provide a description of the coding tree? | N/A | A description of the coding tree is not provided. |
| 26. Derivation of themes | Were themes identified in advance or derived from the data? | 8 | Themes were derived from the data |
| 27. Software | What software, if applicable, was used to manage the data? | N/A | |
| 28. Participant checking | Did participants provide feedback on the findings? | 8 | No |
| <i>Reporting</i> | | | |
| 29. Quotations presented | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 11-17 | Quotation are presented with clearly identifiable participant numbers |
| 30. Data and findings consistent | Was there consistency between the data presented and the findings? | 11-17 | Yes |
| 31. Clarity of major themes | Were major themes clearly presented in the findings? | 11-17 | Yes |
| 32. Clarity of minor themes | Is there a description of diverse cases or discussion of minor themes? | 11-17 | Yes |

BMJ Open

“We don’t seem to engage with dentists”: A qualitative study of primary healthcare staff and patients in the North East of England on the role of pharmacists in oral health care.

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3 **“We don’t seem to engage with dentists”**: A qualitative study of primary
4 **healthcare staff and patients in the North East of England on the role of**
5 **pharmacists in oral health care**
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52 **Keywords:** Pharmacists, Primary Care, Oral Health, Qualitative Research
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ABSTRACT

Objective: To explore the attitudes towards, and perceptions of, primary care healthcare staff and patients, regarding the role of clinical pharmacists in the provision of oral health advice and collaboration with dentists in general practice.

Design: Interpretivist methodology using qualitative semi-structured interviews and focus groups.

Participants: 22 participants; 10 pharmacists; 3 general practitioners, 2 nurses, 1 practice manager, 6 patients.

Setting: Primary care general medical practices in the North East of England and the University of Sunderland Patient Carer Public Involvement group.

Methods: One-to-one semi-structured interviews were performed with primary care healthcare staff. An iterative approach utilising constant comparative analysis facilitated the ongoing enrichment of data, salient themes were identified using Framework Analysis and related back to extant literature. A focus group was held with patients to further explore key themes.

Results: Four salient and inter-related themes emerged: (1) enhanced clinical roles; indicating rapidly changing roles of pharmacists working in general practice, increased responsibility and accountability of pharmacist prescribers, and the delivery of advanced clinical services; (2) limited knowledge; indicating basic understanding of appropriate oral health advice, but limited insight and provision of advice to patients with regards to links with systemic diseases and medication; (3) geographical/situational isolation of the dental team; indicating the disparate contexts and challenges of multidisciplinary working in oral health, and patients' attitudes towards dental care; (4) integration of oral health advice; indicating the potential of pharmacists to integrate oral health advice into current roles and to target specific patient groups in practice.

Conclusions:

The lack of integration between oral and general healthcare services potentially impacts negatively on patient care, requiring further interprofessional oral health education. The

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3 developing role of the pharmacist in general practice represents an opportunity to integrate
4 oral health advice and/or interventions into the management of patients in this setting.
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For peer review only

Strengths and limitations of this study

- There is limited research into the role of pharmacists in this setting; this is the first qualitative study that has explored the role of pharmacists as part of the general practice team in relation to oral healthcare.
- A wide range of general practice healthcare professionals and patients participated in this study; however a limitation is that no general dental practitioners were interviewed.
- Semi-structured interviews provided rich qualitative data and an iterative process of concurrent data collection and constant comparative analysis facilitated the simultaneous exploration, refinement and enrichment of key themes.

Introduction

Oral health conditions are thought to affect a significant proportion of the world's population, approximately 3.9 billion people worldwide and cost the NHS in England £3.4 billion per year.(1-2) The most recent Adult Dental Health Survey (2009) stated that 23% of the UK population do not attend a dentist.(3) Oral health is important for general health and wellbeing, and there is increasing evidence that has linked periodontitis to a number of diseases, such as cardiovascular disease and diabetes.(4-5)

Wilson and Soni's recent opinion piece in the British Dental Journal highlighted the potential for a collaborative approach between pharmacy and dentistry in the management of chronic diseases, such as diabetes and the potential capacity for pharmacists to encourage hard-to-reach individuals to become dental attenders.(6) In the United Kingdom, dental treatment is available privately or provided as part of the National Health Service (NHS). However, even under NHS arrangements, the majority of patients pay a contribution towards the cost of care their care, and currently care is charged into 1 of 3 bands (Band 1 £22.70; Band 2 £62.10; Band 3 £269.30) depending on the extent and complexity of treatment that is needed.(7)

Approximately half of the adults in the UK are affected by some level of periodontitis; a chronic inflammatory disease caused by bacterial infection of the supporting tissues surrounding the teeth.(3) This condition is usually painless and often goes unnoticed and untreated until it reaches an advanced stage.(8) The Cochrane Collaboration published a review in 2015, highlighting that randomised controlled trials have demonstrated that periodontal therapy is associated with a 3-4 mmol/mol (0.3-0.4%) reduction in HbA1c levels after 3 months;(9) this is a clinical impact equivalent to adding a second drug to a pharmacological regimen.(10) There is evidence that even a modest reduction in HbA1c is associated with improving outcomes for patients with type 2 diabetes; a 1% reduction in HbA1c has been associated with a 21% reduction in diabetes related death, 14% reduction in myocardial infarctions and 37% reduction in microvascular complications.(11) There is clear evidence of a bidirectional relationship between periodontitis and diabetes; poorly controlled diabetes increases the risk of periodontitis 2-3 times, and in turn periodontitis is associated with higher HbA1c levels and worse diabetes complications.(12,13) There is also evidence of an association between atherosclerotic cardiovascular disease and poor oral health.(14)

1
2
3 A number of medications can negatively impact oral health, representing a significant
4 opportunity for pharmacists to provide advice in relation to the prevention and management
5 of these issues. For example, polypharmacy and a high anticholinergic burden are associated
6 with the development of xerostomia and inhaled corticosteroids with oropharyngeal adverse
7 events, such as oral candidiasis.(15-16) Calcium channel blockers such as nifedipine,
8 ciclosporin and phenytoin are all associated with development of drug-induced gingival
9 overgrowth.(17) Medication-related osteonecrosis of the jaw (MRONJ) is a rare, yet significant
10 complication of anti-resorptive and anti-angiogenic drugs used in the treatment of
11 osteoporosis and cancer.(18) MRONJ is difficult to treat and significantly impacts on patient's
12 quality of life;(19) therefore a multidisciplinary approach to prevention is usually
13 recommended.(18)

