

# BMJ Open Patient and public perception and experience of community pharmacy services post-discharge in the UK: a rapid review and qualitative study

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## ABSTRACT

**Objectives** To investigate the perception and experience of patients and the public (PP) about community pharmacy (CP) services and other primary care services after hospital discharge back home.

**Design and setting** A rapid review and qualitative study exploring PP perceptions of primary care, focusing on CP services in the UK.

**Methods** A mixed-methods approach was adopted including a rapid review undertaken between 24 April and 8 May 2019 across four databases (MEDLINE, EMBASE, PsycINFO and CINAHL). Semistructured interviews were then conducted investigating for shifts in current PP perception, but also nuanced opinion pertaining to CP services. A convenience sampling technique was used through two online PP groups for recruitment. Thematic framework analysis was applied to interview transcripts.

**Participants** Any consenting adults ≥18 years old were invited regardless of their medical condition, and whether they had used post-discharge services or not.

**Results** Twenty-five studies met the inclusion criteria. Patients were generally supportive and satisfied with primary care services. However, some barriers to the use of these services included: resource limitations; poor communication between healthcare providers or between patient and healthcare providers; and patients' lack of awareness of available services. From the 11 interviewees, there was a lack of awareness of CP post-discharge services. Nevertheless, there was general appreciation of the benefit of CP services to patients, professionals and wider healthcare system. Potential barriers to uptake and use included: accessibility, resource availability, lack of awareness, and privacy and confidentiality issues related to information-sharing. Several participants felt the uptake of such services should be improved.

**Conclusion** There was alignment between the review and qualitative study about high patient acceptance, appreciation and satisfaction with primary care services post-discharge. Barriers to the use of CP post-discharge services identified from interviews resonated with the existing literature; this is despite developments in pharmacy practice in recent times towards clinical and public health services.

## Strengths and limitations of this study

- This study is strengthened by its integrated methodology in which the qualitative study was built and informed by a rapid review of existing literature.
- The study provides a cross-sectional view of key perspectives of patients and the public about community pharmacy post-discharge services; it illustrates the views of healthy individuals, carers and patients with/without long-term conditions.
- The qualitative study is potentially limited by the small number of interviewees, however, a range of strategies were adopted to verify saturation of data, themes and theory.
- Potential regional variations were not evaluated as all participants were from the North-East of England.
- The study did not consider the views of black and minority ethnic groups who may have different barriers to accessing services.

## INTRODUCTION

There is recognition among healthcare commissioners and providers about the value of involving patients and the public (PP) in decision-making, managing their long-term conditions (LTCs), enabling health services to deliver better health outcomes, and reducing pressures and costs for the National Health Service (NHS).<sup>1</sup> There is appreciation that patients can become 'experts' in living with their condition and, through collaboration with healthcare professionals, can play a role in the healthcare system as engaged agents to ensure that their own needs are appropriately met.<sup>2</sup> Therefore, the involvement of PP in service design is considered important in developing advanced and more personalised healthcare services. The value of their views is also recognised in the evaluation and optimisation of services.<sup>3-5</sup> Patient satisfaction of delivered services is an acknowledged parameter to measure when conducting service evaluation.<sup>6</sup> The Economic, Clinical, and Humanistic Outcomes model incorporates



patient satisfaction in the range of potential outcomes that can be measured when assessing effects of an intervention or service.<sup>7,8</sup> The model, used in health services research, highlights that service effectiveness can be investigated from various perspectives.<sup>7</sup>

There has been a sustained interest in transfer of care (ToC) services, from hospital to home, in the past 20 years.<sup>9,10</sup> The goals of these services are to improve quality and quantity of communication between health-care providers and provide out-of-hospital support and continuity of care (CoC) between primary and secondary care.<sup>9,10</sup> There are specific aims around medicines which include: ensuring that changes to medicines are followed up in community; improving patients' adherence with medicines especially for those starting new medicines; reducing medicines-related issues; and minimising any risk to patient safety especially for those who might experience an error or problem with their medicines following their hospital discharge.<sup>9,11,12</sup> Community pharmacists have been recognised as appropriate in delivering care to patients following discharge from hospital, such as providing a medicines use review (MUR) or new medicines service consultation post-discharge.<sup>13–17</sup> Recent systematic reviews report that pharmacist-led interventions allow medicines-related issues to be identified and rectified,<sup>13</sup> which can result in an associated reduction in 30-day hospital readmissions.<sup>18</sup> However, the evidence on the observed effects on 30-day readmissions was limited by heterogeneity in study design, analysis approach, degree of community pharmacist involvement and fidelity to the intended intervention.<sup>18</sup> There is also limited evidence on the economic and humanistic benefits of such services.

In February 2020, the Department of Health and Social Care in England announced a new ToC service, the Discharge Medicines Service (DMS), to be initiated later in 2020. When patients are discharged, hospitals will digitally refer them to their community pharmacy (CP) for additional support and follow-up care on their new medicines.<sup>19</sup> Although a range of previous ToC initiatives have been piloted or implemented in the UK,<sup>20–22</sup> there is little evidence on patient perspectives including their perceived value of such services. This means that the impact of patient perspectives on the success of the new DMS service cannot be readily anticipated and considered in the implementation of this new service. In addition, according to the British Medical Research Council (MRC) framework, understanding patient responses to and interaction with an intervention is important to identify mechanisms of impact of that intervention; which is one of the key components of a process evaluation.<sup>23</sup>

In this study, we aimed to address the paucity of evidence around patient perspective on post-discharge services (such as the new DMS). The study incorporated a rapid review of the current literature about PP perception/experience of related primary care services to inform a qualitative investigation with PP about their perceptions and experiences with a specific focus on CP post-discharge services in the UK (ie, services provided

to patients in a CP setting following their discharge from hospital).

## STUDY DESIGN

Integration of different forms of data can dramatically enhance the value of the research where different integration approaches can be implemented at the design, methods, and interpretation and reporting of the findings.<sup>24</sup> We have adopted an 'integration through building' approach where the results from one data collection procedure (rapid review) informed the data collection approach of the other qualitative investigation.<sup>24</sup>

## RAPID REVIEW

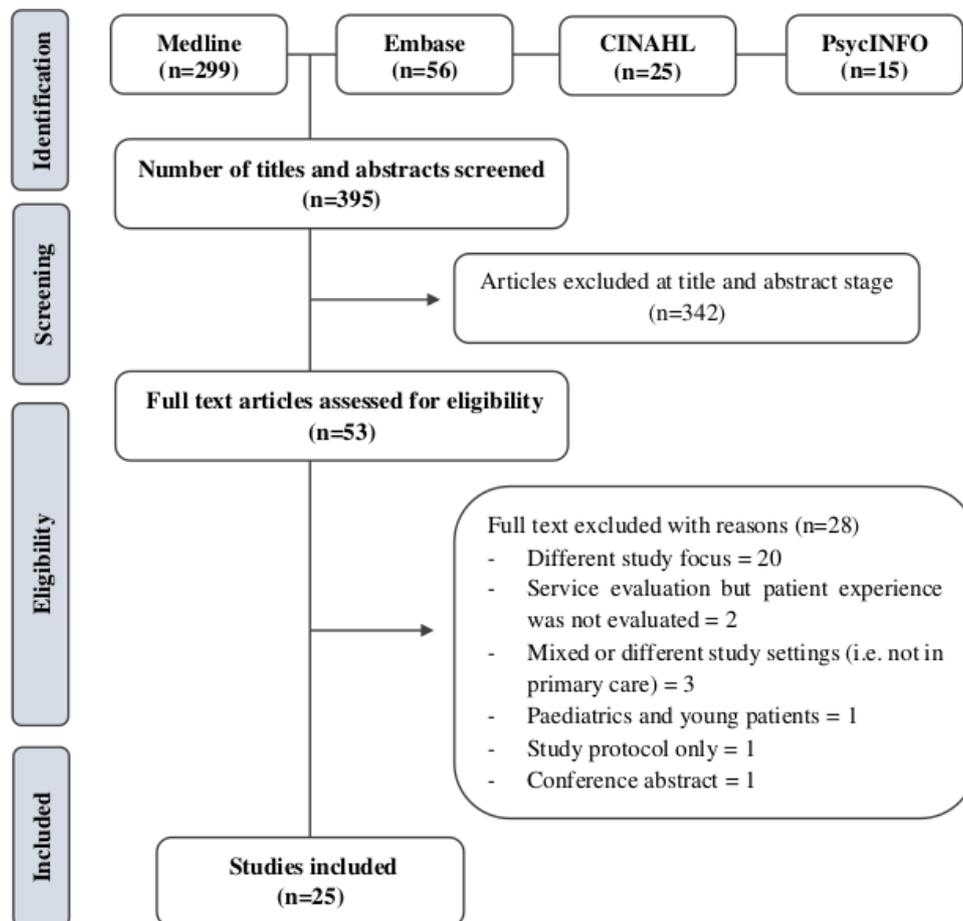
### Methods of the rapid review

The rapid review followed the systematic approach described in the Preferred Reporting Items for Systematic Reviews and Meta-analysis.<sup>25</sup> We intended to use this type of review to synthesise knowledge of the targeted research question with the use of search strategies that make it easier to identify relevant papers. Components of the systematic review process were simplified or omitted to produce an evidence base in a timely manner.<sup>26</sup> The full method used, including the search terms, is included in online supplemental file 1. In summary, the research question was focused on the perceptions and experiences of using primary care services by adult patients with LTCs in the UK. Adults with LTCs were chosen as they are considered to be the most prevalent users of primary care services and therefore have more extensive experience to report.

It was anticipated that very little empirical work existed specifically on CP post-discharge services, so this was widened to identify patient views on all primary care services that may be accessed after hospital discharge. It is recognised that healthcare systems vary worldwide, and this, with other factors such as culture and social norms, has an impact on the positioning of the patient in the system and subsequently their potential thoughts, feelings and perceptions of health and healthcare. Consequently, only studies conducted with patients in the UK were included in this review so findings could be more usefully related to the rollout of the DMS in England. One reviewer undertook the study selection and data extraction (SK); no risk of bias was undertaken. The search was conducted between 24 April and 8 May 2019 across four databases (MEDLINE-In-Process and Other Non-Indexed Citations, EMBASE, PsycINFO and CINAHL) for publications in English, and no publication date limit was considered.

### Results of the rapid review

The rapid review identified 25 studies which met the inclusion criteria from the 395 identified from initial search. An overview of the rapid review results is provided in [figure 1](#).



**Figure 1** PRISMA flow diagram for the studies identified for the rapid review. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-analysis.