14
15 Evidence suggests that pharmacists working in a community pharmacy setting see the
16 provision of oral health promotion to be part of their professional role. An oral health
17 promotion intervention in the North East of England demonstrated patient's acceptance to
18 the pharmacist's intervention and a positive intention to change oral health habits.(20) To the
19 authors knowledge, no studies have explored the utilisation of pharmacists working in general
20 practice to provide patients with oral health advice; however a systematic review of
21 pharmacists working in general practice found favourable results in various areas of chronic
22 disease management and the optimal use of medicines.(21)

23
24 Following a successful pilot, NHS England's General Practice Forward view (2016) committed
25 to the investment of £112 million to further develop this role with the aim of providing an
26 additional 1500 clinical pharmacists to the general practice workforce by 2020.(22) The
27 Primary Care Pharmacy Associations, Clinical Pharmacist in General Practice Job Description
28 sets out the duties and areas of responsibility for pharmacists in this setting in the UK;(23) this
29 includes managing long-term conditions, performing medication reviews, implementing
30 medication safety guidance, supporting public health campaigns and signposting to
31 appropriate healthcare professionals.

32
33 Each of these areas represents an opportunity for the provision of oral healthcare by clinical
34 pharmacists. Potential oral health related roles could include the provision of oral hygiene
35 advice and the recommendation of appropriate products, which could be targeted to high risk
36 patient groups or those in which the benefits of improved oral hygiene can impact on systemic
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3 health e.g. diabetes. Pharmacists could play an important role in the prevention or
4 management of the oral health-related adverse drug effects outlined above; this includes the
5 prevention of MRONJ through signposting and formal dental referrals, the prescribing of saliva
6 substitutes or high fluoride toothpastes, deprescribing medications implicated with
7 xerostomia and screening patients for oral cancer. The role of clinical pharmacist in the
8 provision of oral health advice and collaboration with dentists in general practice is explored
9 in our study.
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For peer review only

Aims

- 1) To explore the attitudes towards and perceptions of primary care healthcare staff and patients, regarding the role of the clinical pharmacist in providing oral health advice in a general practice setting
- 2) To explore any potential barriers and/or facilitators in utilising pharmacists in general practice to improve the interprofessional management of oral health

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METHOD

Design:

An interpretive approach was adopted throughout this research; an initial topic guide (Supplementary Document 1) was produced serving as a benchmark for semi-structured one-to-one interviews with healthcare professionals, which were audio recorded and transcribed verbatim. Constant comparative analysis, facilitated the concurrent and iterative process of data collection and analysis.(24) This process provided the opportunity for the further exploration of emergent themes through subsequent data collection. Ritchie and Spencer's Framework Analysis facilitated the process of constant comparative analysis and provided a systematic approach to the identification and analysis of salient themes.(25) Framework analysis involved a five-stage process: (1) familiarisation with the data – achieved via iterative cycles of listening to and re-reading of transcripts; (2) development of a thematic framework – the initial themes formed the basis of a thematic framework; (3) indexing data – data were indexed against the thematic framework; (4) charting – charts were produced of the data within the framework; (5) mapping of the data – themes were reviewed until definitive concepts were produced. A focus group was held with patients to explore key themes; a topic guide (Supplementary Document 2) was produced following the collection and analysis of data from healthcare professionals.

Participants:

General practice healthcare professionals were recruited from 12 practices across the North East of England. Four distinct professional groups were recruited to the study: [1] pharmacists working in general practice; [2] GPs; [3] general practice administrative staff; and [4] general practice nurses.

An invitation letter (Supplementary Document 3) and participant information sheet (Supplementary Document 4) were posted to medical practices in the region; an initial convenience sample of participants who responded to the invitation was implemented with further recruitment facilitated via snowball sampling.

Patient participants were recruited from the University of Sunderland Patient Carer and Public Involvement (PCPI) group; participant information sheets were emailed to PCPI representatives and those that responded to the invitation participated in a focus group.

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3 Informed consent was obtained before participation in the interviews and focus groups ; no
4 participants withdrew or refused to participate.
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8 **Analysis:**

9 Constant comparative analysis facilitated the identification and further exploration of salient
10 themes through an iterative process of data collection and analysis. Ritchie and Spencer's
11 Framework Analysis (2002),(25) provided a systematic five-stage approach to data analysis;
12 familiarisation with the data; development of a thematic framework; indexing data; charting
13 of the data and mapping of the data. Themes were reviewed by the research team until
14 definitive concepts could be produced from the data.
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21 **Ethical review:**

22 Ethical approval was obtained from the University of Sunderland Research Ethics Committee
23 prior to data collection (REF: 002856).
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30 **Patient Involvement:**

31 The principal investigator met with a patient representative from the University of Sunderland
32 PCPI Group to discuss the initial design and ethical implications of the study. Following the
33 collection and analysis of data from healthcare professionals, a focus group was held with 6
34 patients; the focus group facilitated the refinement of emerging concepts and the co-
35 construction of overarching themes.
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Results

22 participants were recruited to this study (Table 1 and 2). In-depth semi-structured interviews were carried out between October 2018 and April 2019 until no new themes emerged and extant ones were exhausted. Interviews took place at participants' places of work or at the University of Sunderland, with two interviews performed via telephone for logistical reasons; 1 hour was designated for each interview. 6 patients participated in a focus group, lasting 1 hour, held in April 2019 at the University of Sunderland.

Table 1. Healthcare Professional Participant Characteristics

| Participant | Identifier | Role | No. years' experience | Gender |
|-------------|------------|----------------------|-----------------------|--------|
| 1 | Ph1 | Pharmacist | 5-9 | Female |
| 2 | Ph2 | Pharmacist | 10-14 | Male |
| 3 | Ph3 | Pharmacist | <5 | Female |
| 4 | Ph4 | Pharmacist | >20 | Female |
| 5 | Ph5 | Pharmacist | 10-14 | Female |
| 6 | Ph6 | Pharmacist | 5-9 | Male |
| 7 | Ph7 | Pharmacist | 10-14 | Female |
| 8 | Ph8 | Pharmacist | 10-14 | Male |
| 9 | Ph9 | Pharmacist | <5 | Female |
| 10 | Ph10 | Pharmacist | 15-19 | Female |
| 11 | PM1 | Practice Manager | >20 | Female |
| 12 | GP1 | General Practitioner | 15-19 | Female |
| 13 | GP2 | General Practitioner | <5 | Male |
| 14 | GP3 | General Practitioner | >20 | Male |
| 15 | N1 | Nurse | 15-19 | Female |
| 16 | N2 | Nurse | >20 | Female |

Table 2. Patient Participant Characteristics

| Participant | Identifier | Role | Age | Gender |
|-------------|------------|---------|-------------|--------|
| 1 | Pt1 | Patient | 50-59 years | Female |
| 2 | Pt2 | Patient | 60-69 years | Male |
| 3 | Pt3 | Patient | 50-59 years | Female |
| 4 | Pt4 | Patient | 60-69 years | Male |
| 5 | Pt5 | Patient | 40-49 years | Female |
| 6 | Pt6 | Patient | 60-69 years | Female |

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3 Four salient inter-related themes emerged from the data and a coding tree was produced
4 (Supplementary Document 5): (1) enhanced clinical roles; (2) limited knowledge; (3)
5 geographical /situational isolation of the dental team; (4) integration of oral health advice.
6
7

8 9 **1. Enhanced clinical roles**

10
11 Participants highlighted the accessibility of pharmacists as part of the general practice team,
12 providing a complementary skill set to existing staff that enhances the provision of services
13 provided at practices.
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18 I'm directly contactable face-to-face by prescribers, GPs, nurse practitioners, nurses,
19 admin team, everything. They can just come directly into my office and ask me for
20 information. So, I'm probably more likely to be utilised clinically. In community
21 pharmacy, you obviously have other responsibilities as well and the pharmacist also
22 takes on the role of the manager. (Ph1)
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27
28 Participants identified that general practice is a rapidly evolving role for pharmacists, who are
29 increasingly involved with, and leading, more advanced, patient facing clinical services. These
30 services require an enhanced level of clinical knowledge compared to more traditional
31 pharmacy roles, with pharmacists increasing inputting more into the clinical management of
32 patients in this setting.
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38 Our roles in the surgeries are evolving and perhaps new to some, but I found it on the
39 whole to be very very positive and that the other staff have been accepting. (Ph8)
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43 Many of the pharmacist participants described providing a higher level of clinical service
44 facilitated through obtaining postgraduate prescribing qualifications resulting in a greater
45 degree of clinical responsibility and accountability.
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49 I'm in quite an advanced clinical role now. So I do a lot of diagnostics and treating
50 myself. I'm a prolific prescriber. (Ph7)
51

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53 Participants perceived that the management of chronic long-term conditions, with a specific
54 focus on optimising therapy and the provision of detailed, clinically focused medication
55 reviews to be a key role for pharmacists in this setting.
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3 I would see patients for medication reviews, particularly the complex ones, the ones
4 with polypharmacy in particular come to me. It would be about making sure they are
5 on the right regimens, making sure they haven't got any adverse effects and maybe
6 stopping drugs if no longer appropriate. (Ph4)
7
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10
11 The management of high-risk medications and the reconciliation of medication provided on
12 discharge or from a specialist setting was seen as an important part of the pharmacist's role..
13 The services provided are integrated into the existing practice infrastructure and the access
14 of pharmacists in this setting to full clinical records facilitates a higher degree of clinical input.
15 Through working in this setting pharmacists can also clearly communicate with the rest of the
16 practice team; this includes following up on monitoring requirements, liaising with community
17 pharmacies and updating medical records to accurately reflect patient's current medication.
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24 Some of my work is quite administrative, so dealing with queries, issues from
25 community pharmacies, discharge prescriptions or hospital letters, things like that.
26 Making sure that patient's medication lists are correct, particularly with medicines
27 started on discharge or in outpatients, you know, ones with shared care agreements
28 or high-risk drugs. (Ph3)
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34 The provision of lifestyle and preventive advice was seen as a key role for pharmacists,
35 complementing work done by practice nurses; this would typically include signposting
36 patients and formal interprofessional referral where required.
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40 There is an increasing amount of work for GPs, and I think the lifestyle issues seem to
41 get shifted down the line as to what we are able to focus on, its often not what the
42 patient presents with. I think both pharmacists and nurses are good at doing that, it is
43 about prioritising in that short time you have. (GP1)
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48 Some of the patients had experience of having appointments with pharmacists in general
49 practice. Those who had reported favourable experiences and were positive towards the
50 benefits for their care; with a particular focus on reviewing medications and reducing the
51 known side-effects of prescribed medicines.
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56 She (pharmacist) rang up to discuss the medication because they were changing my
57 insulin. So, she was on about ten minutes going through everything that I was on to
58 make sure I was happy, everything was balanced, no side-effects and she decided to
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3 change a couple of things that I'd been on for a number of years. She was really helpful
4 and its definitely better now. (Pt1)
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7 Some patients had not experienced services provided by pharmacists in this role; a number of
8 participants perceived that the benefit of pharmacists resulted from the accessible locations
9 and opening hours of community pharmacies and were concerned that the pharmacist in
10 general practice would become another healthcare professional with whom making
11 appointments was challenging. This was a common experience of patients when trying to
12 make appointments with general practice staff.
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19 You could get a doctor's appointment more easily when we were young. But I think
20 people tend to just to pop in a pharmacy, I think there's more information in the
21 pharmacy now, there is no wait for appointments and they are open all the time. (Pt3)
22
23
24