A summary of eligible studies is provided in online supplemental file 2. The identified studies had four different aspects:

- ▶ Patients' perspectives on the support provided by pharmacists in a CP or general practice setting.<sup>27–30</sup>
- ▶ Patients' perspectives on the use of a telehealth/tele-care system.<sup>31–34</sup>
- ▶ Patients' perspectives on services provided by primary care teams to ensure CoC or ToC from a secondary to a primary care setting.<sup>2 3 35–41</sup>
- ▶ Patients' perspectives on other primary care services provided by nurses or general practitioners (GPs) in primary care.<sup>42–49</sup>

Generally, these studies evaluated participants' awareness, acceptance, or appreciation of, and satisfaction with, the delivered services. Some studies also explored patients' perspectives on the availability of resources in the primary care setting to ensure their CoC.<sup>2 27 37 38</sup>

Exploratory interviews and focus group approaches were commonly used to identify patients' perspectives of the services.<sup>2 3 27 42 44 46</sup> It was found that a qualitative study design helped not only in determining patients' level of acceptance, awareness of and satisfaction with the services delivered, but also in investigating barriers to, and facilitators for, using the services.<sup>2 3 36 38 40 42 48</sup>

In those studies where a pharmacist, either in a CP or GP practice setting, was involved in the service, patients reported good to high satisfaction with the services.<sup>28–30</sup> There was a report of low awareness of the services offered by community pharmacists<sup>27</sup> and a preference to see the GP when there was a deterioration in health.<sup>30</sup> Patients were found to be generally satisfied with telecare/telehealth<sup>31–34</sup> indicating the valuable potential for personalised digital care to help with self-management and problem solving.<sup>31 33 34</sup> Some studies captured patients' experience of poor ToC due to poor informational continuity,<sup>3 36–38</sup> and poor coordination of services.<sup>36–38</sup> Other authors identified several aspects that contributed to achieving good CoC such as: informational continuity, team continuity and relational continuity.<sup>3 41</sup> Patients were satisfied when they received joined-up care that was multi-professional and attributed that to one or more of those aspects aforementioned relating to continuity.<sup>2 35 39 40</sup>

## QUALITATIVE STUDY

### Methods of the qualitative study

To further investigate PP perception and experience around CP post-discharge care, semistructured face-to-face and telephone interviews were conducted with

patients and members of the public between mid-July and mid-August 2019. A constructive approach has been adopted that facilitates capturing the lived experiences and perceptions of participants.<sup>50</sup> This approach is inductive as it aims to develop an explanation or theory based on, and emerging from, the data, rather than a priori assumptions or theories. Therefore, knowledge is obtained by exploring and understanding the social world of the participants, and focusing on their views and interpretations.<sup>50</sup> The Consolidated criteria for Reporting Qualitative Research checklist<sup>51</sup> has been used to aid transparency in data collection, management and reporting (online supplemental file 3). All items are detailed within this study with the exception that repeat interviews were not conducted, and transcripts were not returned to participants for feedback or correction.

### Participant recruitment

A convenience sampling technique was used through two online research groups to recruit patients and members of the public: 'Diabetes UK' (the UK's leading diabetes charity) and 'Voice' (Newcastle University and UK government-funded research network of UK and international citizens). A recruitment invitation was published on the organisations' websites requesting volunteers to contact the researcher directly.

Participant inclusion criteria were: adults  $\geq 18$  years of age; able to communicate in English; able to provide informed consent to take part in the study; with no mental health problems and/or severe learning or hearing difficulties; based in the UK. To capture PP perception and experience, any member of the public who would benefit from CP post-discharge services was invited to contribute regardless of their medical condition (ie, if they have or have not any LTC). Participants were included in the study whether they had used CP post-discharge services or not; as this helped identify barriers for using such services. Those meeting all inclusion criteria were sent a formal email including a participant information sheet, consent form and demographic questionnaire. The participant information sheet defined the ToC from secondary to primary care settings, and explained potential CP services that patients might be offered/receive following their hospital discharge. Then, at the start of the interview, this definition was revisited to ensure participant's understanding of the meaning of CP post-discharge services.

### Data collection

A semistructured interview topic guide (online supplemental file 4) was developed based on (1) findings of the rapid review (ie, knowledge gaps and topics covered during interviewing PP about similar services), (2) discussion between the research team, and (3) findings from previous interviews undertaken with healthcare providers contributing to such services, as part of an ongoing wider project on post-discharge ToC (unpublished work). The topic guide, with open and prompting questions, looked to explore specific areas of PP awareness, acceptability,

experience and satisfaction of CP post-discharge services, and factors that helped or hindered them using such services. Participants were also encouraged to share further issues and thoughts not covered by the interview guide. Interviews were conducted in a private room at Newcastle University. Travel costs and refreshments were offered/paid for the participants.

A sampling matrix was used with the consideration of the type of participant (ie, healthy individual, carer or patients with/without LTC), gender and age of the participant. Participant recruitment continued until saturation had been achieved. Different models of saturation were considered at different levels of the research process.<sup>52</sup> 'Data saturation' occurred as no new themes were generated after the ninth interview. Two more interviews were conducted to confirm that no new themes were emerging. 'Theoretical saturation' occurred as all constructs that explored CP post-discharge services were fully discussed with participants and represented by the data. 'Inductive thematic saturation' was considered when there were no new themes/codes emerging in the process of analysis. Following informed consent, all interviews were audio-recorded and transcribed verbatim. Transcripts were managed and analysed with the use of NVivo V.12 (QSR International, Melbourne, Australia).

### Data analysis

Thematic framework analysis was used to analyse the data.<sup>50 53</sup> A combination of thematic inductive and deductive analysis was employed. The former allowed flexibility in themes, ideas and explanations to emerge naturally from the data, and the latter approach meant that there was specific interrogation for the predefined categories derived from the rapid review. The six stages of framework analysis were followed: data familiarisation; coding process; developing an initial thematic framework; applying the thematic framework; reviewing data extracts and developing a framework matrix; and data interpretation.<sup>50 53</sup> The initial coding process was conducted by SK, then, all authors discussed and checked the coding framework for accuracy and completeness. However, no inter-rater reliability was conducted.

Distinctive procedures were used as data analysis and collection proceeded; such as comparing and contrasting participants' responses with each other, memo writing and saturation. Searching for negative or deviant cases; frequent debriefing sessions; use of tactics to help ensure honesty in informants when contributing data; and providing a 'thick description' of fieldwork context were used to ensure the credibility and transferability of the findings.<sup>54 55</sup> The 'thick description' of the fieldwork context included descriptions of the setting, subjects, quotes, and other data around interpretation and synthesis to facilitate transferability to other contexts.<sup>56</sup> No patient and public involvement was conducted to inform the research design, conduct, reporting or dissemination.

**Table 1** Participants' characteristics

Variables	Groups	Number of participants (n=11)
Type of participant	Healthy individual	4
	Patient with LTCs (hypertension, asthma, osteoarthritis, epilepsy)	4
	Carer of patients with LTCs	1
	Patient with other medical condition (non-LTC)	2
Participant had or offered a CP service after any hospital discharge	Yes	0
	No	8
	Do not know/cannot remember	3
Age group	Mean (SD)	59 (±18.6)
	18–24 years	1
	25–34 years	1
	35–44 years	0
	45–54 years	1
	55–65 years	3
	>65 years	5
Gender	Male	4
	Female	7
Ethnic group	White British	10
	White European	1
Marital status	Single	6
	Married	3
	Divorced/separated	1
	Widowed	1
Employment status	Public/government job	2
	Self-employed	1
	Retired	8
Highest education level	General Certificate of Secondary Education/O-levels	1
	A-level/National Vocational Qualification	3
	Diploma	1
	Degree	3
	Postgraduate	3

CP, community pharmacy; LTCs, long-term conditions.

### Results of the qualitative study

A total of 14 volunteers met the inclusion criteria, of whom 11 were interviewed. The other three participants offered their initial interest, but did not respond to further contact. The mean average length of the interviews was 47±14 min. All interviewees were from the North-East of England (recruited via 'Voice'); there were no volunteers recruited from 'Diabetes UK' research group. Characteristics of interviewees are detailed in [table 1](#). Participants shared similar views on the use of CP post-discharge services regardless of their medical condition. The major

themes and subthemes are presented in [table 2](#) with illustrative quotes.

### Awareness of CP post-discharge services

There was a general lack of awareness on the availability of CP post-discharge services. Around half of the participants knew nothing, though others had heard of, or knew a little information about such services from their GP, community pharmacists, the media or through a previous experience of a family member. The analysis also revealed that participants were not fully aware of all available CP

**Table 2** Themes, subthemes and representative quotes from the thematic framework analysis of the data

Main themes	Subthemes	Representative quotes
Participants' awareness of CP post-discharge services	—	'I had never heard about it before until I was coming to see you.' (05P, with LTC) 'A lot of people think they are going to a pharmacy to pick up what they need and then just leave.' (01P, healthy individual) 'There is a lot of talk about the transfer of care when you get into a hospital when they are trying to get you out, and who is going to support you. I am aware that we have a trend which is underutilized at the minute, is the pharmacy.' (04P, carer)
Participants' appreciation of CP post-discharge services	—	'I think it is an excellent service. Because I remember in the past when my mother had a stroke and she was in the hospital for quite a long time, when she came out, there was no form of contact, even with the doctor. The aftercare, there was nothing. (...) They did call me, but that was for maybe a 10-minute talk, which is very kind of them to do this. I did say thank you very much for this because you have made me feel calmer and more confident.' (02P, with LTC)
Barriers to using CP post-discharge services	Barriers related to the healthcare system and the ToC process Barriers related to the accessibility and availability of the resources at the CP	'I am very happy that the pharmacy has as much information as they need about me, but obviously there is data protection. There is a confidentiality issue. (...) I would expect to receive a document emailed or paper from the pharmacy assuring me of confidentiality and data protection.' (07P, with non-LTC) 'Some very small villages do not have a pharmacy, but they do have a GP, (...) I think transport could be an issue for some people.' (07P, with non-LTC) 'The only downside is if people needed a one-to-one at home and that they cannot get to the place, and there is a time factor involved. Again, it is all down to manpower.' (05P, with LTC)
Recommendations for improvements	Barriers related to patients' understanding of CP discharge services Increasing awareness of CP post-discharge services Provide community pharmacists with an access to patients' medical records	There needs to be some kind of publicity. There is a lack of knowledge in relation to this kind of system. (...) I do not think people are aware of it.' (04P, carer) 'If people do not know about the service, they will not use it. Number one is information. Trying to get people informed, trying to get patients educated.' (08P, with non-LTC) 'If you could link the pharmacist's computer system into the National Health Service treatment that would be brilliant. (...) As long as you give the pharmacist the tools to do the job, give them the authority to listen to the story. Give them the authority to put stuff on the computer, on the medical records.' (06P, healthy individual)

CP, community pharmacy; GP, general practitioner; LTC, long-term condition; ToC, transfer of care.

services and that half of them believed that the community pharmacists' role was mainly for dispensing medication. It was believed that community pharmacists could provide face-to-face or telephone counselling and a medicine review. The other described CP services were the medicine home delivery, smoking cessation, alcohol consumption services, services related to sexually transmitted diseases, and those providing blood pressure checks and hearing tests.