25 If you have to wait to get an appointment with the pharmacist at the doctor's surgery,
26 you may as well just see the doctor or whatever else, the point of a pharmacist to me
27 is that it's, like, around the corner and it's easy. (Pt6)
28
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31 **2. Limited knowledge**

32 All healthcare professional participants reported limited knowledge of basic oral health advice
33 and would try to signpost patients to dental services where possible, but perceived that they
34 were able to manage common conditions, such as a mouth ulcer, and provide basic oral
35 hygiene advice.
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41 You will get people presenting to surgery with queries around the mouth generally.
42 Perhaps unexplained problems. It might be anything from halitosis, to soreness, to
43 ulcers, to even presenting with dental abscess because they'd rather come to us than
44 go to a dentist. We try to signpost them to a dentist, but we can deal with some of the
45 minor issues. (N1)
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51 The primary care staff participants described the presentation of patients in general practice
52 with dental problems, such as dental pain and likely infections. Participants described limited
53 knowledge in the assessment and management of dental infections; GPs would typically
54 signpost these patients to a dentist, but did report a perceived duty of care to help this patient
55 group if the patient was unable/unwilling to attend a dental appointment.
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3 Even if a GP thinks, 'actually, I think it's an abscess' he or she's got a duty of care to
4 treat that infection and not to leave it, even if we don't know a great deal about more
5 complex dental issues. Especially when they say they don't have a dentist. (Ph10)
6
7
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9 Participants had limited knowledge of the links between oral and systemic health; with oral
10 health advice not usually forming part of discussions with patients in high risk groups, such as
11 those with diabetes and with multidisciplinary diabetes teams not including dental
12 professionals.
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16
17 I haven't really heard of links between the two. I see lots of patients with diabetes and
18 it is definitely not something that I would tell patients about. (Ph5)
19
20

21 Although not a direct focus of interventions, pharmacists described a key role in the
22 deprescribing of medications in patients with a high anticholinergic burden. These patients
23 would typically complain of a dry mouth and this would be used by some as an incentive to
24 stop or reduce implicated medicines.
25
26
27

28
29 I look to stop some medicines during medication or falls reviews, medicines that have
30 antimuscarinic side-effects, so like those for urinary incontinence or tricyclic
31 antidepressants that cause, like a drying effect, and patients experience dry mouth.
32
33
34
35 (Ph1)
36

37 The pharmacists were aware of MRONJ, mainly due to historic Medicines Healthcare
38 Regulatory Agency safety alerts. The actioning of these alerts was described as a key role of
39 the practice pharmacist; participants reported that following safety alerts patients were
40 identified and provided signposting advice, however pharmacist and GP participants
41 acknowledged that these alerts are often forgotten or lose focus and need to become longer
42 term initiatives, not isolated alerts.
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48
49 I remember a couple of years ago, there was an alert and where we set it up so that all
50 new patients going on a bisphosphonate got told to have a dental check-up before
51 they went on. Now, I don't know – I haven't seen anything around that lately and I've
52 got a feeling that might have lapsed a bit. Or at least I'm not aware of it happening.
53
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56 (Ph4)
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3 The patient participants identified that their knowledge in relation to oral health has almost
4 exclusively come from their dentist or their parents as a child. None of the participants
5 described receiving any oral health advice from other healthcare professionals.
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8
9 I think it would be from my mum and dad and then the dentist. I don't think anyone
10 else has ever talked about oral health with me, maybe the school nurse a long time
11 ago. (Pt5)
12
13

14
15 All participants described a need and willingness to receive further education and training on
16 oral health; this was perceived as a deficit in both undergraduate training in post registration
17 continuing professional development.
18
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20
21 I think it would be useful to have more training – directed at general practice. I think
22 most of us know the basics, but not really much depth, especially around how oral
23 health and just general health and wellbeing are related. (Ph3)
24
25
26

27 28 **3. Geographical/situational isolation of the dental team;** 29

30 General practice staff reported limited collaboration with dental colleagues in primary care,
31 with no formal referral pathways between medical and dental services and a lack of
32 communication between the professional groups. These were all seen as significant barriers
33 to providing high quality and safe oral health care to patients.
34
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37
38 I would say there is anonymity really. If you compare it with, for example, local
39 opticians where we have frequent interactions, albeit by paper, we don't really get
40 any, sort of, direct contact. Not that I can recall. (GP3)
41
42
43

44 We don't seem to engage with dentists. In fact, the only time that I ever had a proper
45 conversation with a dentist was when I worked in community pharmacy and that
46 would have been over an incorrect prescription or an out of stock item. And I just think,
47 you know, there is a lot of cross conversations that we could have. (Ph10)
48
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51
52 There were concerns about the lack of information shared between primary medical and
53 dental services and the impact that this has on patient safety; with dentists not having access
54 to patient's Summary Care Records and general practice staff not receiving information about
55 the care or interventions provided in a dental setting. This included a lack of information on
56 medication prescribed by dentists.
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3 We would never know if the dentists had prescribed any antibiotics or anything for a
4 patient. Yet, if anyone else in the primary healthcare team prescribes anything for our
5 patients, we know. We would get either a letter or a fax summary, something sent over
6 to say this is what's happened in this patient (Ph7)
7
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11 Both patients and the healthcare professionals described their own and their patient's
12 reluctance to engage fully with dental services; barriers include the cost of both preventive
13 and remedial dental work, dental phobias and a lack of education on the benefits of good oral
14 health.
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19 The area I am in is very deprived and actually, I would say that the majority don't ever
20 visit the dentist, I think they just don't see it as important and loads of them just don't
21 have the money, and fear, loads of people hate seeing a dentist unless it's absolutely
22 necessary. (Ph5)
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27 The patients also reported a perceived segregation between the dental and medical
28 professions, with historic stereotyping contributing to their formative understanding of each
29 role. This was described as a barrier in engaging with oral healthcare outside of a dental
30 setting, as historically this is not an environment that patients associate with dental care
31 provision.
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37 I think it's just the way society has brought us up in that there are two defining
38 people, dentists and doctors. Anything to do with dentists, you go to the dentist
39 anything about your health you go to the doctors. They have always been seen as
40 separate. (Pt6)
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45 **4. Integration of oral health advice**