### Appreciation of CP post-discharge services

Participants appreciated the concept of community pharmacy ToC services, and they would be willing to be referred to their CP if they needed post-discharge care. Participants believed that post-discharge services would provide many benefits for the healthcare system as well as for the discharged patients. A ToC service was appreciated as a form of communication between the hospitals and primary care (CPs and GPs), to inform about a patient's discharge and updated medication list. CP post-discharge services were also perceived to reduce pressure on hospitals and GP services as community pharmacists contributed to meeting healthcare demand. Participants articulated that such services had the potential to reduce the risk of errors around medicines which would have a patient safety and an economic value to the NHS. The benefits acknowledged for discharged patients included:

- ▶ Improved CoC following hospital discharge.
- ▶ Improved patient safety (as community pharmacists could monitor for any potential side effects or drug-related issue).
- ▶ Improved psychosocial support for the discharged patients.
- ▶ Improved medication adherence through follow-up advice and counselling about medicines.
- ▶ Reduced hospital readmissions through additional support in primary care.
- ▶ CPs provide an accessible, convenient location to access care.

### Barriers to using CP post-discharge services

Participants identified a range of potential barriers to the use of CP post-discharge services. These were related to (1) the healthcare system and the ToC process, (2) the accessibility and availability of the resources at CPs, and (3) the patients' understanding of CP post-discharge services. Examples of these barriers are provided in [table 3](#).

### Recommendations for improvements

There were two recommendations for improvement highlighted by participants to improve/increase the use of CP post-discharge services which were: to increase PP awareness of the available services, and also to provide community pharmacists with access to patients' medical records.

Participants agreed that all healthcare professionals should be involved in raising the awareness of the CP post-discharge services. In the hospital, it was suggested

the hospital staff (accident and emergency staff, doctors, nurses and pharmacy staff) should be involved in the discussion with the patient about post-discharge care. It was believed that consultants and other doctors in the hospital would play a major role in convincing patients about the benefits of CP post-discharge services.

In primary care, involving the GPs and advertising the service at general practices were suggested ways to increase the uptake of CP post-discharge services, especially as the patient-GP relationship was considered to be more widely established. Advertising the CP post-discharge service in the pharmacy itself was another option to raise awareness such that patients would know about post-discharge care prior to their hospital admission/discharge. Participants believed that all methods of communication with PP should be used in a comprehensive campaign, for example, email advertising; billboard marketing; press releases from local press and local authorities using the range of social media platforms, including information on the NHS website; and using traditional means of advertising such as posters and letterbox drops.

### DISCUSSION

This rapid review identified high rates of patient acceptance, appreciation and satisfaction with primary care services post-hospital discharge.<sup>28–34</sup> Patients believed that the service provided had improved their understanding of their treatment and disease condition.<sup>43 45</sup> The review also highlighted the public lack of awareness of the availability of services provided in a CP setting following discharge from hospital. Although patients articulated an appreciation for such services, several barriers were identified related to CoC during transition and utilisation of the primary care services. Some barriers were related to healthcare systems and service providers such as resource limitations (eg, the availability of enough staff and associated time pressure in the primary care setting)<sup>2 38</sup>; the lack of support or information/advice from the healthcare providers<sup>32 33</sup>; poor communication between healthcare providers or between patient and healthcare providers; poor coordination of transition of care between different healthcare settings<sup>3 36 38 40 41</sup> and difficulty in making an appointment with the GPs.<sup>38</sup> Other barriers to the use of primary care services, particularly CP services, were related to potential service users' beliefs and conditions such as: patients' lack of awareness of the available services or potential roles and capabilities of different healthcare providers in primary care<sup>27</sup>; complexity of patient's condition;<sup>28–30</sup> number of comorbidities and presence of LTCs.<sup>36 39 40</sup>

The qualitative study captured PP appreciation of potential community pharmacist post-discharge services as beneficial for patients and the wider healthcare system. This reinforces the findings from previous studies in which patients appreciated services provided by pharmacists either in a CP or GP practice setting.<sup>28–30</sup> Participants also related similar barriers and challenges to acceptance,

**Table 3** Barriers to using CP post-discharge services

Type of barriers	Examples	Representative quotes
Barriers related to the healthcare system and the ToC process	<ul style="list-style-type: none"> <li>▶ The different services provided locally which confuse patients about what is available</li> <li>▶ The lack of a national standard ToC service*</li> <li>▶ Privacy and confidentiality issues related to sharing information with the CP; as some patients see community pharmacists as non-healthcare professionals or because they feel their personal information is too sensitive to be shared with their CP</li> </ul>	<p>'We are bombarded with many new systems, and there is another system on top of another system. There is that much confusion.' (02P, with LTC)</p> <p>'It might have been operating in some areas for years, but it has not been operating in the areas where I have lived.' (07P, with no LTC)</p>
Barriers related to the accessibility and availability of the resources at the CP	<ul style="list-style-type: none"> <li>▶ Transport accessibility issues to the CP where patients are too ill or housebound</li> <li>▶ Some CPs are not accessible for the elderly or for patients with disabilities</li> <li>▶ Community pharmacists have time pressure and therefore unable to provide post-discharge care</li> <li>▶ Community pharmacists cannot provide home visits because of their shortage of staff</li> </ul>	<p>'Pharmacies that I have been out to, the local ones, they do not have ramps or disability access.' (01P, healthy individual)</p> <p>'There is very little time for pharmacists to communicate with the person.' (02P, with LTC)</p>
Barriers related to patients' understanding of CP post-discharge services	<ul style="list-style-type: none"> <li>▶ The lack of awareness of CP post-discharge services</li> <li>▶ The lack of appreciation of the benefits of CP post-discharge services, for example, some participants believed that CPs do not provide cognitive services/advices; access of care from other healthcare professionals was preferred such as GPs, practice nurses or the hospital doctor</li> <li>▶ Patients' low acceptability of seeing a community pharmacist post-discharge may be due to a long hospital stay so they do not want any additional care, or they would be reluctant to change from seeing their GPs as the first port-of-call, or they do not have trust/good relationship with their community pharmacists</li> <li>▶ Patients perceive that community pharmacists have no knowledge of the patient's medical history and no full access to the medical records; therefore, they might not provide the required support to hospital-discharged patients</li> </ul>	<p>'There is still a massive gap in terms of understanding what the community pharmacist can do. Many people think of it as just a chemist's shop.' (04P, carer)</p> <p>'Diabetes affects people in different ways. It would be wrong to expect the pharmacist to be fully aware of exactly how diabetes affects that person.' (10P, with LTC)</p> <p>'Older people might find it difficult not to see their GP whom they know, like, and trust. They might feel cast off and just castaway to go and see the pharmacist instead.' (07P, with no LTC)</p>

\*At the time of conducting the interviews, there was no national standard ToC service. However, DMS will be an essential national service for hospital-discharged patients on a new medicine.

CP, community pharmacy; DMS, Discharge Medicines Service; GP, general practitioner; LTC, long-term condition; ToC, transfer of care.

uptake and awareness of such services as those previously identified in the review. Indeed, these also resonate with the behavioural constraints around public awareness and expectations of CP identified in a recent Community Pharmacy Clinical Service Review undertaken by the King's Fund.<sup>57</sup> Public perception and experience, and variation in services that CPs offer were listed as barriers to the wider provision of clinical services more generally through CP. Suggested solutions to address these were raising public awareness and the deployment of specific marketing campaigns. A recent study by Lam *et al* found that from the 100 inpatients informed about the opportunity for a discharge MUR with their community pharmacist post-discharge, only 5 actually took up this service and 78 stated that they had no intention to access this care.

The most common reasons were: their lack of perceived need for support with their medicines; their default reliance on the care provided by their doctors; or reduced capacity to self-present at the pharmacy due to their morbidity or limited mobility. Authors recommended the need for developing and consolidating the relationships between patients and their community pharmacists rather than marketing the specific services that can be offered. In this way, patients would benefit from a perceived sense of relational continuity which they have reported feeling from accessing care from their GPs.<sup>58</sup> Another significant enabler would be the trust in, and promotion of CP services by other healthcare providers. The same review by the King's Fund identifies a lack of awareness by other healthcare providers of the contribution that community

pharmacists can make, meaning that these stakeholders do not actively support uptake and acceptance of CP services.<sup>57</sup> Ferguson *et al* also reported low engagement of hospital pharmacy staff promoting and offering CP post-discharge care to inpatients, due to their lack of understanding and appreciation of the potential benefit to patients of a CP intervention.<sup>21</sup>

This recent contribution to the understanding of how PP perceive primary care and CP services post-discharge, from both the literature and the qualitative study, bears significance on the potential uptake and success of the proposed national DMS. The interviews have shown that there are still some barriers related to the uptake of CP services, despite recent advancements in service provision in CP in England. Therefore, there is an emphasis on the need to involve different healthcare professionals from different settings to raise PP awareness of the value of CP skills and roles and provision of post-discharge services such as the new DMS. A recent realist synthesis highlighted how PP trust in hospital staff making referrals and coordinating post-discharge care, and the experience and attitudes of PP towards CP impact the willingness and uptake of CP services.<sup>59</sup>

There are many theoretical frameworks and conceptual models that can further our understanding of potential success of a new service implementation and adoption. Rogers offers one such conceptual model, which is that of Diffusion of Innovations.<sup>60</sup> In this model, it is stipulated that there must be sufficient knowledge of the 'decision-making unit' (ie, the patient) to develop strategies of persuading engagement with the innovation (ie, the CP post-discharge services). The model also highlights a number of factors which govern the adoption process of an intervention. The 'relative advantage' of the intervention over other practices is one of the important factors. If patients do not appreciate the value or 'relative advantage' of the intervention, they are unlikely to engage and make a decision to adopt that intervention. According to the MRC framework, service designers, commissioners and policymakers need to identify contextual factors that should be addressed alongside the implementation and delivery of any intervention within a system.<sup>23</sup> Otherwise, they risk the outcomes and ultimately success of that intervention. Rogers refers to poor implementation and adoption of a service as 'discontinuance', which is attributed to a range of factors. This includes: an individual decision to replace the adopted service by a better one; the misuse of a service which could have been beneficial for individuals if it had been used in the right way or dissatisfaction with the service performance. Service user's dissatisfaction might not be related to the quality of the service itself, but because the service was inappropriate for that individual and did not provide an adequate level of perceived relative advantage over alternative practices.<sup>60</sup> Hence, discontinuance of a new service is an indication that the service might not have been appropriately implemented and normalised into service users' behaviours and health choices. In addition, a high rate of discontinuance is more

likely when the service is less compatible with an individual's beliefs and past experiences.<sup>60</sup> Therefore, based on Rogers's theory,<sup>60</sup> service designers and implementers need to understand the wider beliefs/past experiences of PP with CP services, that is, lack of awareness and buy-in, and identify mechanisms, for example, ensuring services are recommended/initiated by healthcare professionals who are already entrusted by patients, to enhance the perceived relative advantage towards driving engagement and uptake. Regular monitoring and evaluations of the service's progress, providers' performance and patient satisfaction alongside service performance will best allow ongoing identification of challenges. These can be targeted and addressed to not only support sustainability of that service, but will also contribute to incremental change in PP perception over time. Previous recommendations around public awareness campaigns, and more sustainably, reinforcing the relationships between community pharmacists and the public, remain pertinent to overcome challenges that threaten the success and potential outcomes of both the DMS and other potential new clinical services in a CP setting. These recommendations, in addition to the factors identified in the Rogers conceptual model<sup>60</sup> and MRC guidelines<sup>23</sup> about the need to identify patient perspectives of any new service, would fundamentally apply in any international context where a new service is being proposed.