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47 Pharmacists working in general practice have better access to patient medical records than
48 their community pharmacy colleagues and are therefore well placed to identify patients who
49 may be suitable for targeted interventions. For example, the practice diabetes register or
50 those patients prescribed medications with oral health-related adverse effects, such as
51 bisphosphonates, could be easily identified and invited for review by the pharmacist.
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3 In GP practices, people are coded appropriately, as smokers, or based on specific
4 conditions, or you could look at medications that are associated with oral complications
5 and target those people. It is easy enough to identify potential higher risk patients. (Ph1)
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9 Participants described the role of the pharmacist in optimising medication regimens and their
10 specific focus on providing input into patient care through chronic disease management clinics
11 and medication reviews. All participants agreed that the provision of appropriate lifestyle
12 advice should form a key element of these consultations.
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17 Generally, I think pharmacists can focus on medicines and do a really good job getting
18 those right, but with the, let's call it, soft interventions, lifestyle advice etc., they seem
19 to work better when they're repeated by various people. (GP3)
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23 Participants reported that consultations with the pharmacist are typically less time pressured
24 than GP appointments; with most pharmacist participants not routinely involved in providing
25 acute care. This time could facilitate the provision of more detailed consultations,
26 representing an opportunity to incorporate oral health advice into current practices.
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31 My clinics could easily be timetabled for 20 minutes instead of 10, and as I don't really
32 see acute patients or have the same time pressures as some of the GPs or practice
33 nurses. I can talk longer and to go into more detail about things, there is scope to take
34 more time and really reinforce the key messages. (Ph2)
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39 I don't see any reason why you can't promote oral hygiene at a doctor's practice, you
40 can promote it, give people the information so they are properly informed. Then it is
41 up to them. (Pt2)
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45 The incorporation of basic oral health advice can be integrated into the current role of the
46 pharmacist; however, participants reported a need for more direction from professional
47 bodies or the commissioners of local or national services to provide more complex
48 interventions and to improve interprofessional collaboration with dental professionals.
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53 There is loads that we could do and as a practice we could just do it to give a better quality
54 of care, but if it is a paid service or linked to certain targets etc then there may be more
55 incentive to focus on it. (Ph2)
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Discussion

Our research has highlighted the disparate contexts of provision of oral and general healthcare in the North East of England. This is further hindered by a lack of communication between medical and dental service providers, a lack of clear referral pathways and no shared access to medical records. All of these are significant barriers to the provision of high quality and safe oral health care. Further consideration and action is therefore needed at the level of policy and practice if patient safety and quality care in an oral health context are to be implemented and sustained in a non-dental setting.

The evolving role of the clinical pharmacist in general practice is facilitating the provision of additional clinical services and is improving patient care.(21,26) The provision of oral healthcare by pharmacists in general practice is limited at present, but this role represents an opportunity to target at risk patients and incorporate appropriate advice into current services.

The limited knowledge of oral health reported by our participants is similar to findings published in the literature.(27) In particular, our findings in relation to the limited knowledge of general practice staff of the bidirectional relationship between periodontitis and diabetes match those by Bissett et al 2013.(8) Their study did not specifically include pharmacists and the subsequent enhancement of the clinical pharmacist in general practice role discussed in our study represents an unexplored opportunity to improve medical and dental collaboration.

Previous studies have identified a role for pharmacists working in a community pharmacy setting to provide oral health advice to patients.(20,28-31) Our study has explored the expanding role of the pharmacist in the general practice setting; this has received significant funding from the NHS and forms a key component of NHS England's General Practice Forward View (2016).(21) Further exploration of the potential roles of pharmacists in this setting is required to establish the impact made on patient care.

Further consideration needs to be made by both clinicians and policymakers to better integrate oral health into holistic healthcare provision. Research by Bissett et al (2019) identified that dentists tend not to contact GPs regarding the management of patients with diabetes, and when they do so, they typically communicate through the patient, as opposed to through formal referral channels.(32) Participants in our study reported little collaboration between general practice and dentists, with a lack of formal referral pathways and the limited

1
2
3 sharing of patient information. A lack of shared information between medical and dental
4 services was identified by participants in our study as a risk to patient safety. More than 96%
5 of the population of England have a Summary Care Record (SCR) that can be accessed from a
6 variety of NHS service providers; however, NHS dental practices do not currently have access
7 to SCRs.(33) This represents a barrier to optimal patient care, but also potentially results in a
8 risk to patient safety; dentists are currently reliant on patients to be able to provide accurate
9 medication histories and general practice staff are potentially unaware of medication
10 prescribed by dentists. Access to medical records in dental practices could improve
11 collaboration,(34) facilitate a reduction in patient safety concerns that arise as a result of
12 incomplete or inaccurate information. For example accurate medication histories could
13 reduce the risk of dentists and doctors inadvertently prescribing medication that negatively
14 interacts with existing therapy or missing dentally important drugs such as bisphosphonates
15 and could encourage better communication between settings. Participants in our study
16 described a key role for pharmacists in general practice in relation to the reconciliation of
17 medicines and the maintenance of accurate medication histories; this represents an
18 opportunity to ensure the flow of correct information between care settings and could be
19 utilised if records were shared between medical and dental service providers.

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35 Participants described the presentation of patients in general practice with oral health
36 complaints; this was perceived to be due to issues with patients accessing dental services, the
37 cost of dental treatment in the United Kingdom and patients' phobias of dentists. The
38 healthcare professional participants reported some knowledge in relation to basic oral health
39 advice, however there is a clear need for further education of non-dental health professionals
40 to address the limited knowledge of the associated links between oral health and systemic
41 diseases.

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48 This is the first study that has explored the role of the pharmacist in general practice in relation
49 to the provision of oral health advice, but these findings are consistent with those in the
50 literature in relation to community pharmacists and other healthcare professionals.(8,20)
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52 There is also a need for further interprofessional education between the professional groups,
53 as identified our previous qualitative studies and in research outside of the UK.(35) This could
54 act to improve collaboration, reduce the perceived isolation of dental services and optimise
55 patient care.
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3 Pharmacists are now providing more complex clinical services in general practice,
4 representing an opportunity to enhance service provision, taking both increased responsibility
5 and accountability; this represents an opportunity to facilitate the provision of oral health
6 advice by this professional group and optimise patient care.
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11 Our study has shown that pharmacists in general practice represent a new avenue for the
12 provision of oral healthcare. Further enhancement of this role could improve the quality and
13 safety of oral healthcare through effective collaboration between pharmacists, other
14 members of the primary care health team and the dental profession. Professional bodies and
15 the commissioners of healthcare services at both a local and national level should consider
16 utilising pharmacists in general practice to provide oral health related advice and/or
17 interventions. Further research to explore the potential for this group to impact on patient
18 care is needed; however the integration of this could potentially have significant benefits to
19 patients.
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Conclusion

Our findings suggest that clinical pharmacists working in general practice are not currently providing optimum care in relation to oral health, with limited incorporation of oral health issues into current clinical practices. However, the disparate contexts of oral and general healthcare services, and a lack of clear referral pathways, is a significant barrier for the provision of high quality and safe oral healthcare in a primary care setting. The limited dental input into the multidisciplinary primary care team, a lack of communication and the absence of access to medical records by relevant primary care health professionals are potentially impacting on capacity to provide optimal patient care.

Further education in relation to oral health is required and could enable improved oral healthcare in this setting; the established links between periodontitis and diabetes, and the association of specific medicines with oral health-related adverse drug reactions represent a key focus for pharmacists who are becoming increasingly responsible and accountable for patient care in general practice.

The role of the clinical pharmacist working in general practice is rapidly developing and growth of this professional group is part of the NHS General Practice Forward View;⁽²²⁾ this represents an opportunity to integrate oral health advice into the management of patients in this setting. Further work to explore the benefit and impact of providing oral health care by this professional group in general practice ought to be explored.

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4

5
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8 PP and CH reviewed and refined the data. AS wrote the paper and all authors revised it. AS
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10 at a Qualitative Research Methods in Health Course at University College London.
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22

23
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An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

Initial Topic Guide

The following guide outlines the key areas for exploration during the interview.

Aims and objectives

- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff regarding the role of the pharmacist in oral health
- To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, regarding the role of the pharmacist in providing oral health promotion and interventions
- To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

Introduction

Aim: To introduce the research and set the context for the proceeding discussion

- Introduce self: Researchers background, University of Sunderland
- Introduce the study: what it is about
- Talk through key points
 - This will be a conversation where I will ask you questions
 - It will last between 30 and 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to, just let me know that you want to move on
 - Participation is voluntary and participant can withdraw at any time
- Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
- The interview will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
- This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
- Does the participant have any questions?



An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England

All Participants

Background of participant

Prompts: age, employment, experience, undergraduate training, postgraduate training

Education on oral health

Prompts: undergraduate and postgraduate training, CPD, discipline only education or interprofessional, what was the focus

Current practices - pharmacists

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why

Links between prescribed medication and oral health problems - pharmacists

Prompts: MRONJ, bisphosphonates, awareness, current practices, role with this patient group, any other issues xerostomia, oral cancer etc.

Links between diabetes and periodontal disease - pharmacists

Prompts: Awareness of links, significance of links, benefits of periodontal treatment

Current practices in diabetic patients - pharmacists

Prompts: Is oral health promotion in this group part of your current practice, if not why not, if yes how do you deliver this

Current practices – GPs/Admin/Nurses

Prompts: What is your current role in relation to oral health, is this a priority, what do you discuss with patients, when and why, knowledge of systemic diseases and medications affecting oral health

Perceived role of the practice pharmacist in oral health – GPs/Admin/Nurses

Prompts: Is there a role, is this a priority what does this look like, barriers, facilitators

Interprofessional working in oral health

Prompts: Current practices, what works, doesn't work and why, what are the challenges, how could this improve, learning from other areas

Experiences of interprofessional working

Prompts: Good examples, what makes it work well, what doesn't, frequency, in relation to diabetes

Education on the role of other healthcare professionals

Prompts: Particularly between medicine/dentistry/pharmacy, understanding of professional roles

Anything further to discuss?

Next steps

- Thank the participant
- Do they have any remaining questions about the research
- Reassurance around confidentiality and anonymity



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5 **An explorative study into the feasibility of oral health promotion and interventions**
6 **by pharmacists working in general practice. A qualitative study in the North East of**
7 **England**
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9 **Focus Group Topic Guide**

10 The following guide outlines the key areas for exploration during the interview.
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13 **Aims and objectives**

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- To explore the knowledge and current practice of primary care pharmacists, general medical practitioners and administrative staff and patients regarding the role of the pharmacist in oral health
 - To explore the attitudes towards and perceptions of primary care pharmacists, general medical practitioners and administrative staff, and patients regarding the role of the pharmacist in providing oral health promotion and interventions
 - To explore any barriers and facilitators for utilising pharmacists in primary care to improving the interprofessional management of oral health

23 **Introduction**

24 *Aim: To introduce the research and set the context for the proceeding discussion*

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- Introduce self: Researchers background, University of Sunderland
 - Introduce the study: what it is about
 - Talk through key points
 - This will be a conversation where I will some questions
 - These questions can then be discussed amongst the group
 - It will last between approximately 60 minutes
 - There are no right or wrong answers
 - You don't have to answer all of the questions if you don't want to
 - Participation is voluntary and participant can withdraw at any time
 - It is important that only one person talks at any time
 - Confidentiality/ anonymity
 - Transcripts will be anonymised
 - In report writing, any quotes won't be identified as being you
 - The focus group will be audio recorded
 - The recording will be kept secure, only accessed by the four researchers working on the project
 - This piece of paper is just to help me remember what questions I want to ask you, and I may make some brief notes during the interview to remind me to go back to something you said later on if that's ok
 - Do the participants have any questions?