The study had a number of limitations. First, only one data abstractor and coder conducted the rapid review, and no risk of bias was undertaken. This is in line with the abridged nature of rapid reviews compared with those undertaken systematically. Second, the qualitative study is potentially limited by the small number of interviewees. However, a range of strategies were adopted to verify saturation of data, themes and theory. Third, potential regional variations in PP perspective of CP post-discharge services were not evaluated. All participants were from the North-East of England, even though we used a national research PP support group to recruit participants. Lastly, the study did not consider the views/experiences of black and minority ethnic groups who are generally under-represented in their use of healthcare services. This is an important consideration in any service evaluation as they may have different barriers to accessing services such as language difficulties, and differing expectations, cultural and social norms that may affect how they seek out and engage with healthcare services. Overall, it is believed that transferability in this study is achieved as we sufficiently described the context of the fieldwork so that readers can evaluate the extent to which the study findings and conclusions are transferable to their settings, situations, people and times.

## CONCLUSION

The review identified high rates of patients' acceptance, appreciation and satisfaction with primary care services post-discharge. These positive perceptions were

confirmed by the subsequent qualitative study. A number of barriers to the use of CP post-discharge services were also identified from PP interviews which were similar to those identified from the review; there was no difference in patient perception of such services despite contemporary developments in CP practice. In general, participants appreciated potential CP post-discharge services as beneficial for patients and the wider healthcare system. However, awareness of CP services remains limited which will threaten the subsequent uptake and engagement of PP. Further research should establish the effectiveness of CP post-discharge services on patient's clinical/non-clinical outcomes as this will further evidence the value of such interventions to other healthcare professionals and PP. Also, determining other stakeholders' views (eg, service leaders, hospital pharmacy staff and community pharmacists) would identify if further levers in the system could be influenced to drive PP trust and engagement.

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## Supplementary file 1: Method of conducting the rapid review

### *Eligibility criteria*

All types of studies were considered in this search. The inclusion criteria for the review search included studies on (1) adult patients aged  $\geq 18$  years old; (2) diabetes (type 1 or 2) or other LTCs; (3) providing or implementing primary or community care service; (4) studies were included whether the services were provided by a pharmacy staff or other primary care provider, e.g. GP, (5) studies in the English language; and (6) only studies that reported on primary care services/interventions undertaken within the UK were included due to the highly contextual nature of health systems. Specific populations, such as pregnant and breastfeeding women, women with gestational diabetes and paediatric/young patients, were excluded. Studies that had a population of mixed ages (i.e. including both adult and paediatric patients) were included if the results had been reported separately for adults. Papers with insufficient details about the patients' perceptions and related results (e.g. conference abstracts, study protocols and ongoing trials) were excluded as well.

### *Search strategy for the identification of relevant studies*

Using a systematic approach, four databases (MEDLINE-In-Process & Other Non-Indexed Citations, EMBASE, PsycINFO and CINAHL) were searched for studies in English; no publication date limit was considered. The search was undertaken between 24/04/2019 and 08/05/2019. Duplications were removed by applying the duplicates exclusion criterion within each database search. The search strategy and the terms used in this review (shown in Table 1) were discussed by the research team (SK < HN, PAW and CW). Key search terms were divided into four categories:

- Population: this included keywords used to narrow the search to patients with diabetes mellitus in general and to T2DM specifically and to patients with LTCs (e.g., diabetes mellitus, long-term condition, long-term care, and chronic diseases).
- Intervention: this included keywords related to the studied interventions; the community pharmacy services and the transfer of patients' care, which gave the search more sensitivity (e.g., patient transfer, transfer of care, patient refer\*, patient discharge, post-discharge care, communication between healthcare settings, and community pharmacy services).
- Context: this included keywords related to the setting of interest, which is the UK.
- Outcomes of interest: this included all keywords related to the patient's perspective (e.g., patient views, patient opinion, patient experience, and patient satisfaction).

**Table S1. Search strategy and keywords from the rapid review on patients' perceptions of primary care services and the services provided on the transfer of care.**

Databases	Search terms	Number of hits	Number of relevant papers
<b>Ovid MEDLINE (R) and In-Process &amp; Other Non-Indexed Citations</b>  <1946 to May 01, 2019>	1 patient perspective.mp. or exp Patient Satisfaction/ (85143)		
	2 patient view*.mp. (506)		
	3 Patient Participation.mp. or exp Patient Participation/ (25025)		
	4 patient opinion.mp. (222)		
	5 patient* experience*.mp. (51326)		
	6 1 or 2 or 3 or 4 or 5 (155182)		
	7 exp Patient Transfer/ or transfer of care.mp. (8088)		
	8 transmission between healthcare settings.mp. (0)		
	9 transmission between professionals.mp. (0)		
	10 Continuity of Care.mp. or exp "Continuity of Patient Care"/ (230130)		
	11 exp Communication/ or communicat*.mp. or exp Interprofessional Relations/ (583990)		
	12 communication between healthcare settings.mp. (2)		
	13 communication between healthcare professionals.mp. (80)		
	14 care between healthcare settings.mp. (1)		
	15 care between healthcare professionals.mp. or exp "Delivery of Health Care"/ (1011098)		
	16 patient refer*.mp. (2181)		
	17 patient transition*.mp. or exp Patient Transfer/ (7893)		
	18 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 (1654091)		
	19 exp Community Pharmacy Services/ (4206)		
	20 Sharing information.mp. or exp Information Dissemination/ (16056)		
	21 exp Patient Discharge/ or post discharge care.mp. (26921)		
	22 post-discharge care.mp. (178)		
	23 19 or 20 or 21 or 22 (47077)		
	24 18 or 23 (1656430)		

**Table S1. Search strategy and keywords from the rapid review on patients' perceptions of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers		
<b>Ovid MEDLINE (R) and In-Process &amp; Other Non-Indexed Citations</b>  <1946 to May 01, 2019>	25 exp Diabetes Mellitus, Type 2/ or exp Diabetes Mellitus/ or Management of diabetes.mp. or exp Diabetes Mellitus, Type 1/ (401305)	<b>129</b>	<b>39</b>		
	26 6 and 24 and 25 (2576)				
	27 limit 26 to (English language and humans and "all adult (19 plus years)") (1641)				
	28 United kingdom.mp. or exp United Kingdom/ (368758)				
	29 exp England/ or england.mp. (128869)				
	30 UK.mp. (97407)				
	31 28 or 29 or 30 (434182)				
	<b>32 27 and 31 (129)</b>				
	33 limit 32 to ("corrected and republished article" or duplicate publication) (0)				
	34 chronic disease.mp. or exp Chronic Disease/ (277473)			<b>170</b>	<b>6</b>
35 long term condition.mp. or exp Long-Term Care/ (25338)					
36 34 or 35 (300890)					
37 6 and 24 and 36 (3873)					
38 limit 37 to (English language and humans and "all adult (19 plus years)") (2495)					
<b>39 31 and 38 (170)</b>					
40 limit 39 to ("corrected and republished article" or duplicate publication) (0)					
<b>Embase</b>  <1974 to 2019 May 03>	1 patient perspective.mp. (3634)				
	2 Patient Satisfaction.mp. or exp patient satisfaction/ (135827)				
	3 patient view*.mp. (859)				
	4 Patient Participation.mp. or exp patient participation/ (26635)				
	5 patient opinion.mp. (361)				
	6 patient* experience*.mp. (86664)				
	7 1 or 2 or 3 or 4 or 5 or 6 (245296)				
	8 Patient Transfer.mp. or exp patient transport/ (25408)				
	9 transfer of care.mp. (902)				

**Table S1. Search strategy and keywords from the rapid review on patients' perceive of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers
<b>Embase</b>	10 transmission between healthcare settings.mp. (0)		
	11 transmission between professionals.mp. (1)		
<1974 to	12 Continuity of Care.mp. or exp patient care/ (754636)		
2019 May	13 Continuity of Patient Care.mp. (744)		
03>	14 Communication.mp. or exp interpersonal communication/ (856103)		
	15 communication between healthcare settings.mp. (3)		
	16 communication between healthcare professionals.mp. (154)		
	17 care between healthcare settings.mp. (2)		
	18 care between healthcare professionals.mp. (8)		
	19 exp health care delivery/ (2946041)		
	20 exp patient referral/ or patient refer*.mp. (103027)		
	21 patient trans*.mp. (27919)		
	22 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 (4046918)		
	23 Community Pharmacy Services.mp. or exp pharmacy/ (69745)		
	24 Sharing information.mp. or exp information dissemination/ (20862)		
	25 exp hospital discharge/ or post discharge care.mp. (110335)		
	26 post-discharge care.mp. or follow up/ (1392214)		
	27 23 or 24 or 25 or 26 (1563712)		
	28 22 or 27 (4151991)		
	29 exp diabetes mellitus/ (872943)		
	30 Management of diabetes.mp. or exp non insulin dependent diabetes mellitus/ (234664)		
	31 chronic disease.mp. or exp chronic disease/ (191972)		
	32 exp long term care/ or long term condition.mp. (1596294)		
	33 29 or 30 or 31 or 32 (2532759)		
	34 7 and 28 and 33 (56067)		