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5 **An explorative study into the feasibility of oral health promotion and interventions**
6 **by pharmacists working in general practice. A qualitative study in the North East of**
7 **England**
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10 **All Participants**

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12 **Roles of the GP practice pharmacist**

13 *Prompts:* What has been your current experience/attitudes towards this role, what sort of work
14 do you think practice pharmacists do, length of appointments, focus of this role,
15 crossover or segregation between GP role and nurse's role.
16

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18 **Patient education on oral health**

19 *Prompts:* Where has it come from, which healthcare professionals have talked about oral
20 health with you, awareness of any link between oral and systemic health, side-
21 effects of medications, expectations of who should do this
22

23 **Barriers to dental services**

24 *Prompts:* Access, costs, phobias, priority of oral health, education
25

26 **Communication between general practice and the dental team**

27 *Prompts:* Current thoughts, expectations, ways to improve, good examples of
28 interprofessional work in practice
29

30 **Opportunities for pharmacists in this role**

31 *Prompts:* What else could pharmacists do, incorporation of oral health advice into medication
32 reviews and chronic disease management, signposting, acceptability of oral health
33 advice from this professional group
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35 **Anything further to discuss?**
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40 **Next steps**

- 41 • Thank the participants
- 42 • Do they have any remaining questions about the research
- 43 • Reassurance around confidentiality and anonymity
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16 Email: andrew.sturrock@sunderland.ac.uk
17 Tel: 01915152448
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20 Dear Sir/Madam
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23 My name is Andrew Sturrock; I am a Principal Lecturer in Pharmacy Practice at the University
24 of Sunderland. I am writing to you as an invitation to take part in a research project that I am
25 running in conjunction with Scott Wilkes, Professor of General Practice and Primary Care.
26

27 Please find enclosed the participant information sheet, outlining the background to the study
28 and what is required of participants.
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30 Participation can be either in person at your practice or via a scheduled telephone
31 appointment. If you would like to take part in the study please contact me via [email](#) or
32 telephone at the above address or complete and return the response form in the prepaid
33 envelope included with this letter.
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35 Yours faithfully
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37 Andrew Sturrock
38 Principal Lecturer– Pharmacy Practice
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I would like find out more about the study and I am happy for a member of the research team to contact me

Contact details *(Please enter your contact details below)*

Title: _____ Dr/Mr/Mrs/Ms/Miss *(please delete as appropriate)*

Name: _____

Telephone contact number: _____

A convenient time to call is: Between _____ and _____

Please return this slip in the envelope provided. A member of research team will contact you on the contact number provided above.



Participant Information Sheet

Study title:

An explorative study into the feasibility of oral health promotion and interventions by pharmacists working in general practice. A qualitative study in the North East of England.

What is the purpose of this study?

This study is looking to explore the current practices and feasibility of primary care pharmacists providing oral health promotion and interventions in a general practice setting.

Who can take part?

This study requires participants from five different groups;

1. General Practice Pharmacists, registered with the General Pharmaceutical Council
2. General Medical Practitioners, registered with the General Medical Council
3. General Practice Administrative Staff – Practice Managers at General Medical Practices
4. General Practice Nurses, registered with the Nursing & Midwifery Council
5. Patients, recruited from the University Patient Carer Public Involvement Group

Do I have to take part and can I change my mind?

Participation is entirely voluntary. If you change your mind about taking part in the study, you can withdraw at any point during the session without giving a reason and without penalty. Once the anonymised transcripts have been produced you will not be able to withdraw from the study. After the interview has been completed audio recording will be transcribed within 7 days.

What will happen to me if I take part?

We would like your help with this study by asking you to talk to one of our team members for up to an hour. We will audio record this conversation so that it is easier for us to make notes later about what was said. The interview can take place in person or via telephone, at your place of work, at the University of Sunderland, or we can come to your home to talk to you. The researcher will ask you a series of questions in relation to the study title and your experiences in practice, from which there are absolutely no right or wrong answers. Your answers may lead to further discussion around any point or topics raised.

What are the possible disadvantages and risks of taking part?

We don't think that there are any risks associated with taking part in this study.

What if something goes wrong?

If you change your mind about participation, please contact me by email to cancel your participation. If you feel unhappy about the conduct of the study, please contact me immediately or the Chairperson of the University of Sunderland Research Ethics Group, whose contact details are given below.



Participant Information Sheet

Will my taking part in this study be kept confidential?

The University of Sunderland is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Sunderland will keep identifiable information about you; a list of participants and signed consent forms will be stored securely by the principle investigator for a period of up to 2 years. Audio recordings and transcripts will be stored securely by the principle investigator for a period of up to 6 years. Access will be restricted to the research team and persons authorised by the University for Quality Assurance purposes.

Participation in this study will be kept confidential. No personally identifiable information will be included in any write up or publication; a non-identifiable participant code will be used against any quotes provided, the first participant will be given the code P1, the numerical value will change with each subsequent participant e.g. P2, P3 etc.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting the Principal Investigator, Andrew Sturrock andrew.sturrock@sunderland.ac.uk or Dr John Fulton, Chair of the University of Sunderland Research Ethics Group john.fulton@sunderland.ac.uk.

What will happen to the results of this study?

If suitable, the results may be presented at academic conferences and/or written up for publication in peer reviewed academic journals. A summary of the results will be made available to participants if you choose to receive a copy.

Who is organising and funding the research?

The research is being done by a research team at the University of Sunderland. The Chief Investigator for the project is Andrew Sturrock. His title is 'Principal Lecturer' and he is based in the School of Pharmacy and Pharmaceutical Sciences.

This project has received no external funding.

Who has reviewed the study?

The University of Sunderland Research Ethics Group has reviewed and approved the study.

Contact for further information:

Doctor John Fulton (Chair of the University of Sunderland Research Ethics Group, University of Sunderland) Email: john.fulton@sunderland.ac.uk Phone: 0191 515 2529

Who can I contact if I have questions about the study?

If you have any questions, we would like you to get in touch with us. You can do this by telephoning us on 0191 5152448



Participant Information Sheet

or you can email us on andrew.sturrock@sunderland.ac.uk

What should I do if I want to take part?