**Table S1. Search strategy and keywords from the rapid review on patients' perception of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers
<b>Embase</b>  <1974 to 2019 May 03>	35 limit 34 to (English language and exclude medline journals and (adult <18 to 64 years> or aged <65+ years>)) (2946) 36 United kingdom.mp. or exp United Kingdom/ (521740) 37 England.mp. or exp England/ (96595) 38 UK.mp. (215470) 39 36 or 37 or 38 (677798) <b>40 35 and 39 (56)</b>	<b>56</b>	<b>3</b>
<b>CINAHL</b>  <May 08, 2019>	S1 "patient perspective" (1,064) S2 (MH "Patient Satisfaction+") (48,191) S3 "patient view*" (296) S4 "Patient Participation" OR (MH "Consumer Participation") (17,728) S5 "patient opinion" (77) S6 "patient experienc*" (6,119) S7 S1 OR S2 OR S3 OR S4 OR S5 OR S6 (70,650) S8 (MH "Transfer, Discharge") OR "Patient Transfer" (5,444) S9 (MH "Transfer Care (Saba CCC)") OR "transfer of care" (244) S10 "transmission between healthcare settings" (13,442) S11 "transmission between professionals" (10,880) S12 (MH "Continuity of Patient Care+") OR "Continuity of Care" (18,560) S13 (MH "Communication+") OR "Communication" OR (MH "Computer Communication Networks+") OR (MH "Communication Care (Saba CCC)") (401,139) S14 (MH "Multidisciplinary Care Team+") OR (MH "Health Care Delivery, Integrated") OR (MH "Health Care Delivery+") OR "communication between healthcare settings" (318,807) S15 "communication between healthcare professionals" (50) S16 "care between healthcare settings" (1) S17 "care between healthcare professionals" (5)		

**Table S1. Search strategy and keywords from the rapid review on patients' perception of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers
CINAHL  <May 08, 2019>	S18 "patient refer*" (717)		
	S19 "patient trans*" (1,437)		
	S20 (MH "Pharmacy Service+") OR (MH "Community Service") OR (MH "Community Health Services+") OR (MH "Community Special Services (Saba CCC)+") OR "Community Pharmacy Services" (375,481)		
	S21 (MH "Shared Services, Health Care") OR (MH "Health Information Networks") OR (MH "Clinical Pharmacy Information Systems") OR "Sharing information" (2,842)		
	S22 (MH "Patient Discharge Education") OR "hospital discharge" (11,366)		
	S23 (MH "After Care") OR "post discharge care" (11,763)		
	S24 "post-discharge care" (97)		
	S25 S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 (1,003,982)		
	S26 (MH "Diabetes Mellitus+") OR "diabetes mellitus" OR (MH "Diabetes Mellitus, Type 2") (149,244)		
	S27 (MH "Diabetic Patients") OR (MH "Quality Management, Organizational") OR "Management of diabetes" (12,139)		
	S28 (MH "Chronic Disease+") OR "chronic disease" (62,173)		
	S29 (MH "Long Term Care") OR "long term care" (30,068)		
	S30 "long term condition" (297)		
	S31 S26 OR S27 OR S28 OR S29 OR S30 (240,022)		
S32 S7 AND S25 AND S31 (277)			
Limiters - English Language; Exclude MEDLINE records; Human; Age Groups: Adult: 19-44 years, Middle Aged: 45-64 years, Aged: 65+ years, Aged, 80 and over, All Adult; Language: English			
S33 (MH "United Kingdom+") OR "United kingdom" OR (MH "Great Britain") (296,281)			
S34 (MH "England") OR "England" (69,932)			

**Table S1. Search strategy and keywords from the rapid review on patients' perception of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers
<b>CINAHL</b> <May 08, 2019>	S35 "UK" (48,442) S36 S33 OR S34 OR S35 (324,969) S37 S32 AND S36 (25)	25	2
<b>PsycINFO</b> < 2002 to April Week 5 2019>	1 patient perspective.mp. (605) 2 Patient Satisfaction.mp. or exp Client Satisfaction/ (5745) 3 patient view*.mp. (248) 4 Patient Participation.mp. (808) 5 patient opinion.mp. (33) 6 patient experience.mp. (1072) 7 1 or 2 or 3 or 4 or 5 or 6 (8184) 8 Patient Transfer.mp. or exp Client Transfer/ (255) 9 transfer of care.mp. (78) 10 transmission between healthcare settings.mp. (0) 11 transmission between professionals.mp. (1) 12 Continuity of Care.mp. or exp "Continuum of Care"/ (2524) 13 Continuity of Patient Care.mp. (69) 14 exp COMMUNICATION SYSTEMS/ or exp COMMUNICATION/ (172614) 15 communication between healthcare settings.mp. (0) 16 communication between healthcare professionals.mp. (21) 17 exp Primary Health Care/ or exp Health Care Services/ or care between healthcare settings.mp. (87708) 18 care between healthcare professionals.mp. (1) 19 exp Telemedicine/ or exp Health Care Delivery/ or exp Community Services/ or Delivery of Health Care.mp. (43106) 20 patient refer*.mp. (207) 21 patient trans*.mp. (270)		

**Table S1. Search strategy and keywords from the rapid review on patients' perception of primary care services and the services provided on the transfer of care. (Cont.)**

Databases	Search terms	Number of hits	Number of relevant papers
<b>PsycINFO</b>	22 exp Pharmacy/ or exp Pharmacists/ or exp Community Services/ or Community Pharmacy Services.mp. (19833)		
< 2002 to April Week 5 2019>	23 exp Information Dissemination/ or exp Knowledge Transfer/ or Sharing information.mp. (4618)		
	24 exp Hospital Discharge/ or Patient Discharge.mp. (1850)		
	25 post discharge care.mp. (31)		
	26 exp Discharge Planning/ or post-discharge care.mp. (327)		
	27 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 (289748)		
	28 Diabetes Mellitus.mp. or exp Diabetes Mellitus/ (9103)		
	29 exp Self-Management/ or Management of diabetes.mp. (4382)		
	30 exp "Chronicity (Disorders)"/ or exp Chronic Illness/ or chronic disease.mp. (26599)		
	31 exp Long Term Care/ or long term condition.mp. (4158)		
	32 28 or 29 or 30 or 31 (42179)		
	33 7 and 27 and 32 (198)		
	34 limit 33 to (english language and ("300 adulthood <age 18 yrs and older>" or 320 young adulthood <age 18 to 29 yrs> or 340 thirties <age 30 to 39 yrs> or 360 middle age <age 40 to 64 yrs> or "380 aged <age 65 yrs and older>" or "390 very old <age 85 yrs and older>") and english) (146)		
	35 United kingdom.mp. (9528)		
	36 England.mp. (14745)		
	37 Great Britain.mp. (1081)		
	38 UK.mp. (28445)		
	39 35 or 36 or 37 or 38 (48634)		
	<b>40 34 and 39 (15)</b>	<b>15</b>	<b>3</b>

### ***Screening and selection of studies***

Searches were conducted and screened according to the selection criteria by one review author (SMK). The full text of any potentially relevant papers was retrieved for closer examination. The inclusion criteria were then applied against the full text version of the papers by SMK and discussed with HN and PAW. Studies which initially appeared to meet the inclusion criteria, but on reviewing the full text paper did not, were excluded and reasons for their exclusion are shown in the figure 'PRISMA flow chart for the rapid review'.

### ***Data extraction***

Information extracted from studies and reviewed included: study details (author and date), aim of the study, target patients, method used, and outcomes reported. These information informed the research team and enabled them to make a decision as to which study designs should be used for the investigation of the patients and the public perspective on the eToC service (the qualitative part). Data extraction was performed by one reviewer (SMK) and checked by a second reviewer (HN). No assessment of reporting or methodological quality were considered in this review as the main aim was to identify the availability of any evidence related to the patients perspective on the primary care service in the UK. Therefore, all the eligible studies were included regardless to its quality.

### ***Data analysis***

Findings from the included studies were synthesised using tables and a narrative summary. Meta-analysis was not possible because the included studies were heterogeneous in terms of the target patients, methods and reported outcomes.

## Supplementary file 2: A narrative summary of eligible studies

### *Types of services identified*

The primary care services identified from the literature (n=25) were classified into four categories which are:

- Studies on patients' perspective on the support provided by pharmacists in a community pharmacy or general practice setting (n=4).
- Studies on patients' perspective on their use of a telehealth/telecare system (n=4).
- Studies on patients' perspective on services provided by primary care teams to ensure the CoC or the ToC from a secondary to a primary care setting (n=9). For example, studies on patients' perspective on a diabetes management programme where patients received care from multi-professional primary care teams following their hospital discharge.
- Studies on patients' perspective on other primary care services specifically provided by the nurses or the GPs (n=8). For example, studies on patients' experiences and satisfaction with a mobile eye-screening service provided at their GP practices.

Details of these studies are provided in Supplementary Tables 1 – 4.

**Table S1. Studies on patients' perspective of pharmacist support in a community pharmacy or primary care setting.**

Author	Aim	Target patients	Method	Summary of the results
Ogunbayo O.J. <i>et al.</i> 2017 (27)	To explore patients' perspectives of engaging in self-care & their use of CPs for self-care support.	Patients living with LTCs including those with at least one of diabetes mellitus (type 1 & 2), asthma, COPD, heart conditions, hypertension and hypercholesterolemia	Semi-structured interviews with 24 patients with LTCs who were recruited via GPs and CPs.	<ul style="list-style-type: none"> <li>- Community pharmacy services and resources were underused and limited to providing medicine supplies.</li> <li>- Patients had a lack of awareness and no visibility of CPs' potential roles and capabilities.</li> <li>- None of the patients mentioned any of the main long-term condition-specific services, such as MURs, NMS or lifestyle interventions (e.g. smoking cessation).</li> <li>- Only some participants indicated that they were aware of the community pharmacy services, but they did not feel the need to use them.</li> </ul>
Ellis-Martin M. & Street K. 2010 (28)	To assess patient satisfaction with the domiciliary service provided by the medicine management team. The study also aimed to prevent hospital admission & to improve patients' experience of pharmaceutical care.	Patients who had been managed by the medicines management team (MMT); all participants, except two, had at least one LTC	Structured interviews were conducted with 55 patients in a domiciliary setting. Fifty-three patients had at least one long-term condition.	<ul style="list-style-type: none"> <li>- 73% of patients were unaware they had problems taking medication before attending their initial medication management visit.</li> <li>- 89% of patients believed that the intervention they received helped them take their medication properly.</li> <li>- 84% of patients accepted the interventions and changes made during their medication management visit. They also fully appreciated the need for the service.</li> <li>- 78% of the patients were 'very satisfied', and 22% were 'satisfied' with the service.</li> </ul>

Abbreviations: CP, community pharmacy; LTCs, long-term conditions; COPD, chronic obstructive pulmonary disease; GP, General practitioner; MURs, medicine use review; NMS, new medicine service.

**Table S1. Studies on patients' perspective of pharmacist support in a community pharmacy or primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Hadi M.A. <i>et al.</i> 2016 (29)	To evaluate the effectiveness of a pain clinic jointly managed by a nurse & pharmacist.	Patients with chronic pain; more than half of the patients had at least one LTC	Mixed methods of a quantitative & a qualitative study. Different questionnaires were used at the baseline, on discharge and at 3-month post-discharge. Patient satisfaction was also explored in face-to-face, semi-structured interviews (n=19).	<ul style="list-style-type: none"> <li>- The qualitative analysis showed that patients were satisfied with the quality of service.</li> <li>- Different factors contributed to patient satisfaction; these were: ample consultation time, comprehensive specialised knowledge, listening to &amp; understanding patients' needs, and a holistic approach.</li> <li>- A community-based nurse-pharmacist managed pain clinic can effectively deliver quality pain management services.</li> </ul>
Stewart, D. C. <i>et al.</i> 2011 (30)	To evaluate the views of patients across primary care settings in Great Britain who had experienced pharmacist prescribing.	Patients who had experienced pharmacist prescribing service; the most frequently self-reported medical conditions were hypertension, arthritis, diabetes and hypercholesterolemia	All 'Royal Pharmaceutical Society of Great Britain' prescribers (n=1622) were invited to participate. Those consenting were asked to recruit up to five patients who had experienced their prescribing. A questionnaire developed by the authors was used in this study.	<ul style="list-style-type: none"> <li>- A total of 105 patients (73.4%, n=143) completed the questionnaire.</li> <li>- Most participated patients received consultations in general practices (85.7%), and some received consultations in community pharmacies (11.4%).</li> <li>- The majority of the patients were 'strongly satisfied' and 'satisfied' with their consultations and were confident that the prescriptions from the pharmacist were as safe as the GP's.</li> <li>- Pharmacist prescribers were considered approachable, and therefore most patients would recommend consulting them. However, some patients preferred consulting their GPs if they felt there to be a deterioration in their health.</li> </ul>

Abbreviations: LTC, long-term condition; GP, General practitioner.

**Table S2. Studies on patients' perspective of a telehealth/telecare system.**

Author	Aim	Target patients	Method	Summary of the results
Lee P.A. <i>et al.</i> 2018 (31)	To explore patients' perceptions of using telehealth for T2DM management.	Patients with T2DM	Semi-structured interviews with 10 adult patients with type 2 diabetes from the NHS Newham area in London, UK.	<ul style="list-style-type: none"> <li>- Telehealth had the potential to enhance patients' quality of life, allow patients to live independently at home and control their health status.</li> <li>- Patients with T2DM supported the use of telehealth for the routine care of their diabetes.</li> </ul>
Dale J. <i>et al.</i> 2009 (32)	To test trial design issues related to measuring the effectiveness of a peer telephone intervention to enhance self-efficacy in patients with T2DM; to evaluate the impact on self-efficacy and the clinical outcome; and to describe patient and peer experience.	Patients with T2DM	Patients with T2DM were recruited from 40 general practices and randomised to receive routine care alone or, in addition, motivational telephone support from a peer supporter or a diabetes specialist nurse for a period of up to six months. Patients and telecare supporter satisfaction and experience were evaluated using a non-validated questionnaire.	<ul style="list-style-type: none"> <li>- There were no statistically significant differences in the self-efficacy scores (P=0.68), HbA1c (P=0.87) or other secondary outcome measures.</li> <li>- There was evidence of a high level of service acceptability, but peer telecare support was less highly valued than the care received from a diabetes specialist nurse.</li> <li>- Some patients stated that they would have valued more information and advice.</li> </ul>
Bond C.S. <i>et al.</i> 2015 (33)	To evaluate a local telehealth programme introduced by the Dorset Clinical Commissioning Group for patients with chronic obstructive pulmonary disease and chronic heart failure.	Patients with COPD or chronic heart failure	Twenty-nine patients participated in telephone interviews after they had been using the system for three months. Healthcare professionals, mainly nurses who used the system to manage patients, were also interviewed.	<ul style="list-style-type: none"> <li>- Most patients found the telehealth system easy to use, even if they did not have prior experience with using computers and technology.</li> <li>- Patients were using the telehealth system, often beyond the parameters of the formal telehealth scheme, to develop effective self-management techniques and get the maximum benefits.</li> <li>- Patients did not report that their healthcare professionals were educating them. However, healthcare professionals thought they provided adequate education for their patients.</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; NHS, National Health services; HbA1c, glycosylated haemoglobin concentrations; COPD, chronic obstructive pulmonary disease.

**Table S2. Studies on patients' perspective of a telehealth/telecare system. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Long A.F. <i>et al.</i> 2005 (34)	To examine patients' acceptance/satisfaction with a telephone support to improve blood glucose in T2DM.	Patients with T2DM	A randomised control trial to evaluate patients' acceptability and satisfaction with the telecare approach. A Diabetes Satisfaction & Treatment Questionnaire (DTSQ) was used. In-depth semi-structured interviews were also conducted with 25 patients to look in greater depth at any behaviour changing effect of the telecare approach.	<ul style="list-style-type: none"> <li>- The response rates were 79% in the DTSQ and 65% in the acceptability questionnaire.</li> <li>- Patients reported a high level of satisfaction with their treatment (95%) and &gt;90% 'strongly agreed' or 'agreed' that the telecare approach was acceptable.</li> <li>- The qualitative analysis highlighted the importance of personalised service, increased confidence and self-control, and helped problem-solving.</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; RCT, randomised control trial; DTSQ, Diabetes Satisfaction and Treatment Questionnaire.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting.**

Author	Aim	Target patients	Method	Summary of the results
McDowell J.R. <i>et al.</i> 2009 (2)	To explore the perceptions of adults with T2DM towards the service redesign where the T2DM management was moved from a secondary to a primary care setting, and patients received care from multi-professional primary care teams.	Patients with T2DM	In total, 35 adults with T2DM participated in eight focus groups between 2003 - 2004. There were 23 participants in the five focus groups in 2003 and 12 in the three focus groups in 2004.	<ul style="list-style-type: none"> <li>- Patients with T2DM appreciated their care management by the multi-professional primary care teams.</li> <li>- Healthcare resources were required to support the development of staff and the required infrastructure to increase primary care services.</li> <li>- Policymakers and services implementers needed to address the balance of resources between primary and secondary care.</li> </ul>
Gulliford M.C., <i>et al.</i> 2007 (35)	To determine whether experienced continuity in patients with T2DM is associated with control of HbA1c, BB and BW or with a health-related quality of life and patient satisfaction.	Patients with T2DM	A total of 209 patients with T2DM agreed to participate. The main measures included experienced CoC using a patient questionnaire, satisfaction with care, health-related quality of life [short-form 12 (SF-12)], HbA1c, BB & BW.	<ul style="list-style-type: none"> <li>- Patients with the highest satisfaction ratings had more experience with CoC, compared with the lowest satisfaction ratings (P=0.001).</li> <li>- Experienced CoC was not associated with changes in the HbA1c level (P=0.402), systolic blood pressure (P=0.746), body mass index (P=0.562) or quality of life (SF-12 physical component score, P=0.375).</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; HbA1c, glycosylated haemoglobin concentrations; BB, blood pressure; BW, body weight; CoC, continuity of care; SF, Short form survey.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Tarrant C. <i>et al.</i> 2015 (36)	To explore patients' experiences of discontinuities in care and to gain insight into how gaps come to be bridged and why they might remain unresolved.	Adult patients where most of participants had at least one LTC	Semi-structured face-to-face interviews with patients with LTCs who were recruited from 15 general practices and one walk-in centre. Topics covered were: positive and negative aspects of the GP practice, recently used primary care services, experiences of accessing primary care, choices in relation to continuity of carer & views on sharing information.	<ul style="list-style-type: none"> <li>- Most patients experienced having gaps in their care because of the lack of communication and coordination of services at a transition between different services (e.g. post-discharge services were not arranged).</li> <li>- Problems related to the coordination of care included difficulties in the coordination of management, and treatment or responsibility for care between multiple different healthcare professionals.</li> <li>- Informational discontinuity when transferring between different healthcare providers or settings was implicated (e.g. GP not receiving letters from outpatient clinics).</li> <li>- Most patients who reported 'falling through gaps' of CoC had complex, chronic conditions and multi-morbidity.</li> </ul>
Sixsmith J. <i>et al.</i> 2013 (37)	To explore the experiences of service users & providers during the implementation of the National Service Framework (NSF) for long-term neurological conditions (LTNCs).	Patients living with LTNCs	Fifty face-to-face semi-structured interviews with service users (with LTNCs) were conducted to explore the implementation experiences of the NSF. Twenty-five patients were re-interviewed on three occasions.	<ul style="list-style-type: none"> <li>- One of the important identified themes was 'Better connected services'. Patients believed that they received effective care in hospital settings, but they experienced discontinuity of care on return to community settings despite their on-going needs.</li> <li>- Many patients experienced delays in receiving treatment and rehabilitation. They believed this was attributed to a lack of awareness or of knowledge of LTNCs by GPs.</li> </ul>

Abbreviations: LTCs, long-term conditions; GP, General practitioner; NSF, National Service Framework; LTNCs, Long-Term (Neurological) Conditions.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Naithani S <i>et al.</i> 2006 (3)	To identify patients' experiences and values with respect to continuity in diabetes care within a range of settings, with the aim of identifying items that comprised different dimensions of CoC.	Patients with T2DM	In-depth semi-structured interviews with 25 patients with T2DM from 14 general practices. The main topics covered include: the circumstances surrounding patients' diagnosis and type of care provided, experience of care in general practice and hospital settings, patient-provider relationships, service flexibility and meeting patients' needs.	<ul style="list-style-type: none"> <li>- Problems from a lack of experienced continuity mainly occurred at transitions of care (i.e. between sites of care, between providers) or with major changes in patients' needs.</li> <li>- The analysis identified aspects of care that were valued by the patients and consistent with the four dimensions of experienced CoC, which include: <ul style="list-style-type: none"> <li>- Patients were receiving regular reviews with clinical testing (longitudinal continuity).</li> <li>- They had a good relationship with their usual healthcare provider who knew them, was concerned and interested, and gave them ample visit time (relational continuity).</li> <li>- They had flexibility in making/changing appointments and getting appropriate advice, when required. However, some patients described hospitals as having less flexibility in appointments.</li> <li>- Patients also believed there was both consistency and co-ordination between different healthcare professionals, and between hospital and general practice or community settings (team continuity).</li> <li>- Some believed that their information was available for their care providers while others experienced problems related to information transfer between different healthcare providers.</li> </ul> </li> </ul>