If you don't have any questions and would like to take part, please can you fill in the **Response Form** and send it to us. Please let us know the best way for us to get in touch with you. We don't know how many practitioners will want to help us so we might find we have too many and we may not need to ask for your help. Once we have your form, someone from the research team will get in touch with you and let you know if we do need your help or not. If we do they will arrange the best time and place for you to meet and talk to us.

Thank you for taking the time to read this information.

For peer review only

Coding Tree

Enhanced clinical roles

- Accessibility to other primary care staff
- An evolving and advancing role
- Increased responsibility and accountability
- Chronic disease and medication management
- Management of high-risk medications
- Interface between care settings
- Lifestyle advice
- Access by patients

Limited knowledge

- Basic understanding
- Signposting to dental services
- Duty of care
- Limited links to systemic health
- Role in deprescribing
- Patient safety alerts – actioned but often forgotten
- Patient knowledge gained from dentists or parents
- A willingness for more education

Geographical/situational isolation

- Limited collaboration/communication
- No formal pathways
- Lack of shared records
- Reluctance/barriers for patient engagement with dental services
- Stereotyped professional roles

Integration of oral health advice

- Ability to identify and access patients
- Provision of lifestyle advice
- Less time pressures
- Need for direction/services

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

| No. Item | Guide questions/description | Reported on Page # | Details |
|--|--|--------------------------|--|
| Domain 1: Research team and reflexivity | | | |
| <i>Personal Characteristics</i> | | | |
| 1. Interviewer/facilitator | Which author/s conducted the interview or focus group? | 21 | Andrew Sturrock (AS) |
| 2. Credentials | What were the researcher's credentials? E.g. PhD, MD | 1 | AS has an MSc in Clinical Pharmacy |
| 3. Occupation | What was their occupation at the time of the study? | 1 | Principal Lecturer – Master of Pharmacy Programme Leader |
| 4. Gender | Was the researcher male or female? | 1 | Male |
| 5. Experience and training | What experience or training did the researcher have? | 1 + 21 | AS received training in qualitative research skills by the research team and through attendance at a Qualitative Research Methods in Health Course at University College London. |
| <i>Relationship with participants</i> | | | |
| 6. Relationship established | Was a relationship established prior to study commencement? | 8 | Invitation letter and participant information sheets were posted out prior to the study. |
| 7. Participant knowledge of the interviewer | What did the participants know about the researcher? e.g. personal goals, reasons for doing the research | Supplementary document 3 | A participant information sheet was provided to all participants. |
| 8. Interviewer characteristics | What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic | 1+21 | AS is a pharmacist. Interest in the research topic was developed due to teaching commitments on the MPharm programme at the University of Sunderland. The multidisciplinary team was assembled to reduce bias in the research process. |
| Domain 2: study design | | | |
| <i>Theoretical framework</i> | | | |
| 9. Methodological orientation and Theory | What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis | 8 | An interpretive approach, with constant comparative analysis. |

| | | | |
|----------------------------------|--|----|---|
| <i>Participant selection</i> | | | |
| 10. Sampling | How were participants selected? e.g. purposive, convenience, consecutive, snowball | 8 | A convenience sampling and snowball sampling method were adopted |
| 11. Method of approach | How were participants approached? e.g. face-to-face, telephone, mail, email | 8 | An invitation letter and information sheets were posted (Supplementary Documents 2-3) |
| 12. Sample size | How many participants were in the study? | 10 | 22 participants |
| 13. Non-participation | How many people refused to participate or dropped out? Reasons? | 9 | No participants who responded to the invitation refused to participate or dropped out of the study. |
| <i>Setting</i> | | | |
| 14. Setting of data collection | Where was the data collected? e.g. home, clinic, workplace | 10 | Data were collected at a time and place convenient to the interviewee; this was at their place of work, telephone and at the University of Sunderland |
| 15. Presence of non-participants | Was anyone else present besides the participants and researchers? | 8 | Interviews were held on a one-to-one basis or as a Focus Group. |
| 16. Description of sample | What are the important characteristics of the sample? e.g. demographic data, date | 10 | As displayed in table 1 and 2. |
| <i>Data collection</i> | | | |
| 17. Interview guide | Were questions, prompts, guides provided by the authors? Was it pilot tested? | 8 | Interview guide was developed and refined by the research team. Included as (Supplementary Document 1) |
| 18. Repeat interviews | Were repeat interviews carried out? If yes, how many? | 8 | No repeat interviews were performed |
| 19. Audio/visual recording | Did the research use audio or visual recording to collect the data? | 8 | Audio recording |
| 20. Field notes | Were field notes made during and/or after the interview or focus group? | 8 | No field notes were taken due to the verbatim transcribing |
| 21. Duration | What was the duration of the interviews or focus group? | 10 | Up to 1 hour |
| 22. Data saturation | Was data saturation discussed? | 10 | Data were analysed by AS, with transcripts and emerging themes cross-checked for interpretation and agreed amongst the research team. Constant comparative analysis was utilised as a means of enriching the data through |

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|--|---|-------|---|
| | | | iterative data collection and analysis |
| 23. Transcripts returned | Were transcripts returned to participants for comment and/or correction? | 8 | No |
| Domain 3: analysis and findings | | | |
| <i>Data analysis</i> | | | |
| 24. Number of data coders | How many data coders coded the data? | 21 | AS identified the thematic framework and interpreted the data, which was reviewed and refined by the research team. |
| 25. Description of the coding tree | Did authors provide a description of the coding tree? | N/A | A description of the coding tree is not provided. |
| 26. Derivation of themes | Were themes identified in advance or derived from the data? | 8 | Themes were derived from the data |
| 27. Software | What software, if applicable, was used to manage the data? | N/A | |
| 28. Participant checking | Did participants provide feedback on the findings? | 8 | No |
| <i>Reporting</i> | | | |
| 29. Quotations presented | Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number | 11-17 | Quotation are presented with clearly identifiable participant numbers |
| 30. Data and findings consistent | Was there consistency between the data presented and the findings? | 11-17 | Yes |
| 31. Clarity of major themes | Were major themes clearly presented in the findings? | 11-17 | Yes |
| 32. Clarity of minor themes | Is there a description of diverse cases or discussion of minor themes? | 11-17 | Yes |