Abbreviations: CoC, continuity of care; T2DM, type 2 diabetes mellitus.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Cowie L. <i>et al.</i> 2009 (38)	To examine patients' experiences of CoC in the context of different LTCs and models of care, and to explore implications for the future organisation for the care of long-term conditions.	Patients with one of the following LTCs: arthritis, coronary heart disease, stroke, hypercholesterolaemia, hypertension, diabetes mellitus or COPD	Semi-structured interviews were carried out with 33 patients, who had at least one of the following long-term conditions: arthritis, stroke, coronary heart disease, hypertension, diabetes mellitus or chronic obstructive pulmonary disease, and hypercholesterolemia.	<ul style="list-style-type: none"> <li>- Serious communication breakdowns were reported, which could harm patients and lead to medication errors when patients were transferred between different sites. Delay in communication between sites was commonly reported in patients with comorbidities and who needed to have care from more than one location and from different professionals.</li> <li>- Informational discontinuity post-hospital discharge was common, which led to disrupted care, confusion and patients' dissatisfaction.</li> <li>- Access to primary care and flexibility issues were identified as important barriers of continuity (e.g. difficulty in making appointments and responses to urgent requests). This was also related to the workload, annual/sick leave, and staff turnover.</li> </ul>
Paddison CA <i>et al.</i> 2015 (39)	To describe and explain the primary care experiences of people with multiple LTCs in England.	Patients with any LTCs (e.g., hypertension, diabetes, arthritis, heart problems, long-term chest problems, cancer, epilepsy, long-term mental problems)	The GPPS was used to evaluate primary care experiences of patients with LTCs. Patients' experience considered three main domains: the accessibility, CoC, and communication with staff.	<ul style="list-style-type: none"> <li>- Most patients (from 74% to 93%) reported positive experiences of care with their GPs.</li> <li>- However, an increasing number of comorbidities was associated with a reducing percentage of patients' positive experiences of the services provided in primary care (for all three domains).</li> </ul>

Abbreviation: CoC, continuity of care; LTCs, long-term conditions; COPD, chronic obstructive pulmonary disease; GPPS, General Practice Patient Survey; GP, General practitioner.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Campbell, S. <i>et al.</i> 2010 (40)	To explore reported experiences of patients with LTCs between 2003 and 2007, after the introduction of the Quality and Outcomes Framework (QOF). System reforms, where a pay-for-performance scheme was introduced as part of arrangement changes for GPs. The study also compared these experiences with general population samples of registered patients across the same period.	Patients with LTCs (diabetes, asthma and angina)	Questionnaires were sent to serial samples of patients with LTCs in 42 general practices in England. Study cohorts included a group from a random sample of adult patients (without any LTCs) and patients with LTCs from 2003, 2005 and 2007. Topics covered were: issues of access, communication, CoC & coordination, nursing care, and overall patient satisfaction.	<ul style="list-style-type: none"> <li>- There were no significant changes in the quality of care reported by the study cohorts for communication, coordination and nursing care.</li> <li>- Some aspects of access (i.e. being able to make an urgent appointment on the same day or an appointment with any/particular physician within 48 hours) improved significantly for patients with long-term conditions. However, this significant improvement was not observed in the random samples of patients.</li> <li>- Both random samples of patients and patients with long-term conditions reported seeing their usual physician less often and being less satisfied with the continuity of their care. However, there was no significant difference in patients' overall satisfaction.</li> </ul>

Abbreviations: LTCs, long-term conditions; QOF, Quality and Outcomes Framework; GP, General practitioner; CoC, continuity of care.

**Table S3. Studies on patients' perspective on services provided by primary care teams to ensure the CoC/ToC from a secondary to a primary care setting. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Alazri, M. <i>et al.</i> 2006 (41)	To explore the perceptions/experiences of CoC in general practice from the perspectives of patients with T2DM, focusing on the advantages and disadvantages of different types of continuity.	Patients with T2DM	Focus group interviews were conducted with 79 patients with T2DM from seven practices in Leeds, UK.	<ul style="list-style-type: none"> <li>- Patients experienced different types of continuity: (1) relational continuity, (2) cross-boundary or team continuity, and (3) continuity of information.</li> <li>- Several factors influenced patients' perceptions of continuity; these included a personal relationship with other patients and healthcare professionals, personal beliefs and behaviours, presence of diabetes, and the structure &amp; systems of general practices.</li> <li>- Patients identified some advantages and disadvantages of the two types of continuity (the relational and the boundary/team continuities).</li> <li>- They believed that the relational continuity was important in providing psychosocial care, but with a risk of misdiagnosis. While the cross-boundary/team continuity was important in providing physical care, and its main disadvantages were patient confusion and the absence of personal care.</li> </ul>

Abbreviations: CoC, continuity of care; T2DM, type 2 diabetes mellitus.

**Table S4. Studies on patients' perspective of other primary care support by nurses or general practitioners.**

Author	Aim	Target patients	Method	Summary of the results
Lawton J. <i>et al.</i> 2006 (42)	To explore the experiences and views of Pakistani and Indian patients' about diabetes services to inform the development of culturally sensitive services.	Patients with T2DM	Face-to-face interviews with 23 Pakistani & 9 Indian patients with T2DM, recruited from GP practices and the local community in Edinburgh. The interviews explored the past/present use of this service for diabetes and other medical conditions; patients' expectations; likes or dislikes of the services received & their reasons for non-attendance.	<ul style="list-style-type: none"> <li>- As services were free of charge, patients believed that there was a uniform standard of care provided by healthcare professionals.</li> <li>- All respondents reported using primary and secondary care services, and most were receiving/preferred diabetic reviews in the hospital while some preferred using primary care services because they were local and easily accessible.</li> <li>- Most patients looked to services for the prompt detection/treatment of complications rather than for providing education and management advice.</li> </ul>
Walker A <i>et al.</i> 2006 (43)	To assess the effectiveness of ambulance service referral to dedicated diabetes specialist nurse (DSN) teams for patients with hypoglycaemia who were treated and left at home following an emergency call, and to assess pathway satisfaction.	Patients with diabetes	Thirty-eight patients were referred to the DSN in the three-month period. Patients were contacted by the DSNs within seven days, and a further review was arranged, as required. Patients' satisfaction was also measured.	<ul style="list-style-type: none"> <li>- Of the 26 patients that returned the satisfaction questionnaire, 88% 'agreed' or 'strongly agreed' that DSNs had improved their understanding of hypoglycaemia.</li> <li>- 73% of the patients felt more able to self-control their hypoglycaemic episodes.</li> <li>- Patients had a high satisfaction rate with the ambulance service provided by the DSNs in terms of speed (88%), treatment (96%), attitude (96%) &amp; referral explanation (88%).</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; GP, General practitioner; DSN, diabetes specialist nurse.

**Table S4. Studies on patients' perspective of other primary care support by nurses or general practitioners. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Lawton J. <i>et al.</i> 2005 (44)	To explore newly diagnosed T2DM patients' views about Scottish diabetes services at a time when these services were undergoing a major reorganisation from secondary to primary healthcare settings.	Patients with T2DM	Face-to-face in-depth interviews with 40 patients diagnosed with T2DM within the previous six months. Interviews were conducted three times over one year. Patients were recruited from 16 general practices. Key topics explored included: contact with services and healthcare providers; likes/dislikes about the types of services received and healthcare providers; future expectations for diabetes care and service delivery; information received from non-NHS sources; and patients' experiences of self-managing their diabetes.	<ul style="list-style-type: none"> <li>- Most patients were satisfied with the diabetes services regardless of the types of care received.</li> <li>- Most preferred having their future care/review with GPs (in the primary care setting instead of secondary care) for reasons of convenience and accessibility. However, some were unsatisfied with the flexibility of making an appointment with GPs.</li> <li>- Patients articulated a need to be able to access healthcare professionals easily and to have ample visit time to address all of their questions and concerns.</li> <li>- Many believed that they lacked the knowledge and confidence to self-manage their diabetes in specific situations and needed access to healthcare professionals who could help them. Therefore, patients expressed a need for diabetes services in primary care settings by healthcare professionals who had more time and diabetes expertise and who were more accessible than GPs.</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; NHS, national health services; GP, General practitioner.

**Table S4. Studies on patients' perspective of other primary care support by nurses or general practitioners. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Lawton J. <i>et al.</i> 2005 (45)	To explore patients' perceptions of their disease and the health services they receive at a time when the restructuring of services was being considered.	Patients with T2DM	In-depth interviews with 40 patients, newly diagnosed with T2DM, who had different experiences of services (some received GP-based care only, while others contacted with diabetes clinics). Interviews were conducted three times at six monthly intervals over one year. Patients were recruited from 3 hospitals & 17 general practices. Many key topics were explored such as: contact with health services since diagnosis/last interview; perceptions of the disease & current/future health; intention/commitment to adhere to diabetic regimens and other disease risk-management advice; and views about current service provision & preferences for future diabetes care.	<ul style="list-style-type: none"> <li>- Patients differed in their views of the particular services they had received and in their preferences for future diabetes care and service delivery.</li> <li>- Some patients reported very high expectations of services, while others did not.</li> <li>- This was related to patients' knowledge and awareness of their disease condition and their level of engagement in the control of their condition (e.g. making active efforts to lose weight and to cease smoking).</li> <li>- The lack of engagement with care providers &amp; services was related to patients' understanding of their health problems and medical needs.</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; GP, General practitioner.

**Table S4. Studies on patients' perspective of other primary care support by nurses or general practitioners. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Lawton J. <i>et al.</i> 2009 (46)	To examine patients' perceptions and experiences over time of the devolvement of diabetes care and reviews from secondary to primary health-care settings.	Patients with T2DM	In-depth interviews with 20 patients with T2DM recruited from primary & secondary care settings over four years, across Lothian, Scotland	<ul style="list-style-type: none"> <li>- The study focused on GP service, but it also covered the transition of care from secondary to primary care.</li> <li>- Patients gained reassurance that receiving practice-based care and reviews signified that their diabetes was well-controlled.</li> <li>- Patients believed that GPs had adequate expertise to conduct their practice-based reviews, more than the nurses in primary care.</li> <li>- Receiving holistic care in general practice was not always realised due to patients seeing healthcare professionals for T2DM management to whom they would not normally present for other health issues.</li> </ul>
Joyce K.E. <i>et al.</i> 2009 (47)	To explore patients' experiences of condition management programmes (CMPs) in terms of health, employability and well-being	Patients with any LTCs	Four focus groups and nine semi-structured interviews were conducted to capture patients' experiences of using and participating in one of five different CMPs: Cardiac Rehabilitation, Lower Back Pain Services, Counselling, Smoking Cessation and GP Exercise Referral Programme. The programmes were delivered in primary care settings.	<ul style="list-style-type: none"> <li>- Patients had positive experiences of the CMPs, and they reported improvements in their health behaviours (e.g. better diet control &amp; increased exercise), and positive psychosocial outcomes (e.g. increased self-esteem, confidence, and social support).</li> <li>- Patients reported a lack of CoC and follow-up in the counselling and GP referral programmes.</li> <li>- Patients believed that short-term CMPs were unhelpful as they were left unsupported once the intervention ended.</li> <li>- Several patients also had concerns about the services' accessibility, as it was difficult and time-consuming.</li> <li>- The interviewees believed that the referral process could be made more streamlined and efficient and less medicalised.</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; GP, General practitioner; CMPs, condition management programmes; LTCs, long-term conditions; CoC, continuity of care.

**Table S4. Studies on patients' perspective of other primary care support by nurses or general practitioners. (Cont.)**

Author	Aim	Target patients	Method	Summary of the results
Gillibrand W. 2000 (48)	To assess patient needs, experiences and satisfaction with the mobile eye-screening service.	Patients with diabetes	A focus group study was undertaken with patients with T2DM who had attended the community-based mobile eye-screening unit at their GP practice.	<ul style="list-style-type: none"> <li>- Patients were satisfied with the mobile eye-screening service because it was local, easily accessible and mobile compared to the central hospital-based service.</li> <li>- The analysis identified patients' lack of knowledge in important areas such as the processes of service delivery, the rationale for the service, and diabetic eye disease.</li> <li>- Some of the identified disadvantages of the service included: accessibility problems for less mobile people, a lack of access to other services (e.g. a diabetes specialist nurse for treatment advice), and sometimes privacy problems during the assessment.</li> </ul>
Alazri M.H. <i>et al.</i> 2003 (49)	To determine if there is an association between patients' satisfaction and the outcome of diabetic care. In addition, the study aimed to determine the contribution of different aspects of satisfaction with primary care services.	Patients with T2DM	Patients were identified from two general practices in Leeds. Patients' satisfaction was measured using the General Practice Assessment Survey Questionnaire (GPAS). Patients' HbA1c level was also evaluated and collected from their medical records.	<ul style="list-style-type: none"> <li>- There was a high satisfaction level (78%) with primary care services for all GPAS domains.</li> <li>- There was a positive correlation between different GPAS domains &amp; the HbA1c level for CoC, trust &amp; satisfaction with primary care services (P&lt; 0.001).</li> <li>- There were positive correlations between different GPAS domains &amp; the HbA1c level for access to primary care, communication, doctors' knowledge, technical care, and interpersonal care (P&lt; 0.01).</li> <li>- No relationship was found between patients' overall satisfaction with primary care services &amp; other demographics (e.g. age, sex) &amp; medical factors (e.g. the duration of diabetes &amp; the presence of complications).</li> </ul>

Abbreviations: T2DM, type 2 diabetes mellitus; GPAS, General Practice Assessment Survey Questionnaire; HbA1c, glycosylated haemoglobin concentrations; CoC, continuity of care.

**Supplementary file 3: Consolidated criteria for reporting qualitative studies (COREQ).**

No.	Item	Description	Section #
<b>Domain 1: Research team and reflexivity</b>			
<b>Personal characteristics</b>			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	Sarah M khayyat (SMK)
2.	Credentials	What were the researcher's credentials? E.g. PhD, MD	MSc
3.	Occupation	What was their occupation at the time of the study?	PhD student
4.	Gender	Was the researcher male or female?	Female
5.	Experience and training	What experience or training did the researcher have?	SMK has attended different training sessions/courses on using interviews in qualitative research to support the effective delivery of the interviews. SMK was also seeking support from the supervisory team, who have extensive experience of interviewing patients
<b>Relationship with participants</b>			
6.	Relationship established	Was a relationship established prior to study commencement?	SMK had no prior relationships with any of the participants
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? E.g. Personal goals, reasons for doing the research	None of the participants knew the interviewer or any of the research team members prior to the interview
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? E.g. Bias, assumptions, reasons and interests in the research topic	No characteristics were reported
<b>Domain 2: Study design</b>			
<b>Theoretical framework</b>			
9.	Methodological orientation and theory	What methodological orientation was stated to underpin the study? E.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Thematic framework analysis – page 9

No.	Item	Description	Section #
<b>Participant selection</b>			
10.	Sampling	How were participants selected? E.g. purposive, convenience, consecutive, snowball	A convenience sampling technique was used – page 8
11.	Method of approach	How were participants approached? E.g. face-to-face, telephone, mail, email	Email – page 8
12.	Sample size	How many participants were in the study?	11 participants in total (4 healthy individuals, 1 carer and 6 patients) – page 10
13.	Non-participation	How many people refused to participate or dropped out? What were the reasons for this?	No participants dropped out. All participants who were asked to participate agreed to do so – page 10
<b>Setting</b>			
14.	Setting of data collection	Where was the data collected? E.g. home, clinic, workplace	Meeting room in Newcastle University (10 interviews); telephone (one interview) – page 8
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	No – page 8
16.	Description of sample	What are the important characteristics of the sample? E.g. demographic data, date	See Table 1 (page 10-11)
<b>Data collection</b>			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	The authors wrote the questions and prompts were given during the interviews if needed. No pilot testing (page 8, also see Supplementary file 4)
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	No – page 7
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Audio recording and verbatim transcription – page 9
20.	Field notes	Were field notes made during and/or after the interview or focus group?	Memo writing and reflection log were used after each interview – page 9
21.	Duration	What was the duration of the interviews or focus group?	The average length of the interviews was 47 mins $\pm$ 14 mins (page 10)
22.	Data saturation	Was data saturation discussed?	Yes in page 7
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No – page 8

No.	Item	Description	Section #
<b>Domain 3: analysis and findings</b>			
<b>Data analysis</b>			
24.	Number of data coders	How many data coders coded the data?	One (SMK) – page 9, 19
25.	Description of the coding tree	Did authors provide a description of the coding tree?	Yes – four themes and five sub-themes (see Table 2, page 12)
26.	Derivation of themes	Were themes identified in advance or derived from the data?	A combination of thematic inductive and deductive analysis was employed – page 9
27.	Software	What software, if applicable, was used to manage the data?	Nvivo12 computer software – page 9
28.	Participant checking	Did participants provide feedback on the findings?	No – page 8
<b>Reporting</b>			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? E.g. Participant number	Yes – See Table 2 and 3 (page 12, 15)
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes (page 13)
31.	Clarity of major themes	Were major themes clearly presented in the findings?	Yes in Table 2 (page 12)
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes in Table 2 (page 12)

**Supplementary file 4: Interview Guide with patient and the public**

<b>Opening the discussion</b>	
<ul style="list-style-type: none"> <li>- Greet the participants and thank them for taking part in the research.</li> <li>- Explain again the purpose of my study.</li> <li>- Ask participants if they would like to ask any question before starting the discussion.</li> <li>- Emphasise participants that there is no right or wrong answer and that I am just interested in their experiences.</li> <li>- Discuss the participant information sheet, if the participant has not read it in advance.</li> <li>- Discuss the participant informed consent and ensure it is signed.</li> <li>- Complete the patient's demographic form.</li> <li>- Check the audio recorder and ask the participants if they are happy to begin the discussion.</li> </ul> <p>Before we start this group discussion, I would like to confirm you know that:</p> <ul style="list-style-type: none"> <li>- Your participation in this study is completely voluntary.</li> <li>- You are free to withdraw but only up to the conclusion of the discussion.</li> <li>- The discussion will be strictly confidential and anonymised and all information disclosed during this discussion will only be available to the research team. Excerpts from this discussion may be part of the final report of the project. However, information used in the project report will NOT be linked back to you. All reports and information collected will be stored securely at Newcastle University.</li> </ul> <p>Are you ready to proceed with the discussion?</p>	
<b>Body of the discussion and research questions</b>	
<p>The questions will be about transfer of care services, and the discussion will consist of four parts:</p> <ol style="list-style-type: none"> <li>a. Patients' awareness of hospital to community pharmacy referral services.</li> <li>b. Patients' acceptance/willingness to be referred to and interact with their community pharmacist post hospital discharge.</li> <li>c. Patients' positive and negative experiences/views and expectations of using hospital to community pharmacy referral services and post-discharge community pharmacy services.</li> <li>d. The difficulties and challenges associated with being unable to visit the CP and use the service post-discharge.</li> </ol>	
<b>a. Patients' awareness of hospital to community pharmacy referral services</b>	<ol style="list-style-type: none"> <li>1. What do you know about the transfer of care service where hospital inpatients are referred to their community pharmacy for care after they are discharged? <b>Prompt:</b> <ul style="list-style-type: none"> <li>- How much do you know about it? Can you tell me more?</li> </ul> </li> <li>2. How was it introduced / you heard about it? <b>Prompt:</b> <ul style="list-style-type: none"> <li>- How do you think inpatients should be told about it?</li> </ul> </li> </ol>

<p><b>b. Patients' acceptance/willingness to be referred to and interact with their community pharmacist post hospital discharge</b></p>	<ol style="list-style-type: none"> <li>1. What do you think about such a service being offered?</li> <li>2. What are your expectations about how the service can help you or patients?</li> <li>3. Do you think community pharmacists have enough knowledge and are helpful to manage patients and their condition? <b>Prompt:</b> - How did you develop this knowledge/perception?</li> <li>4. How do you perceive the care you receive in community pharmacy as opposed to the care you receive in the hospital? <b>Prompt:</b> - Think about the flexibility of making an appointment, appropriate call timing/duration, and problem-solving.</li> <li>5. What are your thoughts on this service being provided to patients with short-lasting conditions? And what about if they had a long-term condition, like asthma? And what about diabetes?</li> </ol>
<p><b>c. Patients' positive and negative experiences/ views and expectations of using post-discharge community pharmacy services.</b></p>	<ol style="list-style-type: none"> <li>1. Overall, how would you describe your experience of using community pharmacy services post-discharge? (Think about the post-discharge continuity of care and personalised care). <b>Positive experiences/views</b></li> <li>2. What are some of the possible benefits of such services? <b>Negative experiences/views</b></li> <li>3. Do you have any negative feedback with using such services?</li> <li>4. Do you have any issues using them? <b>Prompt:</b> - Do you have any problem in sharing your hospital admission data with your registered community pharmacy? (data sharing concern) - What personal information would you like/dislike to share?</li> </ol>
<p><b>d. The difficulties and challenges associated with being unable to visit the CP and use the service</b></p>	<ol style="list-style-type: none"> <li>1. What do you think might be the main difficulties in using the service? <b>Prompt:</b> - Do you have any communication difficulties with community pharmacies?</li> <li>2. What would stop you or patients from wanting to try or use one of the community pharmacy services? <b>Prompt:</b> - Is your pharmacy accessible to patients with disabilities? - Do you manage to see your pharmacists when needed? - What do you think the other reasons for not using the service?</li> <li>3. What are your recommendations for future service delivery?</li> </ol>
<p><b>Closing the discussion</b></p>	
<ul style="list-style-type: none"> <li>- Ask the participants if they would like to add or ask about anything else before closing the audio recorder and finishing the interview.</li> <li>- Thank the participant again for taking part in the study.</li> </ul>